





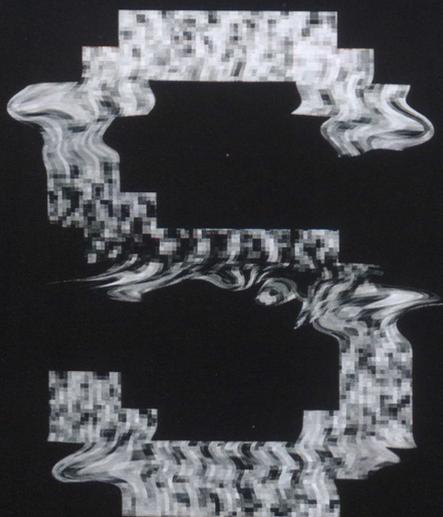
THE STRUGGLE FOR SIGNAL

ALUMNUS RICHARD SCHNEIDER started making TV antennas in his garage about a decade ago. Now his products are sold at major retailers and installed on millions of rooftops nationwide.

Starting in 2009, over-the-air (OTA) television signals became digital only. OTA television is free, but its signals have a reputation for breaking up often, so some people resorted to old-style rabbit-

ear antennas when trying to tune the picture. The results were often just so-so. The need for better reception of OTA television signals helped Richard Schneider's Antennas Direct become one of the fastest-growing companies in the United States. He sells a type of antenna that reliably provides the vivid images of high-definition, OTA television.

STORY BY DALE SMITH PHOTOS BY NICHOLAS BENNER



conversion boxes for old TVs. Companies have spent billions upgrading digital transmission facilities. To take advantage of all this, “All you need is an antenna,” says Schneider, who estimates the annual residential TV antenna market at \$250 million (7 to 8 million units). The market is growing 17 to 20 percent a year, says Schneider, who hopes to boost his roughly 10 percent market share to at least 20 percent by 2013.



PICTURE THIS

BUT THE POINT of it all is pictures and programming.

OTA high-definition

television images are second in quality only to Blu-ray, Schneider says. “Using a good antenna, the quality is roughly six to 10 times higher resolution than analog and two to three times higher than cable and satellite.” That’s because cable and satellite companies strip information out of the original signals “to fit 10 pounds of potatoes into a 6-pound sack,” but OTA stations don’t.

When it comes to programming, competition is amping up and increasing demand for antennas. For starters, the FCC allows TV stations to divide the digital signal and broadcast multiple channels. Multicasting theoretically allows stations up to 100 channels, and many stations are providing two or three. Columbia offers 14 channels, St. Louis 16, larger markets 40 or so, and Los Angeles a whopping 90, Schneider says.

The OTA trend could be a big one. Great Britain started digital transmission five years earlier than the United States, and now more than 55 percent of households use its 40 channels rather than cable, Schneider says. In the United States, so far only about 15 percent of Americans are OTA-only. Schneider thinks that figure will rise to 35 percent in three to five years.

Millions already are shifting their viewing habits, opting out of cable for combinations of OTA and streaming media. Presumably fed up with paying for cable or perhaps reducing costs in a down economy, 2.07 million people nationwide cut the cable cord between 2008 and the end of 2011, according to the Convergence Consulting Group.

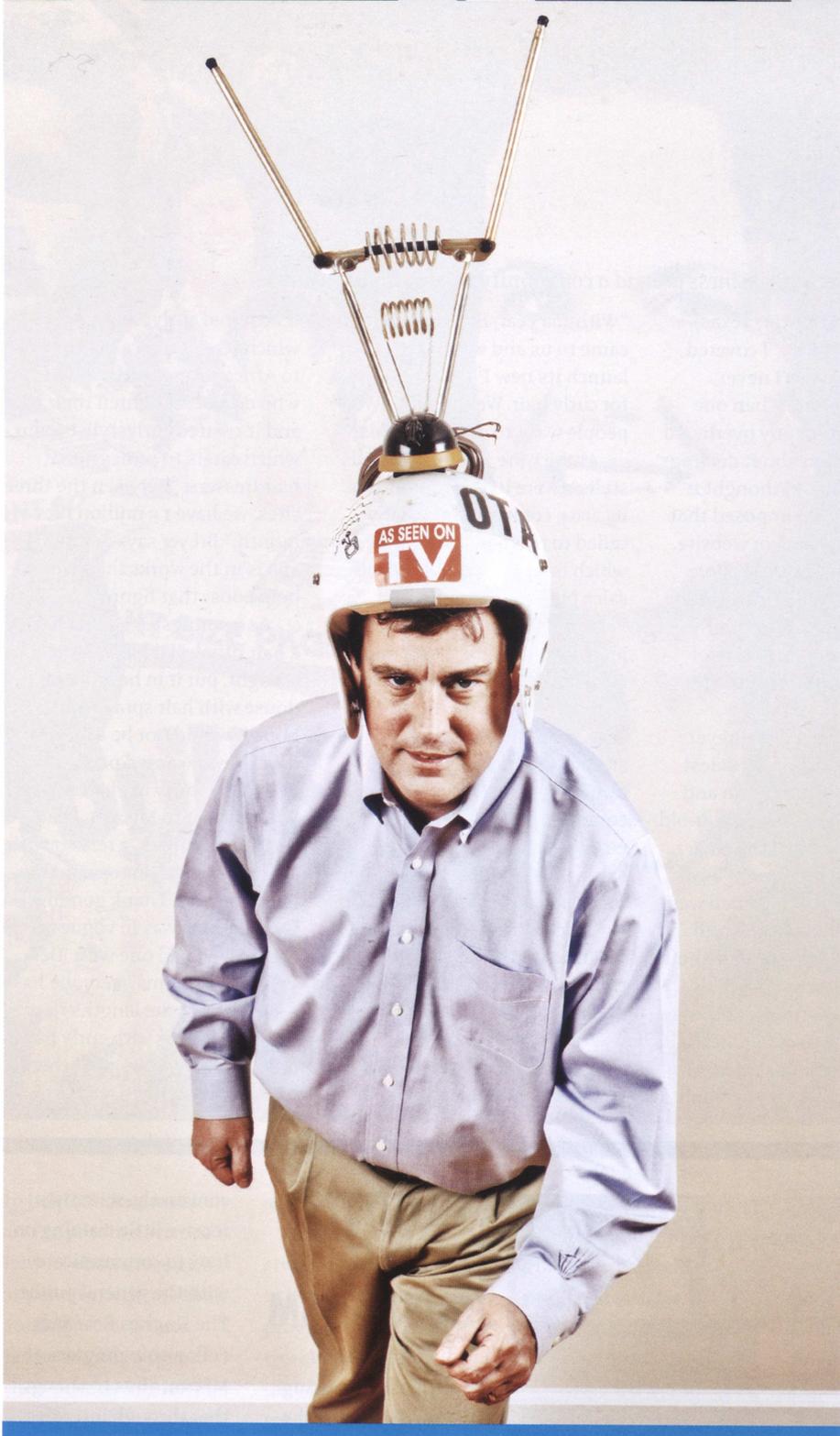
The appearance of streaming Netflix and Hulu worried Schneider at first, but they turned out to be a boon. “Our fastest-growing customer group consists of young people who forego cable and instead go with a hybrid of Netflix, Hulu and an over-the-air antenna.” For this group, the streamed programming from Hulu and movies from Netflix serve as alternatives to cable, and the OTA channels are free. “You can get this setup for \$10 to \$20 a month versus cable for \$100 to \$200 a month,” Schneider says. However, the offerings — including premium sports coverage — are fewer than on cable.

The antennas themselves, which go for roughly \$50 to \$150, represent the first big advances in this technology in 30 years, Schneider says. “Through new advancements in antenna design software and analytic equipment, we can simulate and test thousands of designs in a matter of weeks rather than decades, and the results are antennas that are five to 10 times more powerful at a fraction of the size of your grandparents’ rooftop antennas.”

SCHNEIDER, BA '92, is out to consign rabbit ears to broadcast museums. His indoor and outdoor home antennas are designed to receive the wavelengths of digital OTA television, which differ in frequency from the old analog signals. New technology has made the antennas efficient and compact (smaller than many flat-screen TVs) and allowed a more aesthetic design (think abstract black flower on a grid). They are selling like crazy. The 7-year-old company grossed \$8.6 million in 2010, could double that figure in 2011 and has been on *Inc.* magazine’s list of fastest-growing privately owned companies for the past three years.

Schneider’s timing has been great. Along with the move to digital OTA television, the government mandated that new televisions contain digital tuners and has subsidized

IN JANUARY 2011, ANTENNAS DIRECT SHIPPED 55,000 UNITS, SOME TO MAJOR RETAILERS, INCLUDING BEST BUY, COSTCO AND TARGET.



SOURCE OF THE SIGNAL

A MAPMAKER by training, not an engineer, Schneider grew his business out of an interest in home theater. After graduating from Mizzou, he worked for a company that made mapping software, including

site selection for cellphone towers. The job familiarized him with the basics of signals and antennas. In his free time, he was a self-avowed home-theater geek. "In 2000, they started broadcasting over-the-air television signals in digital high definition, so I went

Richard Schneider put on his thinking helmet in 2000 to come up with a better over-the-air TV antenna. Now his business is worth millions.

to the store to buy antennas for my theater. But I couldn't find any that were successful, so I had to make my own." After studying antenna theory texts, he developed rudimentary antennas tuned to the new digital broadcast frequencies.

Before long, word spread through online home-theater forums that there was a guy making antennas that had a better batting average than a coat hanger.

"People would ask me to make antennas for them, but it was still just this lunatic fringe of home-theater nerds. These somewhat scruffy-looking guys would show up in the lobby at the software company and ask for me. My co-workers must've thought I was selling drugs out of the trunk of my car. I was just hoping to make enough to pay for my hobby."

Schneider's antenna ambitions cranked up when he decided that he wanted a new \$7,000 projector for his home theater. "I didn't want to tell my wife about it. I figured that if I could sell 20 antennas a month, I could fund my hobby." So he made a batch of 50 antennas, put up a basic website and sold out quickly. Another larger batch sold out. And another. "I had to take the site down. There was only so much I could do in my garage." In 2003, not finding a U.S. manufacturer willing to produce his small orders, he ordered 1,000 units from a Taiwanese company.

"The first two years we were in a perpetual state of back order." In 2003, company revenues were \$35,000. By 2008, they were \$3.5 million, and the company projects \$17 million to \$19 million for 2011.

In January 2011, Antennas Direct shipped 55,000 units, some to major retailers, including Best Buy, Costco and Target. "We've crossed the line now from hobbyists and the lunatic fringe into the mainstream. Regular people are ready." ■

CURLIES UNITE!

Michelle Breyer wraps a multimillion-dollar website business around a community of curly haired women.

Growing up with a head of curly hair, Michelle Breyer heard all the nicknames: Brillo Pad, Bozo, big hair, Medusa, poodle head, fuzz.

"Kids are mean," she says. "Curly hair was not always considered the standard of beauty." Luckily, standards have broadened to include anything from straight to waves to kinks. But women with curly hair still have a lot to talk about, says Breyer, BJ '85. For instance, how to deal with their unruly tresses. "Walk up to a curly on the street, and there's a bond," she says.

That bond is what holds together Breyer's \$3 million a year Internet-based business, naturallycurly.com, which grew almost by accident as she researched and shared ways of treating, styling and living with curls. She says more than 50 percent of people have at least some degree of waviness.

It all started in 1998 when Breyer and Gretchen Heber were

working at the Austin (Texas) *American Statesman*. "I covered entrepreneurs, but I never thought I'd be one. Then one night at a party, a guy overheard our conversation about dealing with curly hair and thought it was so funny. He proposed that we start a magazine or website. So we went online right there knowing we would find nothing — no resources at all for curly hair. But there were plenty of products and styling ideas for straight hair."

So, out of altruism, Breyer and Heber launched a modest website with information and product reviews. "My 13-year-old neighbor developed the site, and people found it right away." Soon thousands of women were reading the site's stories and chatