

Examining the Ethical Implications of Virtual Reality in Journalism

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Master of Arts

by
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Chapter 1: Introduction

Virtual reality storytelling is no longer just a fleeting trend in journalism. The method invokes a heightened sense of empathy and establishes a superior sense of immersion. Through the years, new technology has reinvented how we understand the world around us by stimulating our senses in a new manner. The emergence of the printing press allowed us to read and share our thoughts and ideas, and radio eventually allowed us to hear and vocally share ideas. Television paved the way to see the exchange of information and immersive media is the next frontier that brings us into a 3-D space and enables us to feel as if we're present with one another. There are well-established ethical and professional standards for photojournalism, print journalism, and broadcast journalism. Virtual reality journalism brings a new set of ethical challenges, and new standards must be highlighted to address the medium's unique capabilities.

The goal of this project isn't to break from the bedrock journalistic values such as truth seeking, public service and objectivity. Instead, this project will highlight the current ethical challenges journalists are facing when using virtual reality. This project will evaluate the strategies industry leaders have adopted to uphold journalistic standards in this new medium. Until 2010, news organizations never considered the possibility of transporting someone to a different location where the audience could explore a story in a peripheral 360-degree video setting. In the seven years since then, VR in journalism now is capable of giving participants the agency to physically move through a virtual space and interact with their environment. This speaks to the rapid pace of progression of this

medium, and the struggles news organization have experienced to keep pace and establish ethical standards.

Journalists are currently presented with the challenge of providing context, building narratives, and respecting their subject's autonomy while using a form of technology that at its core, makes this process much more difficult. No longer can a journalist move around a scene to capture moments from tight, medium, and wide angles. Instead, a journalist is forced to remove him or herself from the scene and has passed the reigns of control to the viewers.

I decided to choose this topic because I felt I could use my prior experience in VR journalism to fill a void of research. During my senior year as an undergraduate student at the Missouri School of Journalism, I was introduced to the powers of storytelling in virtual reality. In the fall of 2015, two other students and I were paired with a team at the Associated Press to create one the organization's first story packages using immersive media. For three months, we experimented with technologies like 360-degree video and 3-D scanning to cover the construction of the 2nd Avenue Subway in New York City. This project was the stepping-stone in my young career that introduced me to a network of media innovation I consistently leveraged to accomplish this project.

Along with the 2nd Ave. Subway story, I produced another 360-degree video story this summer that commemorated the life of Cecil Esau, a member of the African National Congress during the era of Apartheid in South Africa. This story was done in partnership with The Center for the Digital Globe and the University of Western Cape in Cape Town, South Africa. The story covered Esau's time on Robben Island, a political prison used by the Apartheid government to detain leaders of the opposition party. Esau spent four years

on the island from 1987-1991 and was a key figure in politically organizing fellow political prisoners after the Apartheid government fell. The production of this story played a significant learning experience because it helped me realize the challenges of providing context in a 360-degree video setting.

Throughout my time in graduate school, I've slowly made a transition in my career path from multimedia production to media strategy. Working on the strategic side of journalism has allowed me to introduce others to the capabilities of immersive media, while also paving a new workflow for the future.

To complete the professional component of this project, I worked as an emerging media fellow the Associated Press' strategy team. On top of diving deep into the ethics of virtual reality, I also wrote business plans, brainstormed future initiatives, and helped build partnerships with various media organizations in New York City. One of my most significant projects at the AP was a VR industry report I co-authored titled "The Age of Dynamic Storytelling: A guide for journalists in a world of immersive 3-D content." This report presented a new model to storytelling for journalists leveraging immersive media. While this project references interviews that were conducted for "The Age of Dynamic Storytelling," the interview transcripts I've included in the appendix of this project were the interviews that directly focused on the ethics of VR in journalism. I was also responsible for integrating various startups from the media incubator Matter into the editorial workflow at the AP. I also had the opportunity to attend a variety of events at some of New York's leading media centers such a Google where I participated in a workshop focused on building strategies to integrate artificial intelligence into a newsroom. Throughout the summer and fall I also hosted a variety of presentations,

master classes and webinars to groups of journalists visiting the AP, journalism students and media professionals. The purpose was to share knowledge on the AP's strategic initiatives and their involvement in the field of immersive media. I believe these opportunities greatly improved my confidence and ability to present in front of large audiences. This full-circle introduction to media strategy in action was the most invaluable experience of my career thus far, and I feel incredibly confident and more focused on how to position myself as I enter the job market.

Chapter 2: Activity Log

The following is a chronological summary of the events that took place in the 17 weeks I spent working in the strategy department at the Associated Press in New York City.

June 21 - 30

- Began work at the AP on Wednesday, June 21.
- Set the goal to accomplish three things throughout the summer:
 - Write an industry report on the future of VR and journalism.
 - Work with companies from the media incubator Matter to integrate their expertise into the AP's editorial workflow.
 - Build a plan for my future career.
- Filled out a grant from the Lenfest Institution in Philadelphia to pitch the creation of a virtual newsroom in partnership with Superbright, an emerging tech company in NYC.
- Created an outline for the VR report.
 - Started to reach out to industry leaders for interviews.
- Visited Matter, a media incubator AP has a partnership with, and was introduced to the six startups the AP can advise throughout the summer.
- Reached out to the University of Western Cape in Cape Town, South Africa to request archival video for the 360-degree video story I'm responsible to produce.

Weekly Summary: Since I originally pitched this project in late April, there have been some personnel changes that will inherently shift the focus of this project. Initially this

project was pitched with a concentration on VR ethics through an editorial lens, but it's now taking on a more strategic approach. Two weeks before I came to New York I was informed that my mentor Nathan Griffiths, a VR editor for the AP, has left to work at The New York Times. Luckily, Francesco Marconi, the AP's manager of strategy, has agreed to take his place. However, this move to the strategy team will broaden the focus of my professional work and academic research. Along with identifying the ethical challenges in VR journalism, Marconi and I have agreed to produce a report that can help journalists navigate the field of immersive media by developing a new model for storytelling in this medium. It was also decided to widen the scope of immersive media we will focus on. Instead of just focusing on 360-degree video, the report and my research will now cover a broad spectrum of immersive technology used in journalism such as volumetric capture, augmented reality, and computer-generated imagery. We plan to develop this model by interviewing thought leaders who are experimenting with VR in many fields such as journalism, academia, and entrepreneurship.

Week of July 3

- Met with Jim Kennedy, SVP of strategy at the AP, to discuss framework of the VR report.
- Met with Vigilant, a data service that can aggregate and draw insights from public government databases. Vigilant is also apart of the media accelerator Matter. We brainstormed the idea to do a series of stories on airlines delays and cancellations on a national scale.
- Met with founders of Grafiti, a mobile data visualization application and news feed. Grafiti is also apart of Matter. The strategy team advised Grafiti's founders

them to restrict users from accessing the data, and instead present the platform as a new source for data-driven stories. We plan to meet next week to come up with a plan specific to their AP involvement.

- Met with Multimer, a biosensor company that is tracing people's state of mind as they travel through lower Manhattan. Multimer is also apart of Matter.

Brainstormed a VR study that we could host at NYU in August for the report we are working on. Plan to have an outline for the study written and approved by next week.

- Interviewed Thomas Seymat, head of Euronews' VR/360-degree video unit on the strategies he shares with his reporters new to producing stories using 360-degree video.
- Interviewed Ole Krosgaard, an immersive journalist who formerly worked at Euronews on the challenges he faced in the field as a 360-degree video reporter.
- Haven't received a response from the University of Western Cape on the availability of archival video and have sent a follow-up request.

Weekly summary: This week gave me an introduction to how strategic work is conducted. Through meetings with startups like Grafiti, Vigilant, and Multimer I've recognized the vital role that partnerships play in planning future initiatives. These partnerships, such as AP's investment in the media accelerator Matter, enable for media companies to explore new technology, new workflows, and new products at a low cost. During my interviews, I learned that teaching journalists how to conceptualize stories in VR and 360-degree video has been a challenge for Euronews because of the freedom audiences have to control their field of view. To meet this

challenge Euronews regularly holds workshops that allow their VR journalists to share best practices with other reporters interested in using 360-degree video in their own reporting. Both Seymat and Krosgaard have found these workshops to be an efficient way to improve upon their 360-degree video stories and spread the adoption of VR in the newsroom.

Week of July 10

- Conducted an interview with the head of the United Nation's VR unit, Gabo Arora for the AP report.
- Conducted an interview with Molly DeWolf Swenson, co-founder of Ryot, an immersive media company for the AP report.
- Conducted an interview with Michael Madary, a philosophy professor at Tulane on a journal article he wrote on VR ethics. This transcript has been included in Appendix A.
- Conducted an interview with Deniz Erguel, the founder of a news outlet called Haptical, which is focused on the VR industry.
- Drafted a proposal for an AP + Multimer study at the NYC media lab. Planning to host the study during the second week of August.
- Attended a weekly speaker series at Matter and learned strategic career advice from Lindsay Stewart, the co-founder of Stringr, a video service for broadcast networks.
- Co-hosted a master class on artificial intelligence and journalism for a group of MU students visiting the AP.

- Received a response from the University of Western Cape stating that the original footage I requested cannot be used as it's under copyright from a third party. I've since sent another request for footage from another documentary.

Weekly summary: The week I worked with Francesco to craft a pitch for our biosensor study in partnership with Multimer. To get this pitch approved we first had to examine other VR studies and show the value of partnering with Multimer. What we found was the data collected in previous VR studies was qualitative and lacked the concrete understanding that biosensors can provide us. Next, we determined that our study participants should view VR stories across a variety of viewing devices to uncover how varying degrees of immersion affect the brain. We also want to show these participants a variety of stories such as war stories, entertainment stories, and science stories to determine the specific emotions related to each story subject. Overall, I've learned that in strategic planning you must emphasize the potential benefits and how they can lead to a greater understanding.

During this week's interviews, I also learned about the difficulty of distributing immersive media to the public. Right now 360-degree video is the most common form of VR because it's sharable through platforms like Facebook and YouTube. High-end forms of VR, such as volumetric video, are more difficult to access because they require an individual to own a premium headset, such as the HTC Vive. Because of the lack of access, newsrooms are hesitant to adopt and experiment with high-end forms of VR.

Week of July 17

- Interviewed Dan Archer, founder of Empathetic Media, an immersive media company on VR ethics. This transcript has been included in Appendix A.
- Interviewed Brittany Peterson, a 360-degree video journalist with McClatchy for the AP report.
- Interviewed Alexy Furman, founder of AftermathVR in Ukraine for the AP report.
- Interviewed Al Tompkins of Poynter about VR ethics. This transcript has been included in Appendix A
- Began writing the VR report and left placeholders for potential quotes and insights.
- Visited the VR studio Superbright and tested out a VR dating experience that will soon be released with Conde Nast.
- Visited the NYC Media Lab with a group of Chinese media executives who also visited the AP. Got the approval to host a VR study in August at the lab.
- Attended Matter's weekly speaker series and learned some strategic career advice from the CEO of NewsWhip, an analytics tool that shows how trending topics begin and grow on the internet.
- Received a response from the University of Western Cape that footage from the second documentary I requested can't be digitized. I've been transferred to the photo department to look for photos of the same subject, the Robben Island prison.

Weekly summary: This week Francesco and I began to draft our new storytelling model for VR journalism that we're calling "dynamic storytelling." After another round of interviews we've found that journalists using VR approach storytelling in a non-linear way and have to think through multiple perspectives in order to build an experience that encourages viewers to explore and unlock pieces of a narrative. We've include 'think through multiple perspectives,' as our first principle in the dynamic storytelling model.

My time at Superbright has exposed me to ways that VR can be used outside of storytelling. The blind dating experience I tested showed how audience participation is completely changed when multiple people can interact in a single virtual environment. Currently, newsrooms are focused on creating VR experiences for a single user, but in the future they can use Superbright's multiplayer approach to VR as a basis to re-conceptualize how nightly newscasts, talk shows and political debates are consumed by the public.

Week of July 24

- Visited LIFE VR at Time Inc. Conducted an interview with Mia Tramz, head of LIFE VR for the AP VR report.
- Interviewed Sean Cheng, an independent venture capitalist who has invested in many immersive media startups for the AP VR report.
- Interviewed Zahra Rasool, the head of Contrast VR, an immersive unit of Al Jazeera for the AP VR report.
- Worked on a report breaking down text-to-speech services with the product team to build knowledge on this artificial intelligence service. This report will be used

in the future to improve the AP's news experience on voice-enabled devices such as Amazon Echo.

- Started to build a business plan for Cortico, a social media scanner out of MIT and an AP partner.
- Locked down a room for the VR study at NYU and sent out a sign-up sheet to potential participants.
- Started doing freelance work for Superbright, a VR studio in Brooklyn. Was responsible for planning a marketing campaign for a VR event Superbright plans to hold in mid-October.
- Connected with the photo department at the University of Western Cape, selected photos that I want to use in my 360-degree video story and sent in a new request.

Weekly summary: This week's visit to Time Inc.'s LIFE VR newsroom was exciting because it showed me how companies are using VR for sponsored content to sustain their initiatives in immersive media. Because Time Inc. has a large presence in the entertainment industry through publications like People, they've been able to partner with film studios to create VR experiences that advertise summer blockbusters. This additional revenue allows LIFE VR to expand its capabilities and acquire the graphical skills needed to produce high-end VR. During my interview with Mia Tramz, I also learned that augmented reality is LIFE VR's key ingredient to introduce and encourage people to interact with immersive media. Recently LIFE VR built an augmented reality component in their mobile app that encourages readers of Sports Illustrated to scan the issue's cover and unlock a series of 360-degree videos on the cover story. This essentially connects immersive media to multiple platforms

and provides another avenue for audiences to access VR. This example led Francesco and I to create our second principle of dynamic storytelling, “connecting technologies and platforms.”

Week of July 31

- Held a dress rehearsal at the NYC media lab ahead of the VR study that will be held on August 12.
 - Continued to plan marketing material with Superbright for the VR exhibit they are hosting in partnership with Red Bull.
 - Attended an artificial intelligence hackathon at Google where I learned about Google’s various machine learning APIs. Worked on a team with three colleagues from the AP along with one person from ProPublica. We pitched an idea to use four different Google artificial intelligence services to create an app that collects player statistics and automates sports coverage.
 - Completed a rough draft of the VR report. Still looking for at least 10 more interviews.
 - Attended Matter’s weekly speaker series and heard from the general manager of Kickstarter, who shared strategies for career advancement in entrepreneurialism.
 - Communication with the University of Western Cape has stalled this week. I’ve sent a follow-up asking for the requested archival photos of Robben Island
- Weekly summary: This week’s most significant takeaway was found at the Google event on artificial intelligence. Here, I was able to collaborate with journalists from a variety of newsrooms to brainstorm how to best use artificial intelligence in the newsroom. Originally I came into this event only knowing about AI’s ability to

scale news production. For example, the AP currently has an AI system that can automatically turn earnings reports into text stories. This system has been able to increase the number of companies the AP is able to cover by a value of 10x.

However, at this event I was introduced to the ability of AI augmenting a reporter's workflow, allowing him or her to derive deeper insights from datasets or large sets of text. This event was extremely valuable as it deepened my knowledge of AI and gave me the resources to create my own AI pitches for the AP.

Week of August 7

- Visited NBC News to meet Paul Cheung, their director of digital journalism. Interviewed him for the AP VR report, and received career advice on how to best position my work in both editorial and strategic journalism work.
- Resolved some technical difficulties for the VR study at NYU.
- Finalized schedule for the people attending the VR study.
- Met with Grafiti and the AP interactive team to plan how they can help build on an initiative to include more graphical elements into the AP's top 25 rankings for football and mixed martial arts.
- Interviewed Eric Shamlin for the AP VR report. Shamlin is the co-founder of Secret Location, a content management system for VR.
- Hosted the VR study at the NYC media lab with Multimer. We studied 12 participants with varying degrees of prior VR exposure.
- Received a response from the University of Western Cape that their photo department is on vacation and won't be able to fill my photo request until next week.

Weekly summary: This week was extremely hectic but rewarding at the same time. The VR study with Multimer taught me a lot about juggling many responsibilities in action, as it was my job to manage the flow of the study. In order to ensure that we wouldn't run into any major roadblocks, I decided to write-up a schedule that would break the study into 15-minute blocks where our team wanted to either rotate each participant to new viewing device or story. This schedule helped keep everyone on the same page and was vital to the success of the study. Once the study participants arrived I was responsible for making sure that the VR equipment was working properly, while also coaching each participant how to use the viewing devices. I was also constantly checking to make sure the heart-rate monitors and the EEG sensors we connected to each participant was working properly, while the Multimer team was responsible for collecting and organizing the data throughout the study. There were a number of times when the cell phones connected to the VR headsets would overheat, but thankfully our team had planned ahead and made sure to we had a set of back-up phones and headsets. In the end, I attribute the success of this study to the planning the team at Multimer and I did to anticipate roadblocks and generate a plan to overcome them.

This week I also had the opportunity to visit one of my mentors, Paul Cheung, who works at NBC to talk about how to best position myself entering the job market. Throughout the summer I've had a hard time breaking down the value of spreading myself across multimedia production and media strategy during my time at MU. Paul challenged me to pick one area of focus and told me that my experience in both areas of a newsroom can work in my favor if can show how working in reporting made me

a better strategist and visa versa. After meeting with Paul I feel more confident in positioning myself by explaining how each project I've worked on acted as a building block that got me to the place I'm in today.

Week of August 14

- Putting all of this week's effort to set up more interviews while also iterating on the draft of the VR report we completed last week.
- Interviewed Saleem Khan, founder of JoVRLism, an immersive media blog for the AP VR report.
- Received email responses from people at The New York Times, The Washington Post, CUNY School of Journalism, and the Columbia School of Journalism.
- Attended Matter's design review where all twelve companies from New York and San Francisco met to pitch their product to venture capitalists and Matter's media partners, including AP. This gave me great insight into the process of raising money during the early days of a startup.
- Received archival Robben Island photos from the University of Western Cape. However, these were the low-resolution version and had UWC watermarks on them. I've responded asking for the watermarks to be removed.

Weekly summary: Attending Matter's design review has given me a lot of insight into the culture of startups and how they attract potential funders to sustain and grow their business. Throughout this event the 12 startups were only allowed seven minutes to give a pitch to venture capitalists. This is the second of three design reviews and the theme of today's event was to focus on the storytelling aspect of the pitch. I've learned from previous weeks attending Matter's speaker series that the ability to tell

an effective story is often valued more than the product itself. Most of these venture capitalists understand that the products these startups are pitching are still in development, so it's the startup's job to present a narrative that explains how their product can solve a problem that many people in journalism or media are facing. All three companies that the AP is involved in: Grafiti, Multimer and Vigilant struggled in this design review as they spent too much time showing a demo of their product, and failed to explain who their target audience is and how this audience benefits from their product. The feedback they received was to build a case study around a single hypothetical customer and show how they will discover the company, how they will use the product and how the product will make their work more efficient.

Week of August 21

- Continuing to chip away at the report, refining and building out certain sections based upon the interviews that are still trickling in.
- Interviewed Nonny De La Pena, one of the leaders in immersive journalism. Spent much of the interview discussing her approach to VR journalism has changed as the technology has become more accessible.
- Received responses from The Wall Street Journal, VR Focus, an immersive media news outlet, and the Tow Center at Columbia University.
- Communications with the University of Western Cape has stalled again and I've sent another follow-up email.

Weekly summary: This week was all about making sure that the VR report can resonate audiences who might be new to VR, or those who are VR experts. Through conversations with Francesco and our supervisor, Jim Kennedy, I've learned that the

best way to achieve this is to include as many examples and case studies as possible. The report right now is too bogged down with technical terms many VR novices might not understand. In the weeks to come we're going to focus on finding examples for every piece of the report that introduces a new technology, or a new approach to storytelling.

Week of August 28

- Met with Multimer to discuss their findings from the VR study. We outlined how we want to present the study as the second half of the VR report and voiced a need for more concrete findings from the data we collected.
- Met with EveryWoah, a Spanish company who has built a mobile 360-degree video application that is able to stitch the video and share within a mobile app.
- Received responses from the Google News Lab and The Wall Street Journal for the AP VR report.
- The rest of this week was focused on putting all efforts into editing the report.
- Received a response from the University of Western Cape saying that my request form wasn't clear on the specific high-resolution photos I requested. I've since filled out another request form clarifying these photos.

Weekly summary: This week I was given a deeper understanding into how Multimer is processing the data we collected during the VR study we held at the beginning of the month. I learned that Mutlimer first looks specifically at the alpha and theta waves collected through the EEG sensors each participant wore to determine their levels of attention and relaxation. Next, they compare these levels with their heart rate during a specific story and combine these three ingredients to

determine a specific emotion. This was a fascinating discussion and it gave Francesco and I the knowledge to start outlining our findings for the section of the report that will cover the VR study.

Week of September 4

- Had a call with my committee chair Randy Smith to outline a week-by-week plan to complete this project. The goal is to get all the written material to him by Oct. 16, so we have a month to review and revise before my defense. Also planning on coming back to Columbia around this time.
- Hosted a VR workshop at the AP with an editor in the interactive department for a group of media executives from Southeast Asia.
- Continued to work with Superbright on marketing for their Red Bull event.
- The VR report is now fully drafted and is awaiting edits from the marketing manager and the SVP of strategy before heading to the design team.
- Pitched three 360-degree video stories to The New York Times for freelance work, waiting on approval.

Weekly summary: This week's VR workshop with a group of journalists from China was particularly challenging because it forced me and one other VR producer to critically think about how to explain VR to a group of journalist who didn't have prior knowledge of the technology, and who were also constrained by a language barrier. Instead of presenting these journalists with a slideshow, producer Darrell Allen and I wanted to give these journalists the chance to experience VR for themselves. By making this presentation more interactive we were able to engage our

audience on a more personal level and didn't have to completely rely on a translator. I believe this was a great lesson in tailoring a presentation to a specific audience.

Week of September 11

- Design has come back for the VR report and Francesco and I are in the process of making final edits.
- Working on stories for Columbia Journalism Review to help promote the report.
- Also wrote a separate blog post for AP Insights that will go on the AP wire to promote the report.
- Brainstorming data stories with Grafiti for the AP on gentrification that we are hoping to put together before their final demo day on Oct. 17 at Google.
- Got my pitch approved for a 360-degree video story for The New York Times. I'm going to be working with Multimer again to make a 360-degree video on a study they did with bikers in Manhattan.
- Attended the third design review at Matter to see the six New York startups present to potential investors.
- Received a response from the University of Western Cape saying that the high-resolution photos I requested require a separate use form where I have to clearly state the context of using these photos. I completed this form and was told UWC will spend an additional week reviewing this request.

Weekly summary: This week provided me a great opportunity to leverage the network I've built to further experiment with 360-degree video production. I recently had a discussion with the Multimer's founder, Arlene Ducao, who said she wanted to use VR to share their findings on a bike study they're conducting. The Multimer bike

study is attempting to uncover the most stressful and most relaxing bike routes in lower Manhattan by connecting biosensors to pedestrians and bike couriers. Through my prior work with Nathan Griffiths, who left the AP for The New York Times in June, I was able to find an outlet that was willing to produce this story. The challenging part of this process, however, was broadening this story outside of the Multimer bike study and including a news component to make the story timely. Griffiths suggested that we connect the bike study to a NYC bike safety initiative called the Vision Zero program. This initiative is currently looking at new ways of reducing the amount of bike accidents in Manhattan. We believe that by connecting the goals of Vision Zero with Multimer's findings we can provide a well-rounded report that can give NYC residents a greater understanding of bike safety. Overall, this week was a great lesson in power of networking and I've learned how quickly great ideas can come to life with a solid network.

Week of September 18

- Developed story packages with Graffiti as a prototype for how involvement with the AP could be in the future. This pitch will be sent to the business desk for approval.
- Finalized the schedule for shooting 360-degree video with Multimer's bike study participants that will be featured in The New York Times.
- Sent early copies of the AP's VR report to the people interviewed for final edits and initial feedback. Decided to share the report a week in advance to also have interviewees share the report on the scheduled release date (September 26).

- Started to build slides to present the findings of the report to visitors coming to the AP. The hope is that we can test and practice the format and content of the presentation to refine our approach for an AP webinar that is scheduled for late October.

Weekly summary: This week really spoke to the iterative and collaborative process that has helped this VR report gain traction before it's even released. Even though we only have a week before the publication date, Francesco and I decided to share the report with all of the people we interviewed for them to review and share their feedback with us. At first I was hesitant to share the report so close to it being released. This spoke to the workflow I was accustomed to during my time reporting for news outlets at MU, such as the Columbia Missourian, Newsy and Global Journalist. We would never share our stories with sources prior to publication. There are ethical guidelines in reporting that do not allow the sharing of gathered information – except for the purposes of determining accuracy and context. The purpose of ethical guidelines is to avoid outside influence on the way stories, subjects and, events are depicted. However, Francesco reminded me that this report isn't news, but instead is the product of many people who want to see VR grow in the future. The ability for our interviewees to give us feedback strengthened the report throughout the writing, and it shouldn't stop now. Overall, I've learned that constant iteration, even when a product might seem final, can only help improve the final results.

Week of September 25

- Released the VR report on Tuesday the 26th via AP Insights, the AP's thought leadership blog.

- In the first week that the report was out, it was downloaded over 500 times, which shattered the average rate of downloads for any previous AP Insights report.
- Helped the strategy team host an internal futurecasting workshop with a variety of editors in the newsroom. The goal of the workshop was to examine new ways to adapt AP's content to fit the mold of new distribution channels such as social videos and voice-enabled devices.
- The story packages I pitched with Grafiti were shut down. Instead, the business desk has decided to hand over data on the opioid epidemic for Grafiti to use for their content.
- Filmed a 360-degree video story for the The New York Times in conjunction with Multimer.
- Began to draft supplementary articles to help promote the larger AP report.
- Revived a response from stating that my request for high-resolution photos of Robben Island has been approved and they will be sent next week.

Weekly summary: My main takeaway from this week revolved around the process of building a culture of innovation within a newsroom. I saw this in action through a workshop the AP hosted as part of their futurecasting initiative that seeks to improve on the AP's ability to gather, process and distribute news in a constantly evolving digital environment. It was a great to be apart of a session that was dedicated to building the future of the AP and I felt I was able to add a lot to the discussion with my knowledge of immersive media and artificial intelligence. Many of the news editors and reporters who attended weren't aware of the AP's current initiatives in artificial intelligence and VR and this event gave the an opportunity to learn from

others and pitch their own ideas. I've learned that holding these type of internal events is vital to sustaining a newsroom in the midst of so much technological disruption.

Week of October 2

- Presented initial findings for the VR report to a group of journalists from the Global Editors Network. The presentation was well received, however it needs to be shortened for the webinar.
- Submitted a draft highlighting the dynamic storytelling model to Journalism 360. Journalism360 is a collective effort by the Google News Lab, the Online News Association and the Knight Foundation to accelerate immersive storytelling in news. The hope is that this story can give readers a summarized version of the report and will incentive them to download the report.
- Working on a draft for the VR blog, Immersive Shooter, that will highlight the VR study conducted at the NYC Media Lab.
- Helped my mentor, Francesco Marconi, outline his next book on media and innovation for Columbia University.
- Working with students at the University of Missouri to come up with a strategic marketing plan to promote "Live Like Fiction," Marconi's book that was released in July.
- Received archival photos from the University of Western Cape

Weekly summary: This was an exciting week because it was the first time that Francesco and I had the opportunity to share our findings from the VR report with a group outside of the AP. We plan to use the feedback from a variety of presentations

we have scheduled to prepare for the AP webinar that's scheduled for October 25.

The feedback we received today was that our presentation was too long and needed to be shortened. We spent about an hour and 15 minutes talking through our findings and could tell that about 45 minutes in we were losing the attention of our audience. To shorten this presentation we're planning to cut a part of our presentation that covers the AP's history in VR and instead start with the first piece that used 3-D content. Overall, I'm learning that by iterating on every presentation and refining each talking point I'm gaining a greater understanding of how to best explain a complex technology to an audience who may or may not have prior knowledge of VR.

Week of October 9:

- Met with Dean David Kurpius of the Missouri School of Journalism who visited the AP. I, along with other MU grads shared our thoughts on how to build a stronger relationship between MU and the AP.
- Presented findings from the AP's VR study at NYU to a group of data visualization students. A group of these students will help the AP dive further into the motion capture data gathered from the study this fall.
- Worked Grafiti to improve their pitch for Matter's demo day where they will present in front of an audience of journalists, entrepreneurs and venture capitalists next week.
- Adapted the dynamic storytelling presentation for the AP VR webinar, which is scheduled for Oct. 25.

Weekly summary: This week was challenging as I worked with Grafiti to prepare their pitch for their formal presentation to investors next week. I've learned a great deal about the complex process behind finding, verifying and distributing insights from public datasets. This has helped me develop a greater appreciation for data journalism as a whole. Through our collaboration we decided the best way to show Grafiti's potential was to outline the process of how a data journalist currently finds and shares data and compare it to the expedited process that Grafiti provides. We also wanted to show that Grafiti isn't only applicable to news outlets, but it's also valuable to advertising agencies and NGO's. In the end, I think this new approach of outlining how Grafiti can take the grunt out of the data journalism will allow investors to quickly understand the value of the company.

Week of October 16:

- Attended Matter's demo day and observed how media startups pitch their ideas to investors.
- The 360-degree video story I helped produce with The New York Times was released.
- Presented the VR report to a group of journalists from the Poynter Institute. The presentation wasn't met with the same enthusiasm as the previous groups. We were told it's because we spend too much time talking about the technology, rather than showing story examples.
- Presented the VR report and AP's strategic initiatives in artificial intelligence to a group of professors and journalists at Fordham University.

- Attended a single-day conference on adapting content with a social-first outlook. Learned on how industry leaders like ESPN are strategically producing their video content for social media.

Weekly summary: This week's presentation to the Poynter institute was extremely valuable because it was first time that Francesco and I receive a lot of pushback and skepticism from an audience. Many of the people from Poynter felt that VR was more of a fad in journalism and couldn't understand the value of using this technology when many newsrooms haven't adopted it. In essence, the main criticism we faced was that we spent too much time trying to explain the technology, and not enough time showing how it can be used to reimagine the approach to storytelling. After this presentation, Francesco and I decided to replace the number of slides that break down the technology and replace them with examples of stories using volumetric video. In the end, this criticism came at a great time and gave us the feedback we needed to prepare for the webinar next week.

Week of October 23:

- Hosted a webinar with the AP to highlight the findings of the VR report. The webinar attracted over 75 people from around the world and resulted in a very engaging discussion.
- Presented the VR report findings to a group of journalists from Germany who were visiting the AP.
- Met with the three NYU students who will be further examining the motion capture data that was found in the VR study hosted in August.

- Drafted a new study proposal that will be conducted with Multimer to look at how people from opposing political parties react to news that aligns or disagrees with their own political views.
- Worked with Grafiti on a social media strategy for their latest partnership with UNICEF to highlight the health care and education resources needed to support Africa's recent population spike.

Weekly summary: During my final week in New York I'm realizing how much this experience has improved my public speaking skills. Before my time at the AP I felt self-conscious that I spoke too fast and wasn't understood by audiences.

However, by the end of this journey I believe I've learned how to slow down my delivery and effectively communicate my thoughts. During the presentation to the group of German journalists, Francesco gave me the floor to give the VR presentation by myself. This was a surprise to me, but after practicing this presentation many times I was able to confidently and clearly share our findings.

Chapter 3: Personal Evaluation

The following is a letter from my supervisor at the Associated Press, Francesco Marconi, who provides an evaluation of my time as a part of the strategy team.

AP



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December 6th 2017

To Whom It May Concern,

I am writing to inform you that I was Taylor Nakagawa's supervisor at the Associated Press during the summer and fall of 2017.

As the strategy manager for The Associated Press (AP), I had the chance to work with Taylor in the development of a major industry report on the topic of immersive journalism which was distributed by AP Insights to thousands of news organizations and academic institutions.

As part of his project with AP, Taylor researched immersive media, conducted interviews with experts, and designed a scientific study to measure media engagement utilizing biosensors.

The final industry report was featured on Columbia Journalism Review and Google News Lab. Taylor presented his research to industry leaders from Poynter Institute, Global Editors Network, Columbia Journalism School among others.

Colleagues across the AP were impressed with Taylor's personal initiative, creativity and hard work. Those attributes made him an integral part of the strategy team and contributed to building a very positive reputation inside the entire organization.

As he was working on the report, Taylor expanded his field of operation by integrating himself in Matter, a startup incubator in New York City, as a representative of AP. There he connected with a community of media entrepreneurs and helped AP identify potential collaborations and innovation opportunities.

It's no coincidence that Taylor Nakagawa accomplished so much in so little time. His journey in the last several months surfaced three of his unique traits: initiative, creativity and humility.

I know Taylor's expertise and skillset in immersive media journalism will be extremely valuable to development of a more creative and innovative news industry.

Please don't hesitate to contact me with any further questions.

Sincerely,

Francesco Marconi

Francesco Marconi
Manager of Strategy and Corporate Development
The Associated Press
200 Liberty Street, New York, NY 10281



The following is an evaluation of both my work product and the overarching themes of what I've learned from this project.

Entrepreneurial & Design Thinking

From the original ideation and pitching to the execution of this project, I was able to develop a knack for entrepreneurialism by treating this project like my own personal startup.

During the planning phase of this project it became clear that in order to keep pace with a rapidly evolving technology, I had to embed myself in a hotspot of media and innovation. Thankfully, my past connections with the Associated Press in New York City provided me with an outlet that was willing to support the professional goals of this project. However, my supervisors made it clear from the start it was my responsibility to financially support myself throughout the summer and fall.

Focusing on media strategy throughout my graduate studies introduced me to a thought process called design thinking, which approaches problem solving through a constantly iterative and user-based methodology (Chaplin, 2016). It might seem like this framework is best suited for someone who is building a product or service, but by leveraging the design thinking model, I consistently adapted my pitch to align with the values of institutions I approached for scholarships. For example, if I approached the media conglomerate Scripps Howard (who ultimately awarded me a grant), in the same way as the Japanese American Citizen's League (another source of funding), I couldn't have appealed to the values of both parties. To put this in greater context, when I pitched this project to the JAAC I put much more concentration on journalism ethics, rather than the tech itself. I argued that a concentration on ethics for an emerging technology could

align with the JACL's mission by building standards to accurately represent story subjects and overlooked communities in a fair and objective manner.

During the pitch to Scripps Howard I uncovered a new campaign that encourages the exploration into emerging technology in journalism, such as VR. This led me to write a pitch that focused on the complexities of VR technologies and how ethics has been an overlooked part of the conversation. Ultimately, by building pitches specific to the interests of potential funders I was able to quickly raise the funds that allowed me to live in New York from June to October.

Another component of design thinking hinges on building a culture of experimentation that forces content creators to challenge their initial approach by receiving feedback as a product progresses (Kolko, 2015). (Chaplin, 2016) expands on this idea stating, "It's better to start low-resolution and cycle through testing and feedback while building to high-resolution." This was the approach the my mentor Francesco Marconi and I took when writing our VR report "The Age of Dynamic Storytelling: A guide for journalists in a world of immersive 3-D content." Instead of burrowing inside the AP newsroom and keeping this report to ourselves, we wanted to encourage collaboration throughout the creation of the report. This approach allowed us view interviews as an opportunity to share our progress in developing a new storytelling model. We'd not only ask our subjects questions about their own expertise, but we'd also ask them if they agreed with how we framed our new model for VR storytelling. If they didn't, we viewed this criticism as an opportunity to improve on clarity, or entirely change how we framed this model. Ultimately, I believe our enthusiasm to empower the

people we interviewed to craft this report beyond a quote was the reason why the report got so much attention when it was released.

VR ethics is still in its infancy and will remain an evolving topic

Focusing my attention on building standards around a technology still finding its place in journalism has been a challenging experience because it shows me how much more work there has to be done. I naively approached this project in January thinking that by the Fall I could build an ethical framework for VR journalism that could last for years. However, as the scope of the technology expanded, the more the ethical debate grew. When I arrived at the AP in June my supervisor, Francesco Marconi, challenged me to join him on a project that would take the research I had done thus far and expand it into a report that examined how the technology is changing the approach to storytelling in journalism. By examining VR journalism through a strategic lens, instead of explicitly focusing on the ethics, I was able to gain a greater insight on the VR industry as a whole. Here's a great example: When the idea to broaden the scope of the research was first presented my supervisor explained that the technology we were going to focus on was immersive 3-D content powered by volumetric capture. Volumetric capture is, as of right now, considered to be the most high-end form of VR production because it requires skills that traditionally weren't applicable to journalism like game design and motion design. Before coming to the AP, I was only focused on 360-degree video, which is the most common form of VR, and also the least immersive form of the medium. Although volumetric content is far from becoming mainstream in any newsroom's VR unit, my supervisor argued that by looking ahead at what will soon be possible, we can set better guidelines for what's currently possible.

This newfound mindset of futurecasting, as it's often referred to at the AP, helped me define how the ethical challenges of today will change as immersive technology evolves and merges with our own reality. The results of widening the focus in immersive technology ultimately helped produce a report that I believe will stay relevant much longer than addressing the ethics of 360-degree video journalism as they stand today.

I've found that after spending nearly a year scrutinizing the ethics of VR journalism, findings will continue to evolve as technology itself changes. What I can say with great confidence is that I've been able to establish three principles that can help maintain journalistic ethics moving forward, and they include:

1. Setting an objective before diving into an immersive media project.
 - Journalists should ask themselves how the use of immersive media will add to the overall understanding of the subject at hand. By defining an objective from the user's perspective, a newsroom can tackle ethical concerns with this objective at the forefront.
2. Journalists should present their editorial options, but should never assume accuracy.
 - This speaks to the challenge of maintaining accuracy when creating 3-D models of people, places or events.
 - Because immersive media can easily trick someone's mind into thinking that something is real, it's of even greater importance for journalists in the field to ensure that what they are presenting is accurate. This unique method of gathering information calls for a more significant layer of

transparency where a newsroom can explain to their audience how source material was captured.

3. Newsrooms should consider the psychological effects of VR to determine how to present sensitive or graphic content.
 - The VR study conducted for the AP report using biosensors showed that the more dynamic and immersive the experience, the longer lasting memory it creates.

Strategic planning and viewing journalism as a system

Throughout the summer and fall I was introduced to the profession of media strategy at the Associated Press. This work challenged me to think more broadly and develop plans to improve the system of journalism. I believe that my background in multimedia reporting played a vital role in helping me quickly acclimate to this new discipline by understanding the process of creating content across a variety of mediums. Working in strategy, however, challenged me to critically think about how those processes can be automated, or made more efficient by leveraging innovation partnerships. The following outlines three overarching responsibilities I encountered working in strategy.

First, my job was to brainstorm way to make a journalist's job more efficient by providing them new tools or networks to take the grunt work out of their routine. Over the summer, I was apart of a number of strategic meetings that examined video automation platforms such as Wochit and Wibbitz. These platforms enable journalists to take a text story an automatically create video meant for social media platforms. It's these

kinds of tools that can significantly help newsrooms meet the enormous public demand for social video.

Another area of automation at the AP was to search for products that streamline the discovery, verification, and visualization of data. My work with startups from the NYC media accelerator Matter opened my eyes to the complex process of data journalism. For example, my involvement with Grafiti opened my eyes to the struggles of finding and cleaning verified datasets. On the other hand, working with Vigilant showed me that not all datasets follow the same format and often have to be manually re-structured so they can fit into a sharable format. Multimer takes a radically different approach to data collection. By using biosensors they have unearthed an entirely new set of data that can contextualize space and sentiment more precisely. Throughout the summer and fall I helped these three companies improve their product and the ethos of their pitch to potential investors. The hope was that as they built demand for their product, they could slowly integrate into the AP's editorial flow to help journalists quickly access, visualize, and share verified datasets.

The second component of my responsibilities was to brainstorm new ways to reach customers. For most of my time at the AP, this was spent looking into how to improve the news experience on voice-enabled devices, such as Amazon Echo and Google Home. Before coming to New York, I was apart of a team at MU that built a prototype to improve the AP's capabilities on Amazon Echo. This prototype allowed users to access open datasets, such as home and gas prices, and also featured a search tool for the AP newswire, powered by voice. Essentially, this allowed an individual to access a wider range of the AP's services, instead of just hearing top news headlines. This

project laid the foundation for the research I was asked to conduct on artificial intelligence services such as speech-to-text and text-to-speech. In late July, I attended an event at Google where various media companies met to brainstorm how to implement AI into the newsroom. This event was an excellent experience for me as it showed how strategic planning can live and breath outside of the newsroom in a more interactive and engaging manner.

The final component of working in strategy relates to creating a culture of innovation by sharing new methods of storytelling and/or new tools that can enhance storytelling. This primarily applied to the production of the VR report I co-authored. Instead of highlighting various stories being produced using VR technology, the goal of the report was to introduce how those stories require a new approach to storytelling specific to this medium. We also had to outline the ethical challenges found in VR and provide solutions to meet those challenges. Finally, we ended the report with a list of principles to follow when creating these immersive stories such as putting the user in control by re-conceptualizing how an audience will interact with an immersive story. We also wanted to encourage other to approach immersive media as a collaborative process that isn't constrained to a single unit in a newsroom. To do this we outlined that newsrooms can benefit from creating a small challenge funds to let teams compete and experiment with new immersive media projects. Ultimately this was a significant shift in my writing, and my thought process moved from explaining what and why something is significant, to explaining how to achieve something new and innovative.

Throughout the four months I spent at the AP I was constantly challenged to think more broadly and focus on how investing in certain initiatives benefits the production of

high-quality journalism. Coming out of this experience I'm now equipped with the skills and the mindset to strategically grow a company by leveraging design thinking, collaboration and partnerships. These past four months working alongside seasoned media strategist and entrepreneurs has given me an unprecedented look at how the ability to conduct journalism is sustained, and how it can evolve by embracing new technology and distribution methods.

Chapter 4: Evidence of Work Completed

The following are links to work I completed for the Associated Press, The New York Times, Columbia Journalism Review, and the virtual reality blogs Journalism 360 and Immersive Shooter.

- “The Age of Dynamic Storytelling: A guide for journalists in a world of immersive 3-D content:
<https://insights.ap.org/industry-trends/report-how-virtual-reality-will-impact-journalism>
- “AP Solutions: Next Generation Virtual Reality” AP Webinar
<https://www.youtube.com/watch?v=EY34V3gEBM&feature=youtu.be>
“Biking with biosensors in New York City” for The New York Times
<https://www.nytimes.com/video/nyregion/100000005478077/biking-with-biosensors-in-new-york-city.html?smid=pl-share>
- “Choose your own adventure: VR journalism gives audience control” for Columbia Journalism Review
https://www.cjr.org/tow_center/virtual-reality-study-engagement.php
- “Measuring Immersion: AP study finds ‘dynamic’ experiences relate to higher engagement” for Immersive Shooter:
<https://www.immersiveshooter.com/2017/10/20/how-to-measure-immersion-vr-experiences/>
- “How are industry leaders thinking about the future of VR?” for Journalism 360

<https://medium.com/journalism360/how-are-industry-leaders-thinking-about-the-future-of-vr-4bd1b8657614>

Chapter 5: Analysis

The following is a professional analysis on the ethics of virtual reality in journalism. These insights were derived from a variety interviews with a number of journalists, academics and media ethicists tackling the newfound ethical challenges in VR journalism. The transcripts for these interviews have been included in Appendix A of this project.

Unraveling the ethical challenges of virtual reality in journalism

As the technical capabilities of immersive media continue to expand and mimic our own reality, journalists continue to grapple with the newfound ethical challenges the technology presents. Immersive media includes many facets of virtual reality such as 360-degree video, 3-D scanning and computer-generated imagery. Virtual reality is enabling journalists to bring audiences closer to the story by putting the user in control, expanding their perspectives, and presenting story experiences that are explorable in nature. This technology has quickly evolved from giving viewers a peripheral view from a stagnant position, to allowing them to freely move and to interact within a virtual environment.

Scholarly research points to two specific values for the use of VR in journalism. These include immersion, meaning the sensation of being enveloped in a virtual world (Owen et al., 2015) and presence or embodiment, meaning viewers temporarily identify a dual unity between themselves and the virtual world (Maschio, 2017). Ethics, as Madary and Metzinger (2016) explain, plays a vital role in deciphering the length to which

content creators push the boundaries of these two values at the expense of their audience's well being.

So how can journalists set standards to meet the capabilities of a technology that's constantly evolving and is still nascent to the field of journalism? And, to reference back to one of the original research questions posed, does VR in journalism call for a new or additional set of ethical standards?

First, it's important to highlight that the long-established ethical guidelines of seeking the truth, minimizing harm, and being transparent won't be re-written to meet the needs of immersive media. Instead, they need to be adapted to specifically address the unique process of story conception, production, and distribution of immersive media in journalism, as outlined by Cruz and Fernandes (2011). Second, as journalists continue to introduce emerging technology to the public, such as VR, more transparency is needed to show how source material is gathered (Domínguez-Martín, E. 2015). And finally, it's vital to acknowledge that the ethical findings and strategies presented in this article could very well be primitive in the years, and even months to come. However, it's important to consistently update and adapt the ethics of journalism to fit the needs of this evolving digital age (Diaz-Campo and Segado-Boj, 2015). Immersive media specifically is advancing at such a rapid pace that the insights presented here aren't final, but rather an examination of where the medium stands at this point in time.

Currently, immersive media is consumed through a VR headset, on a mobile device, or on a desktop. However, in the near future it could become commonplace to consume immersive media without the constraints of these devices, and new consumption habits will present their own ethical challenges.

After interviews with a variety of journalists, academics, and media ethicists, three overarching ethical challenges in immersive media rose to the top. These topics include:

1. The role of a journalist in a VR setting.
2. Maintaining accuracy in the representation and recreation of real-world environments.
3. Presenting sensitive or graphic images to audiences.

All three of these topics will be addressed with input from the thought leaders interviewed. But first it's imperative to define the capabilities found in each subdomain of immersive media.

Understanding the technology

Immersive media has many facets that can be leveraged in storytelling, but just like any other technology, the more you know about a technology, the more effectively journalists can address the ethical implications of the technology.

360-degree video- Monoscopic: 360-degree video was journalism's entrance into immersive media and virtual reality. It expanded viewer's perspectives by presenting a spherical view of a scene, rather than being constrained by a fixed frame. Monoscopic 360-degree video specifically refers to footage that's captured with a single 360-degree camera or camera rig. While the spherical images provide a sense of immersion, image clarity decreases at the edge of the sphere. The majority of 360-degree video is shot in this format due to the low costs of leading 360 cameras like the Samsung Gear 360. The prices for these cameras range from \$90 to \$230.

Example: The Associated Press' ["Rohingya Exodus"](#)

360-degree video - Stereoscopic: Stereoscopic 360-degree video is captured in the same way as monoscopic 360-degree video. However, instead of a single camera, a pair of 360-degree video cameras are placed side by side to add depth between the foreground and background for a heightened sense of clarity and immersion.

Example: [Next VR's coverage of the NBA Finals](#)

Augmented Reality: This is when 3-D models are projected onto physical surfaces using depth sensors built into the cameras of mobile devices.

Example: [Quartz's coverage of NASA's Cassini Satellite](#)

Volumetric - 3-D scan: Real people, places and objects are scanned with depth sensors to create elements that, when combined, form a walkable 3-D environment.

Example: [Emblematic Group's "Out of Exile"](#)

Volumetric - CGI (Computer-generated Imagery): 3-D models and environments are recreated based upon photo and video references through gaming software.

Many times, volumetric scans and CGI models are combined to create a more cohesive presentation.

Example: The Associated Press' ["Alzheimer's Disease: Exploring the Brain"](#)

The Evolving Role of the Reporter

Immersive media is enabling journalists to break the fixed frame found in traditional mediums such as photo and video. The technology allows audiences to control their field of view in a spherical frame, as seen with 360-degree video, or even move through a virtual 3-D environment, made possible through volumetric capture.

As journalists present their viewers a broader frame to explore, they are also relinquishing some editorial control in the process (Watson, 2017). This trade-off has

presented new challenges that have led newsrooms to re-conceptualize how journalists can add context and build narratives in an immersive setting. This challenge is most prevalent in 360-degree video, where real-world images are captured and displayed in a spherical format.

One challenge journalists working with 360-degree video are dealing with is whether a reporter should appear in a scene. [A poll conducted I in the spring of 2017](#) with 37 immersive journalists shows there's no current agreement on the presence of a reporter in a 360-degree video setting. However, thought leaders have found effective methods of both including and excluding a reporter in a 360-degree video scene.

How often does a reporter appear in a story?

37 responses

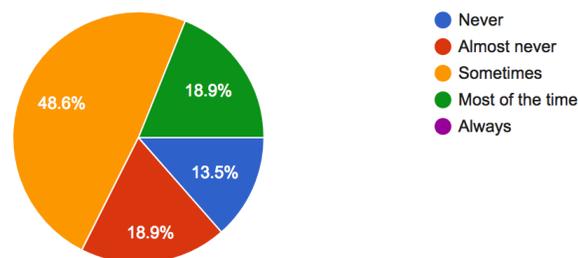


Figure 1: Poll: How often does a reporter appear in a 360-degree video story? These are the results from a poll I conducted in the spring of 2017 with 37 other immersive journalists.

“I actually want to see the relationship between the person that we are interviewing and the reporter, I want to see how they look at each other,” said Bryn Mooser co-founder of RYOT, an immersive media company based in Los Angeles. RYOT routinely conducts interviews with the journalist and the subject on camera.

Others like Jenna Pirog, a virtual reality editor for The New York Times Magazine, have decided to take a ‘fly on the wall’ approach to VR journalism and often

decide to leave a reporter out of a 360-degree video scene. Despite the absence of a reporter, Pirog said that the journalist still plays a vital role in providing context in a 360-degree video story.

“Certain journalists watch VR and they’re like, ‘Oh my god, I’m going to become obsolete.’ I don’t believe that for a second,” Pirog said. “We are still trying to figure out how to tell a story in VR, and in that regard, voice-over is written by a journalist and video is constructed into a story. Where the camera gets placed is still a journalist’s choice; how the piece is put together is still an editor or journalist’s choice. Obviously, this is still a huge role.”

Providing context can be achieved in a variety of ways and the results of the same VR poll identified three best practices journalists are using to provide context in a 360-degree video setting:

- **Reporter voice-over.** Example: [“Arctic 360”](#) by The Guardian
- **Text-on-screen.** Example: [“Genocide’s Legacy: Preserving Auschwitz”](#) by The New York Times
- **An overlay of graphics.** Example: [“Trapped in Myanmar: Life inside a Rohingya camp”](#) by the Associated Press

What these findings show is that a journalist’s role in an immersive setting is no different than any other medium. However, the unique challenges of guiding an audience’s view throughout a spherical scene have pushed journalists to find new strategies to add context to a story where they’re relinquishing some editorial control.

Maintaining Accuracy in the Representation and Recreation of Real-World Environments

The ability to volumetrically scan, recreate, and enhance real-world scenes using computer graphics has presented journalists with an entirely new challenge of maintaining the tenets of truth telling and accuracy.

Take for example, [“Beyond These Restless Skies,”](#) a story created by the VR journalism studio [Empathetic Media](#) in New York City. This story examines the lack of government aid for residents living in section eight housing in Harlem. The story utilizes volumetric scanning technology that allows participants to physically move through one resident’s apartment and experience for themselves what it’s like to live in an often neglected section of New York City.

But how can audiences know for certain that what they’re experiencing is an authentic representation of the real world? Dan Archer, founder of Empathetic Media, believes that being transparent by informing the public of the processes used to build 3-D environments is the key to upholding journalistic standards when using this technology.

“We’ve found that taking a ton of photo references both before and after we scan an environment is an effective way to maintain fidelity,” said Archer.

“I originally worked in comic journalism where I was getting the same reprimands in saying, ‘well if you’re drawing this how can it correlate to reality?’ But I think as long as there’s transparency in the methodology then you can be covered.”

Empathetic Media isn’t alone in their efforts to share the editorial process of creating immersive media with the audience. Other thought leaders, such as Al

Tompkins, a senior faculty member at the Poynter Institute, have expressed this same sentiment.

“Disclosures are not a sanitizer for all problems, but they certainly are an attempt to let the user in on what you’re doing and what you’re not doing,” said Tompkins. “Part of what we have to do is to make sure that we don’t lose context in order to gain aesthetics.”

Journalism scholars have also called for a greater level of transparency. In their book “The New Ethics of Journalism: Principles for the 21st Century,” Rosenstiel and McBride (2014) argue that the values of transparency and community have risen to prominence in the 21st century due to the rapid development of technology, while truth remains to be a unifying value. Cruz and Fernandes (2011) agree with this sentiment and believe all new technology, should be utilized in a way where the core values of truth telling, loyalty to public and the discipline of verification, should be working in unity with capabilities of the technology.

Presenting Sensitive or Graphics Images to Audiences

The evolution of immersive media from a stagnant position to a dynamic, free-flowing virtual environment has given audiences a greater sense of freedom in VR. However, as these experiences become more realistic, more research is needed to understand the psychological effects on the brain to prevent potential harm to viewers.

This summer [the Associated Press conducted a VR study](#) at the New York City Media Lab in partnership with Multimer, a biosensor company from MIT. The study aimed to uncover how stories told across various VR viewing devices affect an individual’s state-of-mind.

By collecting data through EEG sensors and heart rate monitors, the Multimer staff was able to determine various levels of attention and relaxation that gave an unprecedented look at how VR is affecting its user's minds. After testing four different story subjects across three different viewing devices the AP's study found that stories covering conflict, such as war zone reporting, drove the highest levels of stimulation and power/intensity. Stimulation was associated with an individual being more attentive than they are relaxed, while power/intensity is associated with the lasting impact of the experience. The conflict story tested, AP's "House to House: The battle for Mosul," also drove the most participant comments related to strife and fear.

The AP isn't alone, however, in examining the effects of VR on the brain. In his thorough [research of VR ethics](#) at the University of Mainz in Germany, philosophy professor Michael Madary delved into a concept he calls 'the plasticity of the human mind.' This concept address the sensation of our mind's being deceived into believing images we see, especially in a VR setting, are part of our own lived experience

"For human beings visual perception is very tightly joined with action and VR mimics our perception of the real world in a way you can't achieve with any other medium," said Madary.

"We take it for granted that when we perform an action, we instinctively know we're in control. This can create an illusion of reality that VR gives us the agency to do."

This concept alludes to the 'being-there heuristic,' outlined by Sundar and Limperos (2013) who state that the authenticity and intensity of VR established through movement allows audiences to craft their own personal connection to the medium.

These insights can help journalists balance the opportunity of producing stories in this new medium with the danger of causing post-traumatic stress to their audiences.

For example, consider the VR experience [“Witness Auschwitz,”](#) created by the Italian VR production company [101%](#). Although this experience isn’t directly marketed as journalism, the virtual environment was created based on photo and video evidence from the concentration camp, along with testimonies from those that suffered through the horrors of Nazi Germany. In this experience participants perform a variety of tasks such as digging mass graves for fellow prisoners, while in another scene the cries from a crematorium are covered by the sound of a motorcycle engine.

One way to scrutinize the ethics of this kind of story can be through the lens of the uses and gratifications theory, which seeks to uncover the fulfillment of an individual choosing to interact with a specific medium (Sundar and Limperos, 2013). De la Peña, (et al., 2010) established that one of the objectives of VR is to establish presence in locations audiences would never have access to, however Madary’s (2016) principle of non-maleficence states that risk of harm should be no greater than that encountered in real life.

If this story were to be told through a journalistic lens, content creators could consider these two questions to weigh the opportunity of producing this story with the risk of harming audiences:

- Do these kinds of experiences educate viewers in a way other mediums can’t?

If the answer to this question is no, then consider the following:

- Was the creation of this experience made just for showcasing immersive technology?

If the answer to this question is yes, then this story probably isn't necessary for VR in the first place.

This boils down to the idea that not every story works in an immersive media setting. Ray Soto, director of emerging technology at USA Today, said that by using VR as a gimmick, journalists could put their audience at risk, or end up creating underwhelming stories.

“Before we shoot anything, we go through a pre-production storyboarding process where we want to make sure the story enhances the visuals and the visuals do the same back to the story,” said Soto.

“If one of those two elements is missing, then we might decide this might be better as a print article or this might be better as a photo gallery.”

Strategies to Plan for the Future

Although journalists have identified key areas of ethical challenges, immersive media as a whole is still in a stage of infancy, and the standards surrounding VR will continue to change as the technology evolves. One solution newsrooms can adopt to stay the forefront of these conversations is to have an open ethical framework, outlined in Ward and Wasserman (2010). This encourages journalists to reach out and include the voices of those outside the realm of journalism in an effort to efficiently build standards as the technology progresses. In the case of VR this would include those working in game design, 3-D motion design, and VR filmmaking.

These fields have been experimenting with the technology years before journalists began adopting VR, and can provide valuable insights into how the technology will change in the future. This kind of collaboration alludes to a similar ethical framework

presented by Mittlestadt, Stahl, and Fairweather (2015), called discourse ethics.

Discourse ethics encourages a forward-thinking methodology to developing new ethical guidelines, instead of trying to find similarities with emerging technologies of the past. Aside from inviting those working at the forefront of VR, Plaisance (2016) calls for a shift away from the Western ideologies and Western values of the press. Plaisance (2016) argues that morality is established through human experience and since VR aims to transport audience to locations that are hard to access, understand the ethics of non-Western societies will be vital to respecting the autonomy of story subjects. By continually sharing the ethical challenges faced in face in the field and during post-production, news organizations can collectively solidify an ethical approach to VR in journalism.

As new ethical challenges arise, and others are more clearly defined, here are three strategies to help journalists confidently navigate the field of immersive media.

1. Set an objective for the immersive story you're about to tell. By establishing an objective before a story is produced, journalists can avoid falling into the trap of creating a VR story simply for the sake of using the technology. For example, in the AP's VR report "The Age of Dynamic Storytelling," AP photo editor Maya Alleruzo shared that the objective of her 360-degree video story "[House to House: The battle for Mosul](#)," was to show the difficulties and dangers of warfare in a dense urban environment. In order to achieve this goal she recognized that 360-degree video was the ideal medium to establish presence and showcase these dangers. Once an objective for a story has been set, ethical challenges that may arise in the production or post-production phase of a story can be confidently addressed.

2. Journalist should present their editorial options and should never assume accuracy. To instill trust with the public, journalists can benefit from explaining how immersive stories are produced and address their limitations. For example, consider the collaboration between The Washington Post and Empathetic Media who used augmented reality to recreate [the fatal altercation](#) between Freddie Grey and the Baltimore Police Department. In addition to the AR story, Empathetic Media released a [supplementary story](#) to explain that the AR story was based on user-generated content from the crime scene, eyewitness testimony and court documents. This principle is most applicable to immersive stories that leverage 3-D scanning and / or computer graphics. Journalists can also benefit from clearly labeling when images are altered or enhanced through CGI and how these adaptations uphold the tenets of accuracy and truth telling. Currently, it's difficult to download and alter pieces of VR journalism that have been shared online. 360-degree video is the only form of VR that's shared using universal files such as .mp4s. These kinds of files can easily be downloaded from websites altered. Room-scale VR stories that allow participants to move around a scene are often contained within singular applications that prevents user from downloading the assets of a story. However, as web developers begin to build a streamlined and uniform method of sharing VR content across multiple devices, such as [Google's WebVR project](#), immersive storytelling will be easily susceptible to variations that could spread false information. Alterations to real-world events captured in virtual reality could easily be used to gain political influence, impact the sanctity of a fair and impartial judicial system and could enhance the dangers facing societies.

3. Heightened realism raises the chances of inducing post-traumatic stress and

harm. In the near future, it may become commonplace that our own realities and those of a virtual world form the same symbiotic relationship that we currently have with our mobile devices. However, in VR the risks of inducing harm on an individual are at a heightened level as participants now have the agency to personalize their own experience through a full range of movement and touch. Just because journalists have the ability to produce an immersive experience doesn't mean we should risk potentially harming the public in the process. In the end, journalists can benefit from asking themselves if placing a subject in an immersive setting is necessary for them to gain an original perspective on a topic.

Appendix A: Interview Transcripts

Interview Transcripts

Al Tompkins - Senior Faculty Member at the Poynter Institute

What are your initial thoughts on virtual reality and ethics?

Virtual reality technology is the latest digital gathering when you are scanning or when you are capturing in a 360 environment. Depending on the technology you're using, you may be capturing in real time or you may be stitching and aggregating and that becomes journalistically problematic. So as a user I believe that everything I'm seeing was captured at the same momentum when in fact if it's stitched or aggregated it may not be true. So one question is whether or what I'm seeing actually occurred in the exact same time frame all the way around the frame. We used to talk about that as a flat image in terms of toning or cropping and adding and altering and all of that, this adds a whole new journalistic complexity because we are trying to aggregate something from multiple images.

What are some of the problems related to this emerging tech?

At the moment we are aggregating multiple images, but where that doesn't necessarily become a problem is when you're aggregating a stationary image so a statue, or a sculpture or a building or whatever. Then you can reasonably expect to say look, this is exactly the way it was.

****The recording was cut off at this point and I had to begin another recording. When the recording was turned back on Tompkins was speaking about the ethical challenges that war correspondents faced before digital and film photography**

They took images that looked like dead and in fact they weren't dead soldiers, they were people who were lying there. In other cases there were people who were sitting with braces on their necks for a minute or two while they were taking long-term images of that person because the processing was so slow. We did not know those things because it made it look like that person was sitting there and they snapped an image. I mean what normal person would assume they were sitting there for two minutes? I mean that's why everyone was so sad looking back in the 1800s in those photographs because they were miserable. So, letting people in on the process is very valuable. As an example the Washington Post when they took a picture of the bridge where the airplane crashed into the bridge many years ago they ended up doing an HDR photo and then they explained the process that that was an aggregation of more than one frame so that you could see where the shadows were keeping you from seeing the details of the bridge and so on. Disclosure are not a sanitizer for all problems, but they certainly are an attempt to let the user in on what you're doing and what you're not doing. Eventually technology will take

care of a lot of these issues as they did in still photography and as they did in the early days of film where you were only capturing 10 or 15 frames per second or you were speeding up or slowing down the projection eventually technology will take care of this and we'll be able to do 3-D imagery in real time, but that's not where we are right now.

Does explaining the technology to consumers help news organizations be more transparent?

Well that helps an awful lot. It won't take care of all problems. If you end up altering the image somehow there's not an excuse for using that. The other thing that we're having some pretty serious conversations about this at Poynter is what visual cues are you giving me doing a 360 report of a story? So if for example we're sitting in an armored personnel carrier as The New York Times did what visual cues are you giving me to navigate me around the 360 experiences? And are you navigating me towards or away from something that I might otherwise want to discover? It's not so much an ethical issues as it is an important consideration. Let's say for example you're covering a political rally and a candidate does something in the 360 image that you want people to pay attention to at the expense of something the crowd is doing. You're going to make all sorts of cues in your narrative that's going to say pay more attention to one thing or another in ways that I would not do in a still photograph. It's more like what we do in broadcast where we edit scenes and by editing scenes we can exaggerate or underplay what's going on in the scene. We're really in infancy of helping people navigate 360 images and it's also true that these things are getting anywhere close to the traffic that a flat dimensional video does. So we don't know yet whether this is the thing, we don't know yet whether there's going to be another device to experience these things. They take up enormous amounts of data we just don't know yet. At the moment you can navigate 360 and VR on the subway home there is going to be a lot more useful to the normal user than they are right now. I can consume those things on my phone while I'm doing other things. If I have to strap a headset on or have a specific pair of glasses, that's a much more limiting factor and that's one of the big things we have to figure out. What device are we going to need to consume these things?

Volumetric broadcasting can help journalism become more objective, do you agree?

All of that may be true but we're eons away from that and I just think the whole idea of spending much energy is not anywhere journalists are considering at the moment and I don't even think consumers want that. Consumers need and want somebody to make sense of things for them. If I really wanted that experience I'd go in and read the Affordable Healthcare Act, which absolutely nobody else has done. One of the jobs of the journalist is to become a sense maker and clarifier and I don't want to watch the city council vote, I don't want that. In fact exactly the opposite is the current form of consumption. It's give it to me in short easy to consume kind of way, I'm on the run I don't have time for that and there's just not a lot of evidence that people want to plow through a bigger, thicker heavier experience. My suspicion is that they would use it to watch parachuting or skateboarding videos then they will congress voting on the

Affordable Healthcare Act or something similar. It's not an issue of bias it's an issue of experience and 360 is more experiential.

So what do you think is the future of VR?

Let me tell you what I do think about the future of VR. The future of VR and the future of 360 is probably far more likely to break through in the entertainment business. Instead of going to an Adele concert and sitting 700 rows, if I can get an experience by standing on the stage, now you got me. If I can see Hamilton standing on the stage then now you got me. I think it's got a lot more potential in the entertainment business, in the architectural business in the design business, in the renovation business, in the real estate business. Even geriatrics are using it now, paraplegic rehab, all of those kind of thing and certainly things like flight training, surgical training, all those things that require a complete immersion experience in order to learn, all of those things have huge potential that eclipse anything that journalism is considering at the moment.

Does that mean you're not convinced this is a tool for journalism right now?

Well I don't know if there's a scene. You know, it's a shiny bead right now and it's an interesting shiny bead but even the people using it right now know that it's getting a fraction of the traffic that they're most successful raw short videos on Facebook get. So they're not putting huge resources on this because it's getting such dismal traffic, but it's still a thing to go experiment with just as video was a thing to experiment with years ago. It's absolutely worth experimenting because the things you'll learn along the way. At the moment though if you even look at what The New York Times did this week in Antarctica, it's generally a series of very short videos that aren't gigantic breakthrough experiences, it's just not. They are 50-second clips of 360-degree videos that aren't anymore revealing than what I saw in March of the Penguins. They're interesting, I don't want to say they're not, but they're not the breakthrough experience that's going to make me go out and buy Samsung VR. That's just not going to happen, not yet. But I'm glad newsrooms are playing in this.

How can we create new demand for this kind of content?

I have to be able to experience something that I truly want to know. As with any device it has to solve a problem that I've got. At the moment I don't have a problem. I'm able to understand everything I want to understand by reading or watching video and I'm not going to strap on goggles, I'm not going to carry another device. The other huge issue is one of data. We know that video consumption in non-wired communities for example in many of our communities in Central Africa and South America will tell you that they're video does terrible. Why? Because people just aren't working in wired environments to watch video and have to pay data charges to watch video. They would much rather read text or even listen to audio because it's not so data-centric. So one of the problems with VR and 360-degree video is that it comes in much larger packages of data and to consume anything of substance is going to be really expensive and will eat up their data plan. So they're going to have to figure out a new way to deliver the news without any

question. Otherwise it's going to basically be, we're going to be producing videos for rich people who have unlimited data plans. There's almost an ethics issue with that that you don't want your product to become exclusive to those who can afford it with unlimited data. You have to make it accessible to the masses. So there's a lot about that but number one: are you solving a problem that I've got? Two, are you in any way creating that I can use on the devices I already have? Or are you forcing me to go out and get another device? And three, is this really journalism? Or is this just another shiny bead? Because we chase a lot of shiny beads and for newsrooms every time you chase another shiny bead it means you're not doing something you could be doing so there's both a hard cost and a cost of time, experience and even the cost of production.

What are some other shiny beads newsrooms have chased in the past?

I think that newsrooms have tried all sorts of scanning technologies where they would put barcodes on people's phone and expected people to shine their phone on the barcode to see more about that story, didn't happen. The more we can listen to what the consumer wants and not get too far ahead of them, the better. That said there are lots of reasons for us to try new technology and to keep playing and experimenting with new technologies to see if we can find a marketplace for them. At the moment The New York Times, bless their heart, had to give out Google Cardboards to people to look at their 360 because people didn't have the technology. Well, they still don't have the technology. I mean I go to workshops where we are handing out Google Cardboards and even journalists don't know how to use them, they've never used them, even journalists. We're just a bit too far ahead right of the means of delivery for the everyday person to use these things and frankly I think journalism may be less important than many of these other places that truly need these solutions. Again, real estate is such a good one but architecture and all of those other experiences and even gaming might be much more ahead of us.

How can newsrooms retain the ethics of journalism when collaborating with technology companies and film studios?

Well one of the things we talk a lot about at Poynter as an ethics issue is to be sure that the filmmaker or the animator, if you're going to represent it as journalism let's be sure we're not using any film or animation techniques that are purely for decoration or somehow skew the truth in making the aesthetics work we sometimes change the truth I'll give you an example. Graphic designers sometimes want to make charts or graphs more interesting by using less data or say for example you have a crime trend that goes for the last 30 years but that's kind of big clunky graph, the crime trend over last 30 years might show that there's been a gradual decline in violent crime, which it would be in most major cities but if you look at some cities in Chicago for example in the last three or four years you'd see a pretty substantial increase and it would be easy to believe that crime has been on the rapid increase and you'd be accurate in showing that chart but without the long-term decline you would be accurate but not true. So part of what we have to do is to make sure that we don't lose context in order to gain aesthetics. So when you make a graph, are you representing the truth? If you make a chart, is the chart going straight up or straight down? Or should it be a gradual slope? Is the X and Y-axis actually

mathematically correct. If you show me a pie chart and you say 31% of something, is it actually 31%? If something is growing, is it growing at actual rate on the chart than the time you're trying to represent? Motion and context matter in ethics and in journalism. I often see for example stuff growing on screens and arrows shooting up and shooting down and if you slow it down it looks like it happens over time, if you slow it down it looks like it happens very quickly. In sports for example we run into when they slow down a violent hit on the field. If they slow it down it can look like a much more violent and even intentional violation than if you were to show it in real speed which might show it was an unavoidable collision. And this has become a real problem in the NFL for replay. If they replay it in slow motion, it can look much more exaggerated for an intentional injury or an intentional hit then it was if you watch in in real time you realize that the force was unavoidable because it happened so quickly. When you add artificial motion to something you can change the context, which is an ethical issue. It's a factual issue, but it's a factual issue.

What questions can journalists when judging the ethics of a VR journalism piece?

The question will be two-fold. One, did I create that using real information, real scenes in context that the viewer would understand, or did I peak your emotion with music and other things that I added and I as a viewer that all of that got added. I'll give you an example. We use video and one of the things that I show in my drone ethics work is that I will show an image of a drone flying over an African savannah and you will hear these giant birds squawking as the drone is flying nearby the flock, well the problem is that it would be impossible to hear those birds flocking because the drone does not capture the audio and even if it did it all it would capture would be the motor sound. So clearly that sound was added in. I have similar video of camels walking across the desert. It was impossible for the drone to capture that audio, it had to be added and so on. Was it accurate, do camels make that noise? Yes. Did that camel make that noise? Possibly, I don't know? Did that camel make that noise on that video that the drone captured? Impossible, no unless the drone was dragging a shotgun microphone underneath it at camel level it would not have been possible.

What are some arguments documentarians make about adding elements into their stories like music?

Documentary people will often argue look, everybody knows that I'm not traveling with an orchestra. A reasonable person will know that I added that sound and that's not without some reason. Filmmakers know that sound, particularly music is a very powerful emotional cue, but much more subtle emotional cues. Slow dissolves for example can be a highly emotional cue. I saw a video last night O.J. Simpson walking out of his parole hearing in slow-motion and I thought wow you sure do look guilty when you're in slow motion. His eyes blink more slowly, he looks more ominous so O.J. Simpson is the poster boy of special effect, all the way back to his arrest photos to yesterday, we see what happens when you alter anything that happens in a real news story. I think the reasonable viewer understanding is useful. I don't expect the video games that I play to be without music, I expect them to raise the tone and so on. I don't expect movies to be without

emotion, I expect for them, I want them to have emotion. But when I take in news and have the expectation that news is going to give me information that is real now it becomes more problematic when you add music. I have to confess to you that in my many years of doing documentary work I've added plenty of music. So you know it's like talking to a reformed alcoholic, I'm trying to keep you away from that bottle but I've sure been in that bottle myself and I can tell you that it is a powerful, powerful tool.

What's the best process of establishing ethics in partnerships?

The newsroom needs to establish that themselves first. So what are your standards for adding, altering, for use of music, graphics and so on. Before you collaborate with anybody Socrates said 'know thyself,' so you have to know yourself first and adhere to your standards first before you apply them to a partner.

But these standards don't change based on the technology you're using, right?

That's exactly right in the same way that medicine struggles with ethics when new technology come along. The technology almost always move faster than the ethics do so one question to ask, now that we have live streaming technology, should we save all lives? Well I didn't have to deal with that before so it's good to be thinking about before we had virtual reality what were our standards for truth telling? Now that we have a new technology do those standards change? Why and how will I explain that change to the public? We have standards for still photography, do not add do not alter except for clarity. You don't change content but you enhance clarity. The old standard is you enhance clarity so you can see what you saw through the viewfinder. That was the standard for clarity, I want to show you what I saw through the viewfinder and what happened environmentally, I just want you to be able to see what I saw. Well, that was our standard until we were able to do many many more things such as adding saturation and contrast and all kinds of other things that would be completely invisible to you as the user. Now we're adding even more technology. We're now able to allow you experience things that you never experienced before. What I would ask is, are we changing the standards when they were a flat image, are we changing out standards for factual truth telling? Are we enhancing your experience beyond what I heard. What I heard is a clarinet whipping across the background of me walking through the park then I might be able to add in a clarinet and say you know as you walk through the park listen to the same music I heard when I walked through the park Explain that you added it but say you're experiencing the same experience. I was watching the Antarctic video on The New York Times the other day, if I had no reason to believe that those sounds were there and if they had sounds for example of a John Williams orchestra behind it, I would have no reason to believe that John Williams has an orchestra in Antarctica, I think I would understand that they added it. One of the things that I use is I have one version of a video clip with three different music tracks underneath it. They are three wildly different experiences based upon the music.

Claudia Prat - Freelance Journalist, past work has appeared in The New York Times and the Associated Press

Tell me about the ethical concerns of using spacial audio (using story of young girl coming back to a New York City Park Prat produced she grew up in as example)

Yeah that was actually supposed to be a bridge test but it took like a really long time on how to put together the video and the audio and make it work on a platform like Facebook or YouTube but on the ethical concerns, I think it's the same ethical concerns as using any kind of tech, but spacial audio allows you to manipulate some of your resources and I don't want to say that in a bad way, but you have more elements to play with so you have to make sure that you are being as careful and you are accurately reconstructing reality. It's like using CG, you can add more things that aren't there or enhance things that may be little. I think sound is such a new field for people who come from journalism or video. For some people, we never really think about sound. And even for me with that piece, at the beginning I wasn't really able to hear and if we were able to do a spacial sound or not. I don't think we even have our ears trained to understand the huge spectrum of the audio. One thing would be the audio that you can recorded with a Zoom H2N from the camera and you can have four channels, left, right, front, back and that's not like too big of an issue you can have the panorama and then these four channels but once you start placing (inaudible)... But I don't know for ethics, Kelly from Poynter I don't remember the last name but she always says like, 'why are you doing something' and also I don't think we need to overthink things. If we do something it should be as it was in that moment when you were recording. That's fine. Yeah, there is also a kind of a translation of what you are seeing. You translate it with words or you translate it with images now with sound, it's not only sound but it's special but yeah there are a lot of things.

What ethical challenges have you found as a VR editor at the AP?

In a ways it was like wow normally everyone from AP when they are using the camera they are hiding, but in this case they are doing an interview who had family members inside that prison. It makes sense that you are there with him and listening to him. Why should you hide or why should you tell him to look at the camera. No, it's necessary to do all of this; maybe we should do this with a journalist and let the story unfold.

Do you like journalists on camera doing interview or hiding? Pros and cons.

Yeah, I think it really depends on the story and what's happening and how you're getting the story. Maybe if the journalist is there it makes, the people are less concentrated, it's like everyone is listening to the interview and it think it's case by case. Many stories can be told without the journalist being there and I think that offers different and new possibilities. Like for example the story with spacial sound. In the beginning we did a very long interview with her and actually we went another day to talk with her. But at the end when she saw the video edited with the interviews she didn't feel comfortable at all. And the reason why is because we left her with a microphone and we told her hey, you're

in your childhood playground and tell us, remember this playground and share whatever you want to share with us and it got really intimate. So when she saw the video edited she was like no, I don't want this published. This brings a lot of concern maybe on ethics. I didn't even know we had this material until I was editing the video and listening to everything she had said. And in a way we could have chosen to publish everything. Looking at legal terms we had signed a release, we hadn't forced her to speak but in a way explaining the technology, maybe she's also young and maybe she wasn't aware of everything she was there. Maybe I don't know, it's a different feeling. In that case our ethical decision was that even though we had a very nice story about her childhood at the end it was just like ok let's put the styling up.

What have you used in your past experience shooting video to make sure you aren't staging a scene in 360-degree video?

Normally I try to base, in my first year of this experience, I didn't want to complicate the storytelling too much. I was trying to do location-based stories so then it's kind of easy in a way because you are talking with someone so I always try to think that the location is important for some reason that that person through the location makes itself more sense and that the timing is relevant. Doing an interview in 2-D it would be interesting, but it wouldn't be as interesting as seeing that character in a 360 setting in that concrete moment and time. So this has made it so normally the stories are quite easy to film. In a way a person is there in a location that probably needs to stem something about it. Before pressing record someone will explain a little about the things that are important. We did a story with Univision about the B.A.Y. venue in NYC so the owner explained the design of the space and why it was important to have the BAY and the philosophy of the architecture and how it would come together. I mean in those cases I just set the camera and say, talk to me about this space or try to remember years ago when you entered the space, how was it in comparison to now. So I don't think I have re-created things. Of course what the character was doing was for the camera and in other cases in the story I did with Fusion and I also appeared many times. But for me it was about being behind the scenes, it was a story about a performance that was getting prepared so the camera was backstage spending hours with the actors and not telling people what to do.

What other questions are you asking yourself about the ethics of staging in 360-degree video?

Now that you ask this question I think what I've done is to put the camera and wait until things happening in front of the camera. And sometimes I know this because I'm there physically or not very far. So I know when something interesting is recorded or sometime I see that afterwards when I'm editing. It's conveniently like surveillance. Maybe that's another way to do it. I guess in a way it's a lot like photography it's like I'm shooting this moment. And there you can point to something is happening somewhere and if you say people are moving in one direction you can imagine where they are going and where they will probably stop. And if you have the camera and you capture that conversation, you have it. And it's like awesome.

Tell me more about how those challenges speak to the challenges found in using spacial audio?

If there is one issue when recording spacial audio is that it's quite complicated ethically. If you are recording separate sounds in the space, how are you going to make sure that those sounds. If I have a mic that is next to the door, or if I have a microphone next to the window, how am going to make sure those sounds were captured at the same time. They are all synchronized, that the sound of the cars is that real sound it's not like I'm putting the sound of three minutes before or after I think that would be an issue. Yeah like here's an ambulance. If you want to be a real fullest of capturing reality we have to capture things as they are happening, not after. That's being really picky. For example with AP, they are very precise about these things and as a video editor your job is to make sure everything is as it is. If we were doing a spacial audio with AP I can imagine a mix of files and timing.

Dan Archer - Founder of Empathetic Media

How was Empathetic Media started?

I started Empathetic Media basically as an offshoot of my RJI fellowship in 2014/15. Back then I was taking more of a trans-media approach, looking more of a wide range formats and ways you can tell stories sort of cross-platform. Maybe, starting with a piece of text and then winding into either animation or a piece of film and go to say a VR experience. So my first experiment and production for Fusion was a re-construction of the Ferguson shooting. That was built in Unity and that was something we have grown with as the platforms have developed. We try to sell Empathetic Media are making content more accessible so we, for example a piece, as I'm sure a lot of people are doing now we publish our 360 content on YouTube or Facebook to get it out there. We are doing a project currently in Columbia on the reconciliation process that we will essentially see Columbia's largest paper to try out something much in the vain of what The New York Times did with the Google Cardboard. But we also are building on what I told you about with a cross-platform approach, we still believe in combining a wide range of different approaches so there isn't a silver bullet. So we pursue room scale, high-end VR experiences on the Vive, but then we also make more on-rails experiences for the cardboard and some of the work we've done a piece for the European Journalism Center which went out in Spanish and German and on Vice. For that we did comics and 360 and some 3-D scanning. Just lately we've been experimenting with videogrammetry so you know it's a super exciting time to be a part of it. One thing that I should mention as well is that we've been experimenting with augmented reality which I think we are one of the first organizations to do that and it's just a question of again, if you're already working in a game engine it seems like less of a leap, or at least a non-magic one to you know to move that content into a... (inaudible) Obviously, trying anything new for the first time is a bit of a risk and there's a steep learning curve so there are plenty takeaways that I can advise people trying to get into it.

What's the benefit of creating stories on a platform like Unity instead of just doing 360-degree videos of the real place?

I don't think a prescriptive, cookie cutter approach where you can say we are going to do animations for this story, I think it all depends on when you get there as with reporting, what are the availability and accessibility of sources? Do they want to be on camera? Are there sensitivities that need you need to be mindful of when you record there? If we are doing a reconstruction wouldn't it be more helpful to visually recreate, specialize the area in which the story took place, instead of showing a classic ken burns pan on the places near by or similar, there just isn't much too it. I think often sometimes when visuals or former are sort of (inaudible)...It seems superficial to the actual take away of the story. And the ability to explore a site in 3D or being able to have a combination of context as well as maps as well as almost like a guided story allows you to really get a clearer sense of what happened to Freddie in the back of that police van or rather than just showing the footage of him getting arrested.

How are you being sure you are providing authenticity when you are recreating scenes?

Yeah, really good point. Back in 2014 and sort of early last year we did use some computer rendering like emblematic media groups have as well. But occasionally there are issues with the uncanny valley. So now we've more towards 3-D scanning we 3-D scan sources as well as environments. It's a work-intensive experience but that the level of realism is significantly heightened. One thing like I mentioned before is that we are actually working with videogrammetry so it's inside the VR space, there are no avatars, it's a 3-D object built from an image sequence and textured onto a video so I think it's really unparalleled in the sense of actually being there and we've used a lot of results from the empathy center that I'm finishing up at the Tow Center to really hone in on what we think are contributing factors that bring a sense of presence and immersion and emotional empathy inside a news consumption experience.

How do you craft a story that encourages your audience to actively participate?

I think its one thing, it depends on the empathy side of it. It's one thing to be familiar with it and it's another thing to actually another thing to be guided through an experience. And often as we've found for example people are quite resistant to micro-coverage because I think we've reached a saturation point when you talk about the theme of refugees and migration and yet these new experiences do afford unparalleled level of interactivity. So what we do is we start you off some of section 8 housing that the protagonists live in and they allowed us to literally 3-D scan their apartment and so we put meaningful objects in that apartment so the user is intrigued to literally pick up and interact with and literally at that point it's like their unlocking new parts to the story. But they can do it in any order they want and they have freedom of movement and it's room scale so they can literally walk around. They have to bend down to pick up these photographs but what we are trying to do is in a way use the different environments, we are also using archival photography and some scans of architecture that Gordon Parks

originally took pictures of 50 years ago to bridge that gap and I guess allude to periods of history and the lack of change, it just would be hard to do in any other type of media.

How do you overcome the temptation to re-stage scenes?

One way that might be helpful to look at it is from a documentarian point of view and the journalistic point of view. So obviously from a journalistic point of view the level of transparency is there. I originally worked in comic journalism where I was getting the same reprimands in saying, well if you're drawing this how can it correlate to a reality. But I think as long as there's a transparency in the methodology then you can be covered. And I think, you know, is you still need to abide by the same rules and you still need to sign the releases and you still need people to understand what's going on. One of your challenges though in something like 360 is you have to be so close to the action to make it feel like you're there. And so, that in of itself it becomes a matter of timing. I think things like the Gear 360 for example have really helped because you don't have to think 6 or 8 or 10 Go Pros and put them in position, you kind of point and shoot so to speak. When we've done interviews, it's interesting because we did a piece in Bangladesh and for that exact reason I said to people, as I've done in the past, we've told them about the camera and we told them what it is and what we're doing and then we just left the camera in the scene and the people went about their business. And then we put the voice over the top. What was interesting is that the editors came back to me and it says, well it doesn't really feel like we're being guided. It doesn't feel like the voice is corresponding to someone who is in the scene. And I perfectly agree with you that to have someone 'oh could you just walk into this shot and could you stand there or could you play with this' there is a chronic risk of doing that and I've seen a lot of really highly vaunted quote unquote journalistic pieces you know produced by something like UN VR team like "Waves of Grace" or "The Displaced." I mean clearly a lot of those shots are very staged because they are cinematic. And I think in some respects they're sacrificing, they're saying well the medium is at a point where it is and we need to capitalize on audience interest but yeah I agree I think that is a huge risk and you know within a subgroup of VR journalism group we've been talking about stitching out a tripod for example. To sort of a certain extent it reminds me of what Sam Gregory who was a witness when he was talking about: people talk about immersion but they don't talk about co-presence. And so often in these VR pieces you do see the subjects of the film staring at the camera in almost in bewilderment. And you sort of get that feeling that the film crew came in prompt it down and sort of run to get out of the shot and I wonder if we actually have to be included in the frame, you know to break that 4th wall and say it's not you can pretend to be apart of the camera crew but you can't pretend to be there because that would involve us taking all these other steps effectively are more theatrical in nature.

Is telling through eyes of a journalist a good approach to instill authenticity? Other methods?

I think there's been a lot of experimentation, there was a series of films that were called like 'The Perspective' or 'The Encounter' and it was like switch sides and be both the victim and the date rape on a college campus and there was something very staged about

it. I think I was going to mention Fallujah as that sort of candidacy and I like to see that sort of sense of openness and when we were covering the wildfires up in Canada last year he set his 360 rig down and it captured not only the beautiful sight of the forest but also the press group that had been bucked in that were taking all of the shots and I think the more we can do that the better and more open we can seem. It just begs the question then of what's the purpose? Because I know intern reminds me of the election coverage that happened last year where people would say 'be amongst the crowd' at a Trump rally. And often you were put right at the back amongst a bunch of cameras and there really wasn't much to grab onto and I think again it was The New York Times did a smart thing where they were like rather than being on stage with say Bernie Sanders like Ryot did, you can be amongst the crowd and look to your left and look to your right and see how people are reacting. I think it's much better for that.

How do you guide someone's vision in VR?

The best example I think of like that is the BBC did a piece on the hadron collider and someone said 'look above you, look to your left' and people love that because we found when we were doing a survey of 180 different experiences people would often do the token look around and then just be looking straight forward and it was rare when people would explore every which way and what not. I think a certain amount of guidance is beneficial I see that the New York Times is experimenting with drawn overlays on their 360, the Malcolm X piece.

What do you think of the Malcom X 360-degree video story from The New York Times?

I think it was really well done and executed I think that over layering of content was really great. I think it was a good way of trying to bridge two periods of history. For me I think it's an interesting take because The Daily 360 has its own agenda. I think The NY Times wants to be seen as pushing the envelope, I'm not sure what it does though beyond the level of... I think sometimes it runs the risk of pandering to the novelty aspects of it. I think the goal of journalism should be to entertain but also to inform primarily and I'm beyond that sense of immersion and presence, like often when I'm talking about the experience that I saw, the visuals will stay with you because it's a very cool idea, but I'm not sure if I remember so much of the information that it was couched in. So I'm not sure if that's problematic.

Have you ever deliberately modified an image?

No, I don't think, thinking back I don't think there was a time when we had to do that. Cloning out the tripod is apart of the process. We've done a little color correction, but only in the sense of what a normal video editor would do. One thing a well is that a lot of people focus on visuals, as we are entering an area of spatialized sound I think that's going to be interesting as well whether essentially amping up some sounds over others and leading your attention, whether that you know constitutes a breach of journalistic ethics as well.

What other ethical topics should be given importance?

I think the staging aspect is something that has fallen by the wayside. I think it's easy in a CG context because people understand that it's a process and it's often looked at like a documentary style approach. But I think I have heard filmmakers try and ask their subjects to distill their story into a shorter format because they only have so much of a clip left...yeah, just really horrendous stuff to get the right part, almost in a series of takes. Although, it's quite strange because people have different responses. They're like I want to see a person (journalist) on camera. Me personally I don't think interviews work well in 360, you have to be so close to the camera and you also have to be starting at the camera because it's just not you. But if it's a subject and they're just going about their business it's kind of a disconnect when you're talking about emotional events so I think the best 360 immediate and set up in a sense that everything is prepared. It's like that moment in Fallujah scene when the rocket goes out. It's like that thing where people forget that they are there, that level of honesty. I think setting up a camera and it being very much about the camera and the technology you get that same kind of shut-up when people bring out a DSLR they sort of move into photo-mode and it creates a barrier then it does naturally.

How do you ensure authenticity specifically using CGI?

We take a ton of photo references, we found that 3-D scanning of people and environment is a way of maintaining fidelity and now that we are doing videogrammetry. You know one of the big issues before is that you would have scans of people but they would be stuck. Or you would have to model people and add motion capture them and Nonny De La Pena did that as well, which is dramatic and theatrical in its nature. So now we can basically do it like a basic video but it takes significant pre-production time to set that up. So again that's the idea of I'm going to ask you about your questions but you can't do it on the fly.

Ray Soto- Director of Emerging Technology, USA Today

On the process of putting together a computer generated VR story celebrating the anniversary of the NASA moon landing.

We used a plug in for Premiere, metal skybox. We incorporated it in there and rendered it out. As far as stitching the rest of the images, it was a combination of using the images they had provided and at the same time rendering out what would have been the ground plain. There wasn't too much of a paradox between the mocked up lunar surface and what you saw in the background, but as far as being able to get this out quickly, it worked out well. It's one of those things where with our production for 'virtually there' it's a weekly news show which we got three videos and the production process on that has to be very very quick. So the fact that we were able to get that together just speaks to the tools available especially for journalists to get it out there and make it work. That's one of the things that has made our jobs easier. It just helps us to tell a story by being able to quickly not only that, whether it's mocked up or not it provides context to a scene being able to lay those graphics in a 360 sphere and what not. It's allowed us to do what we do

easier definitely quickly. Just to have something like that we can deploy to several different editors is great. Before Metal was around, it was like I'm going to take some graphics, throw it into a 3D program, render out something that can be overlaid. It's too much.

How do you decide what stories are best to tell in VR?

The one thing that we don't want to do is we don't want to treat this medium as a gimmick. We understand that VR, while I wouldn't necessarily consider it mainstream, is that we don't want to produce something in VR for the sake of saying; hey we've done something in VR. If before we shoot anything, we go through a pre-production storyboarding process where we want to make sure the story enhances the visuals and the visuals do the same back to the story. If one of those two elements is missing, then we might decide this might be better as a print article or this might be better as a photo gallery with a narrative across each of them, and we'll start having those conversations. When talking about, let's say the racial profiling example. If there was an opportunity to tell a really impactful story, then let's get those cameras into the community to see what it's like to be within that environment. What's it like to be with this person we are trying to tell their story from their perspective. The wing walker thing, it's visually impactful, you are riding on a wing with these barnstormers. That one was kind of a no-brainer but there still come challenges to the best practices side of things. There's this motion thing we have to worry about. How do we tell this story when we have all these visual, really cool stuff around you. It's about finding that balance between the two.

Why don't USA Today's VR stories include a reporter on camera?

What we want to do, what we want to focus on is ensure that we are telling the story from the subject's perspective. While there hasn't been an opportunity where the reporter has been within the scene but what we've noticed is: when you have a reporter within the scene it becomes restrictive. The user is so used to traditional reporting it's like 'oh I have to pay attention to the reporter.' So it just kind of gets lost within that space. I'm not saying that we wouldn't do it, we have, but with the virtual reality series that we've done you know we want it to be from their perspective, we want the user to be like 'oh this is what it's like to serve, to slack-line, all these great fantastical things. We don't want to necessarily influence it but at the same time we just want to make sure you enjoy the story. The reason why you haven't seen anything, we've done a couple pieces but our more popular pieces are when we aren't in there, we just let the user take it all in.

What strategies are you using to ensure authenticity in a scene? How do you make sure you aren't re-staging a scene?

That is one of the biggest things that we are worried about. It's a huge ethical concern where we don't want to manipulate the story or re-create anything. I think a really good example of pieces that we've done. There have been scenes where the reporter is apart of the scene but you just don't notice it. We want them to blend in in a scene. I think the slack-line piece of virtually there is a good example. You're sitting on top of these cliffs

and the cameraman is standing there but the person holding the camera is the person that is slack lining. But to speak to what you're asking about, we did a piece we covered the US national ski team for the Vale championship and what we had done is we wanted to capture the athletes just kind of being in their own element. And what we've done is we'll set up a camera or we'll tell them 'just talk, talk about anything you like. Talk about what got you into the sport, what is your passion in this sport,' and we'll just leave and leave it at that. And more often than not it becomes a much more natural conversation, they open up a little more. But not once have we said to the subjects we are covering, you know hey I want you to talk about these very specific thing or you know what we heard you talking about this and we didn't capture it, can you do it again and we'll run out of the scene? We're very careful to find that balance. I think the industry as a whole is just as concerned as well.

What works better? Doing an interview on-camera, or off-camera?

I can see benefits to both actually. With just a microphone and overlaying it can add context to what the user is saying. The barn storming piece is a really good example of that where you can tell that they understand that it's a dying art form and you can feel the passion when they are speaking, especially coupled with the visual side of things. So it's worked for us in that sense. At the same time where we just say 'talk about anything you want' more often than not we've found that they end up speaking to what's on your mind, it's more natural. It's more of a conversation almost like this. We've noticed that there are benefits to both and it really depends on the access we are given as well. Touching onto the breaking news side of things, you know all best practices might be thrown out the window. There might be a reporter that's hand holding a 360 camera and recording audio on an iPhone or live broadcasting it through periscope or something like that. At that moment is just we want to get the viewer there to understand what's happening as quickly as possible. There's balance here and there.

What are the ethics found in feature stories, compared to beat reporting 360-degree video stories?

I actually just got out of a conversation with some immersive journalists, who were asking 'do you mask out the tripod?' How much manipulation do you do? What about stitching the seams? It's one of those things where not necessarily everyone's in agreement but they understand that there is a little flexibility here and there. So if it provides context to the story you're trying to tell in a documentary style piece, then it's ok. Let's say, if we capture an area and are completely masking out the right side of the sphere just because we didn't like the way it looked, there's a pretty big ethical consideration there and something that we would never do. We and I think the industry as a whole, we are still trying to figure out, what are the guidelines? These conversations need to happen. I'm encouraged by the fact that it's happening more often but the fact that it's taken so long... is VR and 360-degree video a thing? And it think it has become, so these conversations need to happen.

On Frontline Soliditary Confinement story, I argue that you shouldn't overlay 3-D scans of people if they aren't actually in a certain room. Do you agree?

I completely agree with you. It's one of those things that if you have the video side of things you start incorporating that 3D render capture there becomes this conflict of visual noise, but a conflict of what their saying. Because then you start to question the seat that your standing in. Is this CG, was this re-created? I'm finding that more and more folks in this industry, everyone is asking themselves, how do we not treat this thing as a gimmick. There's a lot of experimentation and I'm thinking that maybe a year from now if we are having this conversation we won't see anybody doing this stuff before.

What's the difference between advocacy work using VR and VR journalism?

I guess I would say there is a line between the two because they are two very different experiences. You end up creating stories between the two and you think about the advocacy side of things there is a story that you want to tell and you're going to edit and build that empathy to make sure folks click on that donate button. As opposed to the traditional journalism side where you're going, you want to be as unbiased as possible, you want to tell a great story. You want people to understand both sides of a story or a topic. If its something such as covering the Women's March for example, maybe it's just about getting the viewer in there but it's not necessarily about feeling a certain way when you're viewing that. Just be present and understand what's going on. Maybe outside of that to pull something in we might be apart of the movement but aside from that I feel like they are two very workflows and two very different techniques for sure.

What other questions should be asked more? What am I missing?

One of the things that I find the most concerning when it comes to the ethics side of things is how do you inform the user about what they are about to get into. It's one of those things with VR whether you download an experience or hit play within a headset that it's this isolated experience. I don't want to say that you're forcing them into something but let's say for example you wanted to create a piece on lets say a riot. And maybe that claustrophobic feel or somebody that might have PTSD and all of a sudden it just triggers something. What can we do as an industry and content creators to tell users, this is what you're about to see if you feel uncomfortable you might not want to watch this within a headset, maybe just with a gyroscope on a phone, those are things to consider. At the same time not just on the storytelling, hard-core journalism side of things. Let's say for example the wing walkers is a good example. When you transfer from the scene inside the hanger to the scene on the wings your hundreds of feet flying, maybe there's someone who's afraid of heights, wing walking isn't a fun way to get into that experience. There's stuff that we have to work on as well. Those are the ethical concerns I have with that. I know that we will develop these best practices and develop some type of messaging. So definitely something like that. We've talked about the image manipulation, the CG representation, those conversations are happening and I think that's great. We also talk about the digital divide where right now these headsets are so expensive that we are kind of I don't want to say that we are forgetting but there's a wide

audience that might not be able to access the fully interactive experiences. It's going to be very heavily mobile-driven so how do we create an experience that still has the impact of the interactive for user-base; there are all these other concerns. It's basically how do you determine the platform you're developing for and when do you develop it. So it's not necessarily ethics but it's an understanding the audience.

Do you consider VR mainstream yet?

I don't consider it mainstream yet, but I find that there's an opportunity for this industry to experiment. We don't have very much time to figure this stuff out but I expect by the end of this year into next year we'll be mainstream and if we don't have this stuff figured out you know, what will end up happening that we might be able to attract those that didn't consider VR news as a form of journalism.

What are the barriers that are keeping it from being mainstream right now?

For me it's the scattered ecosystems. The barrier to entry is very very annoying. When you think about getting a Rift or even a Vive it's ok I have to buy a PC that at least \$1K, spend another \$800 for the devices, I might need a room and then I pay \$60 for a game. Or it might just be ok how do I access this content? And then you think about daydream is for one specific phone right now which is for \$800. There are a lot of consumers that are hearing about it and saying what's cardboard? And then, how do I access this? Do I access this on mobile web? It's so scattered right now so until everything settles a bit more and everyone understands we need a few platforms instead of everyone saying we want to be the platform. It may take a bit but that's one of the biggest barriers now. The conversation that I keep having with other folks in the industry is that last year folks like you were saying were getting into it, figuring things out and I feel as if we've moved beyond that. We no longer have this, hey you should get into this medium, everyone knows that this is a thing but we can't use this as an excuse anymore and I encourage others to look beyond that and really think of this story within this medium and the impact. In our newsroom 360 and CG because when it comes around beyond next year the best practices and ethical guidelines and we can just create content and not have to worry about scattered ecosystems and what works/ what doesn't work. We haven't reached the VR promise land yet; we'll get there.

Bryn Mooser - Founder, RYOT

What excites you about using VR in journalism?

I think what's exciting... there are a couple things. We're at the first stages of what VR storytelling can become. 360-degree video is step one. And it's a small step compared to the leaps and bounds we are going to be making in the coming years. One of the things right off the bat that is powerful is that with 360-degree video you actually have the opportunity to express the truest form of cinema verite which allows you to actually show what is happening all around you rather than in a frame in front of you. What that means is, you can't hide. You can't hide lights and wires and a camera crew and so in its purest form you have the opportunity to show exactly what is happening on the ground without

the manipulations that you normally do in a normal video. My experience has always been that the photos taken, you know my background is in humanitarian disaster relief. In those places it's very easy to point your camera at a small frame and tell a story, and tell the story you want to hear: desperation, sorrow, anger you know whatever. But really when you take in the full picture and see everything around, you have the opportunity to show I think a fuller story. So that's the first great opportunity. Now, I think the challenges are the discussions that we have in discussing the role of the filmmaker and even the role of the camera. What do you do about the tripod? We remove the legs of the tripod, which is important. The AP doesn't do that and won't do that. The New York Times doesn't want to alter the image in any way. I think we are still writing the rules and this report will be incredibly important to do that. But those are the questions we ask ourselves, what is the role of the filmmaker. If you can see everything than certainly you should see the filmmaker who is behind the camera and at times we do do that. I think you have the opportunity to tell a complete picture and not hide, the challenges are how you start to define those things, but really the understanding that we have that this is a very small step.

What should the role of the reporter be?

I think it really depends on the subject. One of the things I want to see in 360 is if we are doing something that's a really personal story I actually want to see the relationship between the person that we are interviewing and the reporter. I want to see how they look at each other. I want to see how the reporter reacts to a certain thing the person says. I think those are really fundamentally exciting new opportunities that we have in this technology. You can't normally see the reaction that the reporter is doing. You can do cut away, The Daily Show is the best example of how you manipulate an interview, how you make the reaction you want to tell, but in VR you can really show what is happening and that's what very exciting. I think the story really dictates how the reporter plays into it. The other thing is that nobody knows how to do this perfectly, this is what's exciting about this medium. It's people like you and me and Francesco at the AP, Gabo at the UN who are trying sleepless nights after sleepless night to write this new language for this new technology.

What's the ultimate goal of VR journalism?

The ultimate goal is to do away with storytelling completely. The ultimate goal here is to actually look at the real departure from cinema and linear filmmaking as a role. This is a different beat all together. I think where people are struggling is that people are looking at this as an evolution of cinema. They are trying all the same tricks, but this isn't the same thing. 360 is just a really big screen, a really big picture that wraps around you. The opportunities of VR are entirely different all together where you actually don't have to tell people a story, but rather you can let them experience something and create a story themselves. So that's what we are trying to do, but what I want to see happen is that we have this idea of storytelling and we allow people to do something entirely new which is to experience something and tell their own stories and create their own narratives. I think those are the experiences we're building right now and we are working on. All on the

HTC vive, very exciting stuff. This is a real evolution in storytelling versus real experiential VR.

What are the challenges of building an ethical framework for VR in journalism?

I think that news and traditional media as we know it is dead. I think it died during this election. I think this idea that somehow journalism as we know it and its ethical, perfect impartial system is just a lie that's been exposed by this election, which is just basically like what I think is the last death rattle of news as we know it. Right now everybody in their pocket has a tool that's so powerful that they can have access to all of the world's information, all the newspapers in the world in their pockets. And with the camera improving on your phone and that means now you can create content that looks as good as any professional outlet could three years ago. So, now you have the opportunity to get that information, you have that opportunity to create that information and with social media you can publish your own information. So it's a moment where people become the journalists, people become the storytellers. People become the content creators. And the question is that we will start ask ourselves, certainly we ask ourselves, is why do we need Wolf Blitzer anymore to tell us about the hurricane in Southern Haiti when we can actually have Haitians show us in a Facebook live their community for themselves. I think there is an absolute key change in news and all of these questions around the ethics and how we set them up are I think antiquated because the entire industry is set for a revolution and an upheaval. The bigger question is what's even the role of traditional media anymore. Or what's the role of a newspaper anymore? Do we need a journalist anymore? So I think getting caught up in like how are we telling both sides of the story in VR or being honest and truthful, those are smaller questions than the greater question of in a world where people can create content, distribute content and get access to content we don't need a centralized media or news anymore. It's an incredible exciting time for new content creators and new journalists, new story tellers and a lot of diversity in terms of the view of the stories we are telling. This is truly an incredible moment that is happening right now and I think that you know, the mobile phone is clearly the biggest advancement in media since the printing press. I think we are going to see a revolution on that scale.

How does Ryot train their people working in the field?

I think that a lot of our filmmakers come from humanitarian or documentarian backgrounds where respect for the truth, with respect for honesty with respect for the subject are the most important things. As a humanitarian we show up for days and days and days before our camera comes out because we need to build the trust with the people we are working for. A camera comes out only to serve a purpose which is to shine a light on a place that's not getting the attention that it deserves based on a level of suffering or need all of those discrimination I think that we set a very high standard for ourselves about that because we're not after a scoop, we are not trying to get a scoop. We are not trying to get a breaking news story. We are trying to use these tools to shine a light on places in the world that are often forgotten.

Would you ever alter an image to improve a story?

No, we would never take out any parts of the image except for the tripod. The tripod one, that's a personal front to me. I try to take out the tripod whenever I can. Yeah, we're not taking characters out, but we are overlaying graphics we are laying on maps, we are adding titles we are creating soundscapes based on where we are. I think this is not traditional journalism. Our handbook says that we tell stories that can hopefully move the world and that is what our goal is. You're not going to see us turning people different ethnicities, or removing people but you will see us to put the camera in places that haven't often been seen.

Should the tripod be deleted from a scene?

I think the people that are concerned with about the tripod are missing the full potential of virtual reality. If anybody is having debates about the tripod right now, they don't understand how fast this technology is going to go. I think that where we are going is quick and fast and where you're able to fully move around stories, live VR that you can be in the space. That you can interact once you have machine learning in there I think you will see this very quick ramp up of what is possible and worlds that are indecipherable from our world in a virtual world. So tripods will seem like an antiquated discussion. I think if I'm trying to tell a story and someone trips over the tripod I'll keep the tripod in there, but if it's a story where I want someone to feel like they're sitting in a landfill in India and the tripod looks like a cannon tripod, I'll take it out. It's a super minute detail the bigger detail that I was talking about before is like, do we even need to exist as journalists anymore as filmmakers. It's that big this moment that we are in and I think it's fine; I will happily let other organizations endlessly about the tripod. If I go and make something and say, hey this is distracting to the story I want to tell them absolutely let's get it out, how can we make this story better.

What kind of standards does Ryot follow for VR stories?

I think that there's a guideline that we all share at Ryot that is 'how do we tell stories that are educational, enlightening that can help people understand the world.' I think it's very common in our company that we aren't a company that's exploiting anybody or that's interested in sensational. That's very clear for us, that works with us. We aren't gotcha journalists and we aren't interested in gotcha journalism. Beyond that, our mission is to never be exploitive, never to be sensational, never to trick people and so I think those are big moral guidelines perhaps rather than minute or ethical guidelines. This is the first baby step in the radical reshaping of what news, journalism, films will be. And so I think one of the reasons we've had a lot of success is that we've moved very quickly. We've made a lot of films. I've made over 200 films, many of which are not very good, but many are very good. I think that we've known that this medium requires failing and trying and screwing up and fixing and learning as often. And we are lucky to be a nimble organization that supports that kind of failure and calibrating I think it's been harder for those legacy organizations who look at this and are like 'oh my god we are doing a 360-degree video blah blah blah.' It takes six people and months to do that's a different than

what are after and we in a privileged position to have the same rules apply to us that would apply to a more legacy media company.

Kelly McBride - Media ethicist at the Poynter Institute

What's been your process to establish an ethical code?

There isn't an official line or best way to do this that I know of. What I think is the most practical way and the way it will happen in this particular case in the field of journalism is certain best practices will emerge a people experiment with the medium. People are going to do things and the most impactful, boundary-pushing work will be the work that we talk about and push back against. Some common best practices will start to emerge. With virtual reality I think the difference is from other mediums is like if you go back and see how best practices emerged in television it's a combination of the ethics and what the audience finds useful. If you look at early journalism on television it was just this guy sitting there talking and when they finally realized it's video, show people something, take them to a place they can't see. That was really cool and compelling and interesting and also sort of created all of these ethical problems like 'what do you do when it's a hostage situation?' Or a guy jumping off a bridge. Or, what do you do when somebody gets killed on the video or what do you do when somebody says something that's not allowed to be broadcast. So, you develop in real time these practical solutions to the problems that emerge and eventually some of those practical solutions, the practitioners coalesce around actual best practices. And only then once you've got general agreement on a certain critical mass of best practices are you ready to say ok, let's write a code of ethics.

What are the challenges in building ethics in journalism?

In journalism it's really hard because it's like 'who writes the code of ethics?' And really the best thing about that is that anybody can write the code of ethics you can do it at university or at a professional association like the NPPA or RTBNA or ASNE, any of these organization can say hey, we've written this code of ethics for their use and it becomes a service for the rest of the industry because anytime somebody makes that effort it allows the rest of the industry to look at it and ask questions to push back against the practices and suggestions made in the code. What you want to do is first identify what the most important values are and you'll identify three to five of them and then identify how the values are changing. In the 20th century we talked a lot of about three or four values. We talked about: truth, we talked about independence and we talked about minimizing harm. The thesis of the book that I edited is that those values are changing and that we are still talking about truth as a core value but the other two values are transparency and community as opposed to independence and minimizing harm. And so if you're writing something specifically for VR what you want to do by talking to a bunch of people is what is the most important values? We actually held a gathering where we asked really smart people to write an essay on a very specific topic and then come to the conference and make a quick presentation on that topic... And at the end of it we were like 'do we have consensus? The group came up with transparency over independence and then we tested that over and over again in different ethical scenarios and it turned out

to be true that the audience valued transparency over independence. So you might go over a process like that. You say ok I think these are some of the values and then you test them against some case studies. This is where you can find if these values have some tension and if there was more transparency whether or not you erased the crew, or enhanced the audio. So then you come up with these organizing principles and then you figure out how to apply these principles in very specific scenarios.

Does VR require a separate set of standards?

Yeah, I do think that there may be different values and there's two reasons for that. One is that VR already has advanced application in other fields like the military and the gaming community. So it would be silly to ignore the lessons that they have learned. Because a certain segment of the audience, maybe even the early adopters, are going to be familiar with VR from those communities and they are going to bring those values whether or not you care. Now, there's a caution to that. We talked about anonymity as a value in the early days of the Internet and we've moved away from that. You know there were these early adopters to the Internet who were all about anonymity and they looked very different from the general population and that will probably be true of VR as well. Early adopters as consumers will look very different from the general population as the devices get more accessible than you will see the broader population come in and we'll see the values will likely shift as that happens. As journalists we should remember that lesson from the Internet and pay attention to it. Things that the early consumers find completely acceptable, maybe around sort of violence and trauma, things that early adopters find acceptable, they just understand how stories might be altered or manipulated, the general audience is not going to find acceptable. And so, we should keep that in mind. The second reason that I think it will require its own set of values is I don't think that the photojournalism profession has been leading in the ethics in the digital era. I think they have been trailing. I don't expect the ethical conversations to come from solely from photojournalists and I expect they will come from the design community or the publishing community instead of actually from the practitioners. (Don't quote directly on this). It does call for a unique set of practices. I think the values of transparency and community will definitely be important in VR but there maybe other values that are important. The thing is that because we are an unlicensed profession the audience gets to decide what the values are. We get to discern them and decide where to apply them.

Do you think explaining the process of capturing source material is a way for newsrooms to be more transparent?

I do think that the more powerful and the more controversial the story, the more you have to either at the beginning or at the end or in some sort of companion material say hey, here's how we got this. The way that we bring the level of transparency to the audience is probably going to involve change because people will get more creative about it. We always say 'they don't want all that information, that's navel gazing' but a lot of times that's true. But where you want to do that explanatory piece is when you've really taken them someplace that is disturbing or really unique especially going to foreign cultures or

dealing with children or dealing with people who have been traumatized in some way. Going places that aren't open to the public like a locker room. The further you take them into a world that they couldn't access the more that explanation is going to be necessary.

Is a goal-oriented approach the best way to make the first steps in setting standards?

There are two things that you do. That's how you make sure that the work that you're doing has integrity. You from the get go can ask what is the purpose of doing this work? What are the values that we are hoping will be present in this work? Why are we doing this and who is it for and what purpose does it serve? In addition to that the other thing that you are doing is this other work is talking about the medium in the abstract. And saying 'what are the overarching values' of the medium and how do we make sure that the principles that we are encouraging people to embrace are the principles that serve the audience. That's where you have these abstract conversations and you ask people, what are your most important values when you are doing work and you synthesize and you reduce down until you get some concise statement where you get at those most important values? In the case of an emerging medium like this you sort of need to work on both levels at the same time and be aware that there is this abstract process and there's this very applicable specific process is going on. Depending on who you are and what your job is and what your doing you want to be fluent in both processes.

Would a checklist be an effective manner to start establishing values?

I actually think that's really good. You know that's model that we've used. We have the guiding principles that we've used, can find it all on poynter.org. We have this set of questions, 10 questions that we have people go through that we think guide these ideas towards the principles. If the principles are the set of ingredients the questions are the instructions for using the ingredients in the right way.

Jenna Pirog - Virtual Reality editor, The New York Times Magazine

Does VR require a separate set of ethical guidelines?

I think that the fundamental ethics or basis of ethical journalism applies to VR journalism but with every new medium requires a look at the rules to see if they apply to that medium. Whereas the rules of photojournalism don't necessarily apply to video, the same is true for video apply to journalism because the journalist's role is very different in a VR setting as in a video. So while the basic tenants are of course are applied, certain things come up for debate.

What ethical concerns and barriers have you run into?

That's kind of a separate question. What we have right now is an industry, the people who are making VR for the most part are not journalists, so for me to work with some of the VR companies that we worked with, it require a full-on introduction into the ethics of

journalism and have the understand. Which is why when we worked with Verse and when we worked with Ryot, there was always a New York Times reporter present. We never sent a team, we never hired a team to shoot something for us if there wasn't a reporter there to represent The New York Times and The New York Times ethics and the manner in which we collect information. I think this is a broader question about journalism as a whole especially right now with this election and the way truths are circulated in various circles. You know, Ryot is very open about the fact that they are interested in activist journalism and there's that article in Wired about Ryot, I forget what they called it. That problem is that they supposedly work at a journalism organization and you know, it's not a problem, but it's a different thing. We are a little more strict. I have our standards editor review everything before we publish it and there are certain scenes that we've left out because they were questionable. For the most part, when we are filming our own pieces, which we do now more than ever, it's a lot easier. It's just more about building up this network. Since 360 is this new technology and a new medium, and the people that have the technology are mostly traditional film production companies, it's just kind of like, we realized when we building up The Daily 360, we realized it's kind of on us to build a network of journalists who also know how to use 360 and also know how to use VR. One of the great results of doing this Daily 360 project is that we are getting to introduce all of our reporters and photographers and videographers to 360 and give them the time that I think anyone using this new medium needs. It gives them a couple months to be playing around with the new medium, thinking about when it can be used best, thinking about ok 'this is a situation that is best for a photo, this is best video, this is best or 360. Just having it in their toolbox, means that they can use it to tell stories. That's what's cool about what we are doing now with 360 is that we are going to build that freelance and The New York Times internal network and will try to normalize it a little bit.

What's the process of establishing journalistic standards in partnerships?

For the first three films we partnered with Verse, they were called Verse at the time. Verse did 'The Displaced' with us, they did 'Take Flight' and they did 'Smile More' with us. At that point we also simultaneously along with 'Smile More' we did one with Ryot called '10 Shops Across The Border.' Again, there was always New York Times journalists present for each of those films and we were also learning about what kind of equipment might be best for The New York Times. So then once we made those investments we started producing pieces more on our own and for the most part we've been doing them on our own and hiring out various pieces of the post-production. The ideas for the pieces, and the production of them, and the research are always done here at The New York Times. It's certainly a mix, sometimes they are New York Times people, sometimes they are freelancers that The New York Times hires but whoever they are, they have to adhere to the rules of The New York Times.

What are the goals for "The Daily 360" vs. The New York Times' documentaries?

Our goal is to convey information and to give you a sense that you can look around at these place and these situations and gather information as you do as human beings from

the place and make up your mind. I really truly believe that while we might not have made the definitive VR to be the example of this, I do think that VR is potentially the most objective medium we have ever worked with as journalists. We make less decisions on a VR film than we do on a VR documentary film than we do on anything else we produce. There's a lot less editing, voice over doesn't work the same way. It's not as easy to convey backstory or context, what it is good at is giving you time to look around an environment, gather information and make a conclusion on your own as if you've experienced that place or that event first-hand. That's the thing that drives us the most. It's about supplying the information and you being able to extract that from that what you need to know. In that regard VR and 360 only work in certain situations and that's totally reasonable and perfectly acceptable to us. We have to do a lot of experimenting as well to figure out what works and figure out what people respond to. But I find in any films that we produce there's that one particularly spectacular moment in each film that's designed for VR and it works really well in VR. That's the thing that people mention when they put on a headset, 'you know that one part X,Y,Z.' From what I've gathered just from watching people watch 'The Displaced,' watch 'Fight for Fallujah,' or watch 'Man on Spire,' these are all films I produced it's always a scene that something really active happens around you. In 'The Displaced,' it's the food drop scene, in 'Fallujah,' it's the scene where everybody is sitting around in the bunker and all of the journalists duck at an outgoing mortar and all of the soldiers start laughing. That's the moment that sticks with people the most because they feel actively engaged in the environment. It feels like you're there and you have a reaction to the event or the situation like anyone else in the room does and therefore you're included in that. It has nothing to do with scripting, it's just being there. It's just like any other journalistic activity, you have to be there and capture those moments and then recognize the process when you have something that's perfect for VR like that.

Specifically on “The Fight for Fallujah,” was there a plan on dealing with violent images?

We were prepared for having to review violent or potentially gory situations for 'Fallujah,' did we make any conclusions? No, it's going to be completely case-by-case basis and luckily I have access some of the greatest minds on standards and journalism here at The New York Times, I don't make these decisions on my own. We didn't have anything that was too excessively violent to show. There was the one scene with the dead body lying on the side of the road, there was a decision to keep the camera farther away from that, we reviewed that with our standards editor and he said it was reasonable to want to show people this and it wasn't overly graphic. We did hypothetically talk about it in advance before Ben (reporter) had gone back and thought you know 'this could be really intense for people' to be looking around in all directions and have sniper fire going all over their head and could cause some type of traumatic feeling for some people. In the end we decided the footage we had was important to release to the public. If we have something much more violent, it will be on a case-by-case basis.

What's the role of the journalist in a VR setting?

We still haven't really created that piece that is the most objective piece because we still are trying to figure out how to tell a story in VR and in that regard voice over is written by a journalist and is constructed into a story so that journalist still has an enormous role in these pieces. Where they put the camera is still a journalist's choice, how the piece is put together is still an editor and journalist choice, obviously still a huge role. Until we get into live streaming opportunities where people walk around in VR headsets in news events then that's a different conversation, but we don't have technology yet. At the moment a journalist still has all the impact on how the story unfolds for the reader, it's just as many decisions. In a photo, if you're out there making a photograph, you're out there framing a situation on the scene and you're also editing those situations and delivering only certain ones to people. It's funny like that the photograph that came out of 'Fallujah' when you look at some of the same scenes that are framed around the action, it tends to feel more intense than the VR where you're standing there and you can look around in all directions and maybe the intense scene isn't in front of you, but behind you there's a man just smoking a cigarette or something. The same things goes for video on the spot about your focal length and how your framing things. In VR there are less decisions made on the spot, but your still making a decision to where you put the camera and when. The journalist still has a huge responsibility in capturing as much footage to tell these stories objectively and as unbiased as possible. And then in post-production editing it into a story that's true. So we're not there yet, but certain journalists watch VR and there like 'oh my god I'm going to be come obsolete.' I don't believe that for a second. They still have the decision of where we're going and where we are going to film and what we are going to film and what stories we are going to tell. I mean there's an enormous amount of decision-making that goes into the pieces we do.

Should a reporter appear in a scene?

As a general rule, our NYT style is a little less 60 Minutes and a little more fly on the wall. We don't do talking head stuff as much in our documentaries and that's just kind of The New York Times tone and style. We don't want to place ourselves between the reader and the environment. In the case of Ben in 'Fallujah' it was too unsafe for him to be concerned with filming and not being in the scene. It added a layer of complexity to shooting that didn't seem safe and it didn't seem necessary. In the end, looking through that footage, he was really smart about the way he filmed himself in these environments. In his head he knew as soon as he got there and wasn't able to hide in any rooms while he filmed he knew he was very much present in this piece so he started in his head walking around the scenes, walking around the camera and investigating the environment the way he does. He thought, rather than just standing there and talk to the camera about what I see I'll just do what I do. When I'm taken to that former ISIS prison to see it, I want to place this camera down and I'm going to walk around the room like I would if it wasn't there and I'm going to gather the information I would gather as a journalist to write something or to make a video of something. And it was smart because in post-production we could write the voice over and he could refer to himself in the room so the viewer

knows in every scene they can find Ben and they are probably looking in the right direction thereby are eliminating some of that anxiety or frustration that a lot of people have in VR about where am I supposed to be looking, what am I supposed to be doing, they can always find Ben. I'm also really interested in engaging directly with the camera, just maybe not in the same like traditional news broadcast kind of way, I think there's something else you know that we don't quite know yet. There's probably another way. So we're not for or against any sort of, any particular method, we are completely open to trying them all. But I would much rather hear people's stories directly from them rather than through an interpreter or through a journalist explaining it. We always tend to prefer instead to interview and translate the interviews if we can, but that's hard to do in VR.

What ethical challenges do you anticipate with covering breaking news in VR?

Well, I don't know because I don't know exactly what the technology is going to look like. Are we going to be able to walk around at a protest for instance? [Are we] going to be able to go up to people and ask them a question? I don't know. If we are, how is that going to work? I hesitate to answer that question because technology evolves so quickly that I don't know what the environment is going to look like and all I can really say is that I'm glad that the NYT got on board VR when it did because we are now pretty far along in our own understanding in what we think works. When new technology arises we are pretty well equipped with presidents with a book of knowledge so far, a guidebook on how we handle these things. I mean journalists have these conversation constantly about what's ethical, what is right and that's certainly won't be stopping with this medium. It's an evolving conversation and we just have to check in with each other all of the time.

What do you think of the effort the United Nations has done in VR?

Well, they're a caused-based organization. They are using their VR to tell stories to get support. They aren't claiming to be documentary journalists. So, in that regard I have nothing to say. They aren't working for a newspaper, they are working to gain support from their audience. So, there's really nothing I should say.

Is a checklist the best way to first establish standards?

Yeah, of course, like we said, we're building this guidebook and writing these rules now so yeah. Try to get as many people's thoughts as possible. Every news organization, certain news organizations can have different needs or rules, like the NYT as staff we aren't even permitted to speak to our own personal social media circles as far as political affiliations. And then other groups are a lot less strict about that. I think everybody's will be slightly different just as every newsroom's policy is slightly different.

Michael Madary – Assistant adjunct professor of philosophy at Tulane University, previous research in VR ethics was done at the University of Mainz in Germany

What got you interested in study VR ethics in the first place?

There was a research project funded by the European Commission. It ran from 2010 to 2015. And the goal of the project was to explore new uses of immersive technology and robotics you know with the heavy emphasis on virtual reality. And the European Commission they take research ethics very seriously. So they thought it would be a good idea to when submitting a project proposal. It was a good idea to include the ethical component to the project. Thomas Metzinger who's the second author of the paper he was the principal investigator for the ethics component and I was the post-doctoral assistant. So I took the position it sounded like a fascinating project. My background is in perception and embodiment philosophy of mind and of course I have some training in ethics, so I was a good match for it. I took that position and then over the course of the project I started asking myself are there ethical questions here and if so what might they be and how should we deal with them. How should we approach them?

Can you explain the concept of the ‘plasticity of the mind for me?

Yes, so it refers to this idea that some of the basic mechanisms of our mind can be fooled very easily. This includes our sense of reality, our sense of ownership for our own body, our sense of agency. So you know we take it for granted that when we perform an action we just sort of instinctively know whether we are in control whether we're performing the action. But in the laboratory, it's very easy and we can create illusions of the agency, create illusions of the body. And VR creates the illusion of reality.

What kind of ethical concerns do you see with 360-degree video and room-scale VR?

The ethical risk with 360-degree video as it stands now is that the location we select is very important because it can give the user this sort of false sense of really being there. Whereas, if you're really there, you can move around and get different perspectives on things. Whoever is creating the content can choose a location deliberately in order to send a certain message or have the viewer experience things from a particular perspective. Once we have the ability to move around, I don't know, I guess that concern goes away. But one thing that would linger is that, I guess, that the scene the scene wouldn't change over time. So you wouldn't have to worry about prospective selection as you do with 360 now, but you would have to worry about time selection. So what time slice of reality do you want to... Say are you telling a story about a particular scene. The way in which you present that scene or the time in which you capture that scene it's going to be the only thing that the viewer can experience. So you know it may change in important ways and those change over time and those changes would be. So yeah that's a question I hadn't considered before. So my immediate response would be that we would have to be careful about whether we leave important things out when we decide what to capture.

What concerns do you have in relations to the storing of 3-D models that are owned by news organizations?

We mentioned in the paper the possibility of artificially presenting someone in VR, once you have a 3-D scan of someone. Like you say storing it, and then if that person dies, in a virtual form you can resurrect that person. And you know we just don't know if that's a good or bad idea for the grieving process. And then conceivably we can animate the person to have them do all sorts of things that they perhaps wouldn't ordinarily do. We're going to have to ask difficult questions about whether we should store, who has the rights to store it, how should we treat it once we have the image. On privacy, I guess the other thing that we mentioned in the article is once we have full body tracking and clearly tracking facial expressions. Whoever's collecting that data is going to know, it's going to be able to find out a lot of what is going on in the mind of the users, And we don't realize it, but we reveal a lot of what is going on in our mind through our gestures, through our facial expressions. And we may not even realize what we are revealing. So you can imagine a situation in which you you're in an immersive environment and an advertisement is flashed and you have some really settle emotional reaction to it. Whoever's has access to that data, that's valuable information for marketers. So I think that's that that's one of the main concerns with regard to privacy. So, avatar ownership I guess this is sort of touches on the question of having a 3D scan of someone. We can also imagine situations where you obtain a 3D scan of someone and decide you want to inhabit that person's body as your avatar. So there may be some really hard issues with who owns the avatar, and what if you create an avatar that looks very much like a particular person, but isn't exactly. Is that acceptable? We don't have any laws about it, but it's on the horizon is as you can see

Can you expand more about how movement in VR makes it more believable?

Yes, I mentioned that my earlier work is in perception. So I just wrote a book on visual perception where I go into the way in which visual perception works for us. And something that we don't always notice, but that you find in the philosophical and psychological literature is that for human beings visual perception is very tightly joined up with action. Action is very important for us so we're constantly moving our eyes, we move our head, we move our body. And what many people think and what I suggest is that we're always sort of anticipating how these movements will change what we see. So if you move around your computer, you see different perspective, that's how we perceive reality visually. VR sort of mimics that. Immersive technology generally mimics that, unlike two-dimensional screens. I mean of course you get a different perspective on the screen itself, but what's on the content of the screen. So it it's different because it really captures, really sort of mimics the way in which we perceive the real world. And you don't get the other media.

Would adding disclaimers before a store be a way stay on ethical ground with audiences?

It is, I think so. I mean motion sickness; it's already a very big concern in the industry. I guess for obvious reasons: you don't want people buying the PlayStation VR and then being sick. You want people to enjoy, so they buy more content. We don't really talk about motion sickness in the article and that's because it's already being dealt with by the industry, because it's in their self-interest to make sure it doesn't happen. I'm more concerned about things that the industry may not see as being in their best interest right now. So say you know we don't know the effects of long-term immersion. We don't have any scientific, any empirical research upon which we can develop guidelines for age restrictions. So what age is it acceptable to use VR? What certain guidelines should we have? I mean you know Sony is just slapping age restrictions on their VR content. As far as I know, there's been no studies with different age groups. So there's really no basis for this. As far as I know there's no basis for setting age guidelines. This will be an important question because it's going to be a great opportunity for educational applications. But then we have to ask ourselves is it safe and is it good psychologically to strap these, to immerse younger children into virtual environments.

Should newsrooms inform the consumer that they don't know the long-term effects of VR on the brain?

Yeah that's a good first step. The first step is to at least inform the consumer what we know and what we don't know. I think that's what we can do now. And then of course along with that we just need further research. Whether this is funded by the industry, or government or universities we'll have to see. But as I say as far as I know right now it's just not really happening.

I explain the biosensor study the AP is conducting with Multimer. What kind of data would you want to see from a study that includes biosensors?

I see. I mean I guess there are pure scientific questions that would be fascinating to ask about. What can we learn about what the brain is doing in these situations? How is it processing the story and how does it correlate with emotional state? But for ethical questions, I am kind of drawing a blank. I mean it's fascinating. It sounds like fascinating project. One fascinating question for me is that I mentioned earlier is the sense of reality that the brain or the mind generates for we say this is real. As we mentioned in the article there are psychiatric conditions when people lose that feeling that this is real. It's de-realization disorder. So I think there's sort of this fascinating philosophical and scientific question of what are the mechanisms in the brain or the brain and body systems that give us this feeling of really being somewhere, really experiencing something. So that's a big question in the literature of virtual reality. What is it? What gives us this feeling of presence? And the first answer is sort of what I was saying before is that the sensory changes and the sensory input have to match your movements precisely. The second answer interestingly is realistic social interaction. But those are both answers on a psychological level. This sort of thing that you're describing maybe an opportunity to

investigate those questions on the neurological level or physical level, I think that could be a great way to understand these fundamental questions. What is real? And why do we believe some things are real and some things aren't?

So do you think it's more valuable to test someone in a regular setting, instead of a lab?

Or ask them after they are immersed: How strongly say on a scale of 1 to 7, how strongly did you feel present? How strongly did you feel this stuff was real? And you may put them into a virtual reality, in an immersive environment, which you take great care to create this sense of presence? And then put them somewhere where something is a little off, things are weird the graphics aren't as good. And then contrast the physical reaction to it. In this other condition why does the brain react differently?

What ethical topics did I miss that you think are important moving forward?

One thing I'm sort of concerned about is that there seems to be a sort of slow uptake in the industry of the kinds of concerns that we're talking about in the paper. In journalism, I think the reaction in general from immersive journalists has been more of a concern about the ethics of it. But from you know from the big VR producers, the hardware and the content producers they don't seem to care about it yet. And one question I have is will we reach a point where there is sort of a backlash against reckless content production or reckless use of VR. If you have some sort of psychiatric trauma as a result will it take something like that to happen for they're to be some serious attention in the industry to this? I guess that's one of main concerns. I guess that's something I can tell you that's not in the article, that's sort of the way things have gone over the past few months. I had speaking engagements and some people reach out to me and I've reached out to them, some of the big organizations. But we're pretty far away I think from having sort of an agreed upon ethical standards for immersive technology.

Will more ethical challenges emerge as we increase our levels of immersion?

I think so. And you know first we have questions about what kind of content would be too extreme, if any? I mean you know we're not calling for censorship, but I think it would be naive to say that there are no immersive experience that would cross a line that would be potentially traumatic for some users. So we're going to have to have a discussion about that. Same thing with children, we want to have to have some kind of evidence-based guidelines for how children use the technology. So we're going to need it, I suspect. It's just a question of can we get something in place in order to minimize harm later on. Or do we have to have some harm first and then (inaudible)... So a good example... I don't know if you know about this case. There was sexual harassment in an immersive video game. I forget the name of the game; it was a bow and arrow video game. There is a female player, she's playing the game and the avatar of another male characters from somewhere else in the world approached her and moved into the personal space of her avatar and started putting his hands in ways that would in real life clearly be

sexual harassment. And she went public with it, she wrote something online, and it was a little bit of a scandal in the community. And then as a result, quickly the producers of the game the creators of the game made a fix. They made a power gesture, which you can immediately get players of your personal space.

Gabo Arora – Virtual reality filmmaker for the United Nations

Do you consider yourself a journalist?

I mean straight off, I'm not a journalist and none of my work is journalism so I don't know how relevant I would be. I'm a documentary filmmaker.

What are the difference of values between advocacy and documentaries?

I think one can use documentaries for advocacy, but I don't think of advocacy before being an artist or being a documentary filmmaker. I make documentary films commissioned by the UN and I obviously work at the UN as well so I think the difference is that whether its documentary film vs. journalism, it's very, I think anything that is artistic is going to be a lot more constructed, it's going to try to go for emotional value. It's trying to speak to your subconscious it's more poetic. So ethics in that frame, there isn't the same baggage that journalism has or the was journalism straight jackets itself to ethics with objectivity or all of those other things that come in that way so I don't see them in the same way. I do believe that I think as much as journalism much try to be ethical, I feel documentary is more true. So think there's a distinction between truth and being ethical. Being more ethical doesn't necessarily more true. I think sometimes the truth reveals itself through very, through creative license. It's something that allows something to happen that isn't linear, not trying in that sort of way.

Do you feel you have the same approach as RYOT? I mention I interviewed Bryn Mooser and that he sides more with advocacy, instead of journalism.

I mean, I know what he's implying [Mooser], but the truth is always in the content. You know I think, I don't think one can just say because one has spent more time it's going to be more true. It's going to be more true if it feels true and is showing to have some measureable impact on people. I think people have to say that not necessarily, I did this and because of my background and because I did it, it's more true I'm not so sure. I think with UN VR in particular, what we tried to, the main aim, is to try to show non-stereotypical versions of people that aren't how they are usually depicted in the media which is these very, either something is very one-dimensional, it's just about their problems, but it doesn't capture the ordinary in their lives that can also be really intriguing and provide insight because I think regular media and journalism is just trying to get to the point. It's trying to give you information; it's not necessarily trying to relay the inner lives of the person. I think UN VR is really concerned about what the inner-lives is because I think if you can get inside the motivations and that inner-story, the idiosyncrasies of that story, you are more likely to empathize and you're more likely to care and more likely to feel like it's true. I think Gabriel Garcia Marquez used to say 'If I

told you elephants were flying in the sky' you would believe me, but if I told you '367 elephants were flying in the sky last night at 8pm' you're more likely to believe me. Why? Because its detailed, its idiosyncratic and I think that's the same thing that because the story that we focus on really brings in the unique details of the story that are particular to that person it's more believable to tag an issue off that a lot better. Whether that's Ebola, or the occupation in Gaza, whether it's all of the other topics out there. It's a very particular approach that we take. I think those details are relevant because somehow they then help push the issues forward. If we are just focused on the issues, the black and white details and what these people do, I don't think they will care as much when you can relate to those idiosyncratic details.

Why doesn't the U.N. put people in front of the camera?

There's two reasons: I think it's a very, with us being in the post-internet age I think people want to hear directly from people, they don't want to hear through a middleman. I think what does well on the Internet, Humans of New York does incredibly well on the Internet, and first-person YouTube videos do well on the Internet so it's like an engagement sort of thing. I think that era of the host is the wrong one. That's just from my own analysis; it's not so much ethical. That's more of the practical choice, it's an aesthetic choice as well. What we do that I always try to have in our archives is if you're familiar with my work, we interview the main protagonist extensively and we build whatever script we do from the raw material of that script and for me, that's very important that we always have that on audio file. We always have that because we draw from that and we accentuate that. We might even go back. They might talk about many different things, you know. And the reason I don't call it journalism, I'm obviously picking in a very magnificent way. Whether it's Sidra, or Deconte or all of the other characters. The interview goes many different directions, you know, and I always try to draw what best represents what their story is but also in a very Hollywood way or very artistic way and I also think about what would be compelling, you know and that's a normative choice, that's a subjective choice that I'm making as a creative director.

Jeremy Gilbert - Director of strategic initiatives, The Washington Post

How do you maintain image integrity and accuracy in virtual reality?

We start from a position of we don't stage anything ever. We don't tell the subjects in advance we are going to set up our camera now, go do things. Unless, and we haven't done this yet but we would want to show someone how to do something but then we would be very explicit about it, like break the fourth wall explicit where we'd tell the audience what we are doing by asking for a demonstration. Our policy is that we don't do reenactments we don't encourage people to behave a certain way when the camera is on. If we are interviewing a subject on camera in 360 we would make that obvious. We are not comfortable with taking a camera, putting it somewhere and asking someone to recreate something, we have not felt comfortable with the idea of a subject carrying a camera we very much want kind of cinema verite in the same way our linear videographers and our still photographers work as well.

What's the benefit of doing stories in 360-degree video as opposed to flat video?

Where a 360 camera differs from a traditional video camera is in the ability to support agency on the part of the viewer. Where we are very consciously we are editing with the lens of our camera, where we point at, what we look at, what we don't look at, what focal length we give. The 360 camera that exist right now, they don't support that and we what we have to do is paint scenes and often it forces us to be much more patient than we have to be so that we have to take our camera to a place and wait for action to unfold around us. And because we don't stage or set things up sometimes we wait and nothing happens. Sometimes we wait and the very presence of our camera prevents things from happening. There's not much you can do about that if you're at a political rally and you don't know if there will be violence or not, someone may not be violent because the camera is there, that's what happens. We have to be pretty transparent about what we are doing and we have to be much more patient. We don't get to move, we don't get to focus we just set up the camera in a place where we imagine the action will take place and we hope that it does. When we have special access to something or we are showing you something from a vantage point that is unexpected we try to explain within our storytelling. In our mission control story we explained in our audio not only do visitors get to stand in mission control and so the view is different from what you would normally see because we are in a place that you wouldn't otherwise get to go but in no way do we deliberately interrupt, interfere or modify the environment that we are shooting, those are our general ethical guidelines.

What are the first steps in building an ethical guideline?

I think you can start by saying 'what are the bedrock ethical decisions that you make as a visual journalist under any other circumstances?' For us, we will not deliberately manipulate our audience. We want to be especially careful because this new medium seems to evoke more empathy than any of the ones before it we have to be extra careful to retain our objectivity. We need to start with that as a place. If we are going to simulate things they should be very obviously simulated if we are going to record something that seems to be real, then we need make very clear that it's real. For us there's a difference between augmenting your coverage in post-production the way that a TV channel might make it easier to see a football game by putting a line on the field. The idea is not that you fool the audience in that they actually think the line is on the field but that you use on-screen graphics to improve the experience. I think those are the kind of places that we would comfortable in going. I think the best way to teach other people in the industry what the right things are is to take case studies. As more and more videographers start to use these new forms we have to be extra vigilant as journalists because they don't have the same ethical obligations that we do. So we need to make extra sure that people know when they are viewing new that in a VR environment that they know that because it is news they know that that class of storytelling is going to be treated in that particular way.

What other questions can I ask other producers that you're interested in?

Something that we've struggled with is that the post-production time is so much greater even with tools that make it easier such as the Nokia Ozo or the Google Odyssey. Right now it feels like there's this trade off. Either we are publishing at lower quality by publishing with a lot of immediacy or we are publishing at high quality but has a much longer shelf life because it take so long for us to ready it. That kind of a quandary is an interesting one. Do we end up creating two kinds of stories, ones that are high quality vs. immediacy.

Is a goal-oriented approach to ethics the correct way to proceed?

I would say yes if you want to think of it that way. The first step should be what are you organizational ethical goals and then follow up by what is your goal for this story and how can you make sure that story fits into your ethical goals. Because a lot of what drives our decision making at the Post are overall goals and what we feel is our obligation to our audience and I wouldn't want to say that we are going to start with the goals for a particular story and have those trump our organizational goals.

Appendix B: Changes from the original proposal

There has been a wealth of changes from what was originally proposed for both the scholarly and professional components of this project. This was due to the personnel changes with my involvement at the Associated Press. Originally, I was scheduled to work alongside Nathan Griffiths, one of the AP's VR editors. However three weeks before I arrived in New York I was informed he was leaving for The New York Times. Thankfully, Francesco Marconi, the AP's manger of strategy, volunteered to become my new mentor. However, this shift to the strategy team entailed a major modification in the scope of my professional and scholarly work.

Originally, I had proposed to develop a new ethical framework specific to 360-degree video journalism. Instead of focusing on one specific immersive technology, I was challenged to focus on how a variety of immersive technology has changed the approach to journalistic storytelling. This research was presented in an AP report on VR called "The Age of Dynamic Storytelling: A guide for journalists in a world of immersive 3-D content." Ethics still played a major part in this report and I included many of the insights from the transcripts provided here into the AP report. Instead of explicitly creating a standardized approach to 360-degree video, I was able to produce strategic guidelines that I feel can help journalists navigate the broader field of immersive media more effectively than a strict code for a single technology.

In the end, I believe that I was still able to achieve my goal of identifying ethical challenges associated with VR production in journalism. In fact, by widening the scope of immersive technology covered I would argue that I've increased the longevity and relevance of this project as a whole.

Appendix C: Professional Project Proposal

Introduction

Virtual reality storytelling has surpassed the level of a trend in journalism and has established itself as method to invoke a heightened sense of empathy and establish a superior sense of immersion. The equipment for VR journalism has become less expensive and has opened the door for many local newsrooms to produce virtual reality pieces using 360-degree video on a small budget. 360-degree video provides a spherical image and, rather than traditional flat screen video, and allows the viewer to control their line of vision while viewing the content. This aspect of user control and the ability to view content using a headset such as Google Cardboard or an HTC Vive, create an immersive setting that has been labeled as virtual reality. If there are well known ethical and professional standards for photojournalism, print journalism and broadcast journalism, there must be a set of standards for virtual reality journalism.

The goal of this project isn't to break from the bedrock journalistic values such as truth seeking, public service and objectivity, but instead this project will highlight the principles of journalism need to be amplified in this medium. It should be understood the capabilities of 360-degree video to virtually transport an individual to another location and give them the ability to experience a story in their own manner was never thought possible until 2010. This ability to give the audience the power to tailor their experience in a news setting with minimal framing from a journalist calls for a subset of ethical guidelines to meet the capabilities of virtual reality. No longer can a journalist explicitly guide a viewer as one does with framing a photograph or writing a story. Ultimately, the

loss of control in 360-degree video has lead journalists into uncharted territory and has forced journalists to re-conceptualize their role in a setting where their ability to frame a scene has significantly been reduced. Journalists are now presented with the challenge of providing context, building narrative and respecting their subject's autonomy with a form of technology which, at its core, makes this much more difficult. No longer can a journalist move around a scene to catch moments from tight, medium and wide angles. Instead, a journalist is forced to remove him or herself from the scene and has passed the reigns of control to their environment. This distinct process of story gathering has forced the industry to rethink and rebuild the conception of visual storytelling altogether without any consensus of shared values or ethics beholden to the practice. So much of the conversation currently surrounding virtual reality and 360-degree video journalism is focused simply on the novelty aspect of the medium, rather than the purpose behind these stories and how they can best serve the public. This project seeks to benchmark industry norms and standards in VR and 360 journalism through an ethical lens by building a consensus of the values surrounding this medium, creating an ethical code to uphold these values and ultimately providing a standardized approach to VR and 360 journalism to champion the ethical code.

Ethical guidelines are dependent on case studies to uphold their values. To meet this need the research component to the project will be twofold. First, it will involve extensive interviews with virtual reality producers in the field of journalism that will seek to build a consensus around ethical topics such as image modification, the role of the journalist and the ultimate goals of a VR piece. Second, this study will utilize the technology acceptance model, a theory which breaks down the perceived usefulness and

ease-of-use of new technology, and the uses and gratifications theory which seeks to understand the motivation behind utilizing new technology as its theoretical basis. By examining the particular gratifications and values that news producers see in VR and 360-degree video journalism, this research hopes to help assist in providing newsrooms the expectations of an audience that now has the power to control their own experience in a piece of journalism.

The literature reviewed in this research will cover the historical relationship between media ethics and emerging technology and will finally examine the limitations of ethical guidelines in the technology-driven atmosphere of the 21st century.

The professional component of the project will involve working with the Associated Press' interactive unit from July 2017 to September 2017. During this time I plan to produce a story from a trip to Cape Town, South Africa in May 2017 and will also work to building a guideline of best practices that will help initiate a standardized approach to virtual reality and 360-degree video journalism.

Professional Skills Component

The methodology of this study will involve in-depth, semi-structured interviews in person and over the phone and will target virtual reality journalism producers and media ethicists in the effort of building a consensus surrounding: (1) the reasons why virtual reality calls for a subset of ethical guidelines, (2) the role of the journalist in a 360-degree video setting and (3) the relationship between a media company's values and their goal for a virtual reality story. Through my relationship with the Associated Press' interactive team as an emerging media research fellow, I plan to harness their network of journalists embracing the medium of 360-degree video to find my interview subjects.

Nathan Griffiths, an interactive producer at AP and Francesco Marconi, a strategist at AP along with the AP's standards and ethics team, will advise me on a day-to-day basis. Paul Cheung of NBC News Digital will serve as the lead advisor to this project. Some of the prime institutions I'm looking to contact include: RYOT, the virtual reality studio recently acquired by the Huffington Post; The New York Times' virtual reality unit, which recently launched "The Daily 360," a daily feed of VR pieces from around the world to complement their micro-documentary body of work; The Washington Post which recently was acquired by Jeff Bezos, the founder of Amazon, and has the capital to fully invest in emerging technologies like virtual reality; the Poynter Institute, and in particular Kelly McBride, who has spoken on a number of panels concerning the ethics in virtual reality journalism and edited "The New Ethics of Journalism: Principles for the 21st Century;" and Gabo Arora, a virtual reality filmmaker recently hired by the United Nations to head a virtual reality section of their media operation. I feel that these subjects would fulfill my research because half of these subjects come from a background outside of the field of journalism and have had to adapt to the ethical standards of journalism (such as Ryot whose founder, Bryn Mooser, comes from a humanitarian relief background), while others such as Gabo Arora at the U.N. have come out forthright to assert the UN doesn't consider their work to be 100 percent journalistic. However, both Ryot and the UN hold the same overarching values of truth and transparency which legacy media outlets, such as The New York Times and The Washington Post, which have taken on the challenge of integrating virtual reality into their long-established operations.

Seeking out new and emerging VR filmmakers and comparing their values and

execution to legacy media companies will allow me to examine how the values of each company compares and contrasts from one company to the next. This process will be vital to making distinctions between virtual reality film versus virtual reality journalism and will help build consensus on the ethical guidelines when producing journalism specifically.

Many of these interviews will be focused on the process behind creating content using this medium and the ethical mindset behind storyboarding, filming and post-production. Before each interview with a VR producer I plan to use two to three stories as case studies and will focus the majority of the interview breaking down how certain stories were made and ethics behind those decisions. I will also compare how the ultimate goal of the story affected the decision to choose 360-degree video to tell the story. Interviews with individuals outside of the newsroom such as media ethicists and academics will focus on the unique role that virtual reality is developing in the field of journalism and how it compares to other emerging technologies of the past. Another topic that will be addressed, specifically on the academic side, will focus on how the brain processes this 360-degree video and in a fully immersive setting and what newsrooms can learn from these studies. These interviews will be recorded and will last between 30-45 minutes a piece. Each subject will be informed that his or her answers will be used in blog post for Journalism 360 throughout this project and will also be included in the formal report through AP Insights in November 2017.

Whipple (2011)'s gatekeeping analysis of music journalists and their audiences followed a very similar methodology. Whipple (2011) conducted in-depth, semi-structured interviews with 10 music journalists and explored their processes, preferences

and institutions in an effort to explore their communication routines and how those routines play into their role as gatekeepers. Although this study doesn't encompass the field of emerging technology that this proposed research entails, Whipple (2011)'s concentration on a subjective field like musical criticism does take into account the seminal and shifting value of community that Rosenstiel and McBride (2014) argue has replaced the traditional journalistic value of independence. Instead of doing a comparative analysis between virtual reality and emergent technology of the past, this set of in-depth, semi-structured interviews will also take into account the approach proposed by Mittlestadt, Stahl, and Fairweather (2015) by seeking out the current opinions on how virtual reality is changing the future media landscape and how the technology adds to, or breaks from, core journalistic values.

The next step in my methodology will involve personal field notes from creating my own 360-degree video piece in May 2017 through a study abroad trip to the University of Western Cape in Cape Town, South Africa. This trip entails working with the university to preserve the Mayibuye archives on Robben Island that chronicles the history of apartheid. I feel this opportunity allows me to travel to a foreign country, that breaks from the Westernized outlook on media values, and it will force me to respect and observe those values in an effort to explore the globalized media system Plaisance (2016) lays out. It also will allow me to understand the ethical challenges from story ideation through the post-production process and will allow me to directly reference my own process in the semi-structured interviews that will take place over the summer.

After traveling to Cape Town, I plan to work alongside the AP Interactive team in New York City from July to September 2017. During this time I plan to produce the

stories I gather in South Africa, visit a variety of newsrooms to examine how different outlets are approaching this method of storytelling and begin to build an ethical code that will lay the groundwork for a standardized approach for VR journalism.

I envision my process will follow these three steps in order to accomplish this goal:

1. Clearly define the newsroom values associated with the choice of VR/360 tools for a particular story.
 - This will involve me attending a multitude of storyboarding and pre-production meetings at the AP.
 - Uncovering these values will also be a primary topic I will introduce during my semi-structured interviews
2. The production of an ethical code specific to VR/360 journalism
 - This will require me to work with the AP standards and ethics teams to take the newsroom values associated with the medium and develop them into a frame of mind for the current and future production of VR/360 pieces.
 - This ethical code won't seek to re-write the ethical codes currently in place for journalists, but will seek to adapt and magnify certain values related to the VR/360 production.
3. The creation of a standardized approach to VR/360 journalism
 - This guideline of best practices will be the culmination of the two previous steps and will also include the field notes I gather from traveling to other newsroom and collecting field notes.
 - A long-term goal of this project will be to create an open-forum for

this guideline to be constantly updated as the technology improves. [First Draft News](#) is a great example for how something like this could be executed

I believe that working with a professional newsroom will allow me to quickly learn production techniques that I wouldn't have access to working independently. Techniques such as the implementation of spatial audio (which gives a viewer in a VR setting the ability to hear audio in a 360-degree setting) are still in a stage of experimentation. I believe by working alongside a newsroom that is still working to democratize certain techniques such as spatial audio will be vital for the eventual guideline of best practices. During my visits to other newsrooms I want to pay particular attention to how the approaches to VR/360 journalism vary based upon the traditional makeup of the newsroom itself. For example, traditional print news outlets such as The New York Times and USA Today have been pioneers in this medium and have decided to take the traditional 'fly on the wall,' documentary-style approach to their reporting. On the other hand, digital-first outlets such as RYOT provide a more experimental approach to this medium and often times produce a product that blurs the line between cinema and journalism. Cable news outlets such as CNN have just launched a VR/360 unit into their content stream and it will be interesting to see how a broadcast outlets transfers into the 360 realm. Some newsrooms that I would like to target include: The Guardian, Frontline, Empathetic Media and The Washington Post. During these newsroom visits I plan to conduct more semi-structured interviews with VR producers and reporters that will focus on my proposed research questions. I also plan on attending VR shoots in the field to gather field notes on journalistic conduct when filming a VR story.

Throughout the summer I plan to publish field notes on a monthly basis for Journalism 360, a Medium thread hosted by the Online News Association, the Knight Foundation and the Google News Lab which are all attempting to build a forum of VR journalists in an effort to articulate the lessons learned in producing and studying immersive journalism. Some other topics I plan on tackling for these articles include the ethical implications of triggering PTSD in an individual viewing a VR story and how newsrooms can either warn a viewer what they are about to see or provide some type of disclosure to potentially graphic content. Another topic that adds to the depth of this research involves the protocol that newsrooms should take when outsourcing production work to start-ups or graphic companies. It will be interesting to see how various newsroom present their ethical code to third party companies and what guidelines these companies have to follow when working with a news outlet.

My ability to work at the AP over the summer is dependent on the accumulation of grant money to support my living expenses in New York. Currently I have applied to seven different grant programs through the Knight Foundation, the Pulitzer Center and the Scripps Howard Foundation to fund this project, which is estimated to cost \$14.5K. The grant that seems the most promising is the Journalism 360 challenge. This grant program has set aside \$250K to advance the field of immersive media and is awarding each recipient up to \$35K. I feel that my history writing for the Journalism 360 blog and the connections I have made through the network of Journalism 360 give me a clear advantage to be a recipient of a grant and will allow me to follow through with the goals of this project. The Journalism 360 grant recipients will be announced at the end of June 2017.

In the end I would argue that by combining in-depth, semi-structured interviews with case studies from my trip to South Africa and field notes from visits to various newsrooms will help me bring value to the AP's standards and ethics team in an effort to define the newsroom values of VR/360 stories, produce an ethical code for VR/360 journalism and ultimately produce a standardized approach to this medium. The end goal behind this project will be to provide this emerging field of immersive journalists with a set of guidelines for this particular medium that stem from a consensus of journalists who are currently implementing this content into their daily routines and will continue to experiment with the medium in the future.

Analysis

After examining my findings I expect to find a very complex, case-by-case analysis of the process behind adapting the ethical frameworks of today and applying it to virtual reality technology. Through informal conversations conducted with VR producers in the past, I have found the role and presence of the journalist to be the most contested topic in this field because it essentially breaks from all the framing powers that previous mediums of journalism have allowed. To meet the requirements necessary for building a new ethical framework, I am most interested in examining the thought-process behind the modification and alteration of images in VR and if any newsrooms have built a framework that discusses when image modification is necessary. While the literature reviewed in this proposal signaled a need to build a subset of ethical guidelines for this technology, I am curious to see if news producers in the field agree with this call to meet the needs of emerging technology, or if they feel that the founding principles of journalism are enough to sustain the capabilities of emerging technology, such as virtual

reality. In the end I would like the ethical guideline I create to outline when, if at all, it is ok to modify images in a 360 setting and set clear and strict guidelines for image modification.

Another topic I'm interested in dissecting is the relationship that news organizations have with other companies when they outsource pieces of a story. For example, the AP currently has a relationship with a VR graphics company called AMD, and they use the capabilities of this company to create 360 graphical scenes for their stories and also use AMD to overlay graphics on top of images captured on 360 cameras. For this project, I want to know the current protocol these news organizations take to ensure the outsourced company is adhering to the ethical standards of the news organization. In the end I would like my ethical guideline to construct a strict process that a newsroom can use in order to ensure an outsourced company won't overstep the ethical frameworks of the newsroom.

One limitation of this proposal is that this research will be conducted as the technology itself continues to develop at an accelerated rate. That being said, the interviews conducted in this study could possibly be irrelevant in the coming years as the technology advances and takes different forms. Even virtual reality stories from last year seem elementary compared to the stories being produced today, and we can assume that higher resolution cameras that also allow a quicker production time will pave the way to broaden the reach and consumption of virtual reality stories. The next step of virtual reality journalism will be the integration of this technology into the daily stream of news and in breaking news coverage. While The New York Times' "Daily 360" initiative has already proven that producing a story in virtual reality on a daily basis is possible, the

application of the technology in a breaking news setting will most certainly require a different set of standards surrounding this technology. With that being said, I would like the ethical guideline to give an open-ended set of guidelines for 360 reporting on live events and breaking news. Because reporting on breaking news using 360 cameras will still be in its infancy by the end of this project, the ethical guideline should recognize that this method of reporting is the next step in VR journalism and should build an ethical framework with room for it to be expanded and modified as the technology evolves.

I plan on having this report initially published through AP Insights, a service by AP to give journalists and the public alike a deeper understanding of the evolving world around us and addresses how journalism is striving to meet those needs. I also plan on taking pieces of the larger, more formal report, and publishing a condensed version of this report to run in trade publications like the Reynolds Journalism Institute's blog, Nieman Reports on the Poynter Institute's ethics section. The final publication of this project will conclude my time as an emerging media research fellow at AP.

Although I feel that this study will encompass the theoretical framework of the technology acceptance model through the uses and gratifications theory, I feel that future research should focus on a quantitative approach that seeks to test the validity of specific gratifications of audiences that consume virtual reality journalism. Future research should also delve into the comparisons and differences between advocacy journalism and how emerging technology meets the needs of both parties. I believe this proposed study will be able to outline the differences between these two entities, but I would call for a more in-depth look at how the ethical implications differ between the two. Despite these limitations, I hope this study will help build a consensus surrounding the ethical

challenges virtual reality poses and how the newsrooms of today are working through these challenges. In the end, this study should be looked at as a snapshot of the current attitudes towards how virtual reality is shaping the future of journalism. This study hopes to add to the very beginnings of this field of research and shouldn't be looked at as a definitive approach to virtual reality in journalism.

Research Questions:

RQ1: Does virtual reality / 360 degree video call for a new or additional set of ethical standards?

RQ2: What specific guidelines do journalists need for this technology to ensure they are acting in a manner in line with the bedrock values outlined in previous ethical codes?

RQ3: What are the newsroom values in creating a story in virtual reality and how do those values affect the ultimate goal of the story?

Theoretical Framework

The first step in building a standardized approach to VR journalism is to build consensus and identify the newsroom values of using this technology. One method of framing and comparing these values to one another can be found in the theoretical structure of the uses and gratifications theory. This theory seeks to understand how and why consumers of news choose a variety of mediums to gain knowledge of the world around them and satisfy certain needs they have. In his article Ruggiero (2000), breaks down the history of the uses and gratification theory from its inception and how its fits into the 21st Century news model. Ruggiero (2000) stresses that interactivity, which is at the core of VR journalism, may offer users the means to develop a new means of communication that could greatly increase their activity as a whole. From a qualitative perspective, Ruggiero argues that this is an effective route to apply the uses and

gratification theory if the research is also backed by statistical analysis. This is where the implementation of a quantitative survey could be useful to break down how often a newsroom decides to include a reporter in a scene or clone out the tripod. Cloning out the tripod refers the decision made by a 360-degree video producer to remove the presence of the tripod in post-production and replace it with the image of the ground to make the scene seem more authentic. A qualitative survey could then take the results quantified and ask follow-up questions as the editorial reasons behind certain decisions such as the inclusion of music or the thought-process behind having a reporter and subject on screen. The combination of these two sets of data and reasoning can allow newsrooms to clearly identify the frequency and reasoning behind certain practices in VR/360 journalism in an effort to pinpoint the specific values that will guide the story-telling methods of this medium.

Sundar and Limperos, (2013) agree with Ruggiero (2000)'s call for a refinement of the Uses and Gratifications model and state it's problematic to conceptualize convergent media, such as the internet, into one singular entity and instead we should break this medium into separate entities such as interactivity or messaging. Instead, Sundar and Limperos (2013) argue that capabilities of interactivity and the news could pave the way for activity, responsiveness, choice, control and flow as the next generation of gratifications. These are all gratifications that virtual reality allows its users. The authors continue to argue that the strength in the U&G model allows for flexibility and an understanding of how people are interacting with media in an inductive matter. The authors list three gratifications of the "being there heuristic:" "(1) Helps me immerse myself in place that I cannot physically experience (2) It creates the experience of being

present in distant environments (3)I feel like I am able to experience things without actually being there.” (Sundar & Limperos, 2013 p. 518)

Another area of research that could aid newsrooms in developing an ethical frame surrounding virtual reality is the research behind the uses and gratifications of cell phones. Cell phones are currently the engines that power virtual reality journalism and if newsrooms want to understand the reasons behind why their audience seeks out virtual reality in news, a comprehensive understanding of the gratifications found in cell phones in general needs to be understood. Joo and Sang (2013) surveyed 491 Korean adults using the iPhone to further understand the technology acceptance model (TAM) through a Uses and Gratifications lens (U&G). Their findings suggested that developers should pay attention to the user’s intrinsic motivations as well as their extrinsic perceptions. The TAM model comes through the theory of reasoned action (TRA), which was developed by Fishbein & Ajzen (1975). TAM is based on two important behavioral theories that affect behavioral intentions: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). These two theories are determining factors for acceptance and use.

One of the limitations of TAM it pays little attention to the technologies that were developed before the technology in question (from Park, 2010), TAM also is useful in identifying factors that influence how people accept technology, but the model cannot fully explain why people accept and use technology. This is where the U&G model steps in to explain the limitations of TAM. Although the majority of consumers are currently watching 360-degree video stories on desktop computers and laptops, using their mouse as a vehicle to navigate the scene, this doesn’t bring the full experience that many news organizations hope their users will adopt in the future. Through the findings of Joo and

Sang (2013) I believe that connecting the uses and gratifications of cell phones to the infancy of U&G studies in virtual reality journalism will help build a comprehensive ethical framework that encompasses the medium displayed and the device used to host this medium.

Appendix D: Literature Review

A Shift in Values

The digital age of journalism and the technological advancements that are linked to this revolution have drastically re-shaped the conception and possibilities of journalism. However, the ethics governing these practices have been slow to keep up with the evolution of technology, and the unique capabilities that emerging technology, like virtual reality, poses to newsrooms.

Diaz-Campo and Segado-Boj (2015) examined 99 ethical codes from newsrooms around the world to see if the newsrooms adapted their ethical codes or standards with the emergence of the Internet. The authors found that only nine out of the 99 ethical frameworks made specific references to the Internet while the majority of the newsrooms surveyed stated that their ethical guidelines stayed the same regardless of the medium. Of the nine newsrooms that did directly mention the Internet (all of which came from Western countries such as the U.S., Canada, the U.K. and Norway), they recognized the impact the digital environment has had on journalism, but state that their code of ethics won't change simply because of the impact of the Internet has had on the news industry. Diaz-Campo and Segado-Boj (2015) conclude by arguing that news organizations should update their codes of ethics to the evolving world they are working in. The authors argue that the Internet is a shifting reality that alters even the basic principles that journalistic ethics were based upon. If this argument is being made for a medium as drastic as the internet, does virtual reality fall into the same vessel due to its revolutionary methods of disseminating news?

In their book “The New Ethics of Journalism: Principles for the 21st Century,” Rosenstiel and McBride (2014) argue that the core journalistic values of independence and minimizing harm, which were established in the 20th Century, are currently being replaced by transparency and community, while truth remains the unifying value. This shift in values comes from the stance that the news has never belonged to journalists and has always belonged to the public. Rosenstiel and McBride (2014) describe news as a form of social flow and because the technology and social platforms of today allow anyone with a smartphone to disseminate information to the public it has proven that journalism’s principles and ethical frameworks are more important than ever, not less.

Slattery (2016)’s assessment of the 2014 revision to the Society of Professional Journalists (SPJ) code of ethics points out that the most prominent change to SPJ code is the replacement of the phrase ‘journalist’ with ‘ethical journalist.’ Slattery (2016) argues that this small, but prominent change, seen throughout the most recent version of the SPJ code was made in an effort to narrowly tailor what is and what isn’t ethical journalism, rather than who is and who isn’t a journalist. The shift of focus from the actor to the act itself upholds Rosenstiel and McBride (2014)’s call for greater attention to build a community focused on upholding core journalistic values and ethics, rather than focusing on who is and isn’t considered a journalist.

Plaisance (2016) agrees with Rosenstiel and McBride’s (2014) sentiment and argues that the ethical frameworks and theories of today can’t keep up with the innovations in content production and emerging technologies. Plaisance references Stephen Ward (2010) who argued for a “contractualist” normative framework as a method of meeting the demands of the globalized media system of today. Plaisance also

references the work of Clifford Christains who offers a “communitarian” form of ethics that breaks free from the individual-rights-centered Western ideologies. In particular response to Rosentiel and McBride (2014) and Slattery (2016)’s call for greater focus on the value of community through the strict definition of ethical journalistic conduct labeling,, Plaisance (2016) references Alasdair MacIntyre’s argument of virtue ethics, which reference the work of Homer and Aristotle’s teachings that morality is discovered through human experience. This framework embraces a moral realist position. Plaisance (2016) argues that in clarifying the broader aims of mass media in the realm of media ethics, we need to understand that theory can only take us so far in our understanding of morality. If we truly want to understand our role as journalist we need to combine theory with the combine theory with the application of journalism itself.

Plaisance (2016) also calls for a shift away from the Western ideologies and Western values of the press, another aspect of VR journalism that needs to be taken into account is the fact that many VR stories will be produced in countries that don’t align with the traditional Western ideals. In 2010, during the inception of immersive VR journalism, De la Peña, N., Weil, Llobera, Giannopoulos, Pomés, Spanlang, Slater, M. (2010) state that one of the main goals of immersive journalism is to expose audiences to locations they would never have access to. At the time journalists like De la Peña didn’t have the technological capabilities to capture the 360-degree photos and videos we see today and were instead building their immersive scenes in a computerized setting, similar to the method of producing video games. The introduction of dual lens 360-degree cameras like the Ricoh Theta and the Samsung Gear 360 in late 2015 allowed for newsrooms to send these inexpensive cameras to their reporters around the world and

opened the door for a phase of mass experimentation in 360-degree video production. Around the same time Yang, Taylor, and Saffer, A. J. (2016) examined 66 public relations and journalistic associations from 33 different countries in an effort to find similar or different values from country to country. Their findings show the majority of the ethical codes from country to country advocated that journalists are supposed to see themselves as servants of the public's interests, a protector of human rights and a monitor of a democratic society. Many countries around the world also stressed the importance of professionalism in their ethical codes. Professionalism was viewed as a convergent value between public relations and journalism and was measured by quality of content the journalists provided the news coverage and that the content was collected without doing harm to their subjects. Professionalism also was judged on the principles of objectivity, truth and integrity in an effort to build trust between the public and the news organization Yang, Taylor, and Saffer, A. J. (2016) stress that while many countries share the same overarching values in journalism and public relations, a newsroom needs to take into account the cultural differences of each country in order to uphold the values of journalism and create a sense of community in the practice of journalism and PR. In conclusion, it should be noted that while journalism as a whole is experiencing a shift in values, this doesn't mean the core tenets of journalism should change. What the field is experiencing is a call for even more transparency than before and the acceptance of virtual reality in newsrooms offers a medium that meets those needs through its unprecedented level of immersion and interactivity (Domínguez-Martín, E. (2015). In the same breath, journalists need to understand the different cultural values they will encounter outside of a non-Western setting, in an effort to minimize harm as they attempt

to take their audience to a place they would never have access to.

Understanding the Capabilities of Immersive Journalism

In order to meet the needs of emerging technologies, such as virtual reality, there needs to be an understanding of the capabilities of immersive journalism. Cruz and Fernandes, (2011) point out that many of the emerging technologies that are being accepted by the journalistic community weren't originally made specifically for the field of journalism. For example, Culver (2014) compared the journalistic practice of flying a drone over a protest to the surveillance tactics of military drones to highlight an ethical concern for an individual's right to privacy when using this technology in journalism. Privacy deserves an equal amount of scrutiny in the field of virtual reality, however Cruz and Fernandes (2011) believe all new technology, should be utilized in a way where the core values of truth-telling, loyalty to public and the discipline of verification, should be working in unity with capabilities of the technology. Cruz and Fernandes (2011) also comment on the first-person experience that virtual reality content provides its audience and the freedom that allows an individual to experience news in a way a journalist could never provide through a written story, a photograph or even a flat-screen video. The user now has the ability to directly engage with the environment and the subjects who inhabit a space. The freedom to look around and have control over the framing power a journalist once had drastically changes the role of a journalist as he or she still has the responsibility to provide context and create empathy. News organizations like Euronews often decide to include a reporter in their 360-degree shots in order to give the viewer a starting point to refer back to while The New York Times often takes the 'fly on the wall' approach to their VR journalism and allows for reporter voice-over or interviews to guide the viewer

through a scene and provide context.

Sundar and Limperos (2013) argue that virtual reality can bring about a ‘being-there heuristic’ that allows the audience to learn something for themselves because the authenticity and intensity of the experience allows them to make judgments for themselves.

The realism with which we can experience mediated portrayals of reality and the feeling of "being there" in a mediated environment are examples of gratifications made possible by innovations in the modality affordance of technologies underlying modern-day media. (Sundar & Limperos, 2013 p.10)

Although many of the top-end VR headsets required to fully experience this medium are still out of a reasonable price range for the mass public (HTC’s Vive and Oculus’ Rift both cost a minimum of \$699 as of April 2017?), the efforts of Google’s Cardboard (\$15) and Daydream headset (\$79) have made viewing VR quite affordable and attractive to the public. In 2015 The New York Times sent out over a million Google Cardboards to their subscribers and made one of the most prominent statements that virtual reality and immersive journalism was a worthwhile initiative for the future of journalism. Marron (2015) called the creation of The New York Times virtual reality app and their distribution of a million Google cardboards a watershed moment for journalism. The author also questions if individuals will feel the need to travel to the locations they experience in VR and wonders how the VR stories of the near future will implore their audiences to act on what they experience in VR. Marron (2015) also sees the development of VR in journalism as an opportunity for journalism programs around the world to attract more students and push the boundaries of content creation. However,

Marron also states that journalists must stay true to the ‘tried and tested principles of the past,’ in the presence of innovation. This is in agreement with Cruz and Fernandes (2011) argument that journalist values shouldn’t change in the presence of emerging technology and journalist should instead seek to amplify these values through the capabilities of new technology.

The Muddled Field of Media Ethics

What’s comforting about VR/360-degree video’s role in journalism is that it will have a very clear set of values to uphold. But to whom those rules apply to and the very nature of who is and who isn’t a journalist is still up for debate. Ward (2014) points out that not even the US Senate Judiciary committee can define who’s a journalist and with an influx of digital news Ward (2014) presents the concept of ‘mixed news media’ that has led to period of turmoil in media ethics. The term ‘mixed news media’ refers to a vast array of hyper-partisan digital news outlets that don’t follow the values of objectivity and independency that journalism is tied to. This turmoil, Ward (2014) explains, came to fruition due to a lack of consensus norms and the absence of an agency to enforce standards to protect the public. This helps many of the mixed media outlets to compete on the same plane as journalistic organizations and ultimately challenges the parochial notions of journalism’s objective. What this boils down to for the hard-lined ethical journalism highlighted in Slattery (2016)’s interpretation of the latest SPJ code of ethics is a balancing act of combining the traditional values of verification and objectivity with the digital encouragement of opinion and sharing. Ward (2014) also mentions that because legacy media companies often reach out to corporate technology companies or startups to innovate in the newsrooms brings about the danger of ‘brand-journalism’ that

can distract a reader from the objective goal of journalism.

Another limitation of media ethics today can be found in Ward and Wasserman's (2010) framework of closed ethics. The authors note that this form of discourse set guidelines that are primarily intended for a relatively small group of people and place harsh limits on meaningful non-member participation in changing or critiquing those guidelines. Ward and Wasserman (2010) argues that journalists have accepted the closed form of ethics for fear that inviting the public into the discussion could reduce the editorial autonomy and independence of the forth estate. To solve this issue, Ward and Wasserman (2010) argues that an open set of ethics is a code that is intended for anyone who uses media for journalism and also allows and encourages anyone to engage in discussion and content reform.

To understand these concepts more clearly Ward and Wasserman (2010) states three factors are at play: (1) who the intended users of the ethics are, (2) who participates in ethical discourse and decisions and (3) who determines and modifies content of the ethics. Ward and Wasserman (2010) argue that the technological advancements of the 21st century have allowed citizens to take the roll as journalists resulting in the ethical barriers of journalists and citizens to be broken. With this in mind, the authors call for a move towards an open discourse of engagement between journalism institutions and citizens in the hopes of moving towards a normative ethical guideline. Ward and Wasserman (2010) deliberate some general conditions that should be kept in tact in an open ethical framework:

- The long-established values of accuracy, truth seeking, sincerity and hospitality should remain intact. However, the virtue of hospitality should take precedent to

seek out different viewpoints and unheard voices, especially when it comes to the integration of new technology in journalism.

- Journalists and media ethicists should be sincere in their call for outside voices to contribute to media ethics and shouldn't "function as a smokescreen with which professional media create the illusion of public participation when such participation does not entail the relinquishing of power by a professional class," (Ward and Wasserman, 2010 p. 289)

Ward and Wasserman (2010) conclude their argument by stating that meaningful participation should be regarded as an ongoing process of engagement with voices come from outside the field mass media and journalism. This method, goes against the strict interpretation of who is and who isn't a journalist, outlined by Cruz and Fernandes (2010) and Slattery (2016), however Ward and Wasserman feel that by leaving the conversation of media ethics open to the public it can adapt to ethical implications of new technology more efficiently.

Mittlestadt, Stahl, and Fairweather (2015) present another method of meeting the needs of emerging technology through a framework of discourse ethics. Discourse ethics encompasses two approaches to solve this issue: first, is to demonstrate a predicted shape of the future (how one thinks the future will look) and a second approach looks at how the emerging and developing technology of today (in this case virtual reality in journalism) will change the future. The latter approach requires one to facilitate discourse surrounding the ethical implications of emerging technology (this study's proposed methodology) in order to justify how the future will be and should be given the emerging technology of today.

Discourse ethics can thus be argued to overcome the limitations of the ‘is-ought problem’ and provides a theoretical position that allows empirical ethics research. The discourse and universality principles provide criteria for evaluating norms that allow for normative as well as empirical interventions. It requires practical discourses that allow the voicing of empirical observations as well as ethical positions. (Mittlestadt, Stahl, & Fairweather, 2015 p. 1038)

Mittlestadt, Stahl, and Fairweather (2015) justifies a need to build an ethical discourse around emerging technology by looking to the future and speaking to those who are experimenting with the technology, instead of looking back and building an ethical code based upon similar technologies of the past. In the end, there is a consensus from a number of scholars that argue the technological capabilities of today allow audiences to feel they have a greater role in interacting with news and with this in mind the ethics of today need to be adjusted to meet the expectations of the audience and the capabilities of the technology at play.

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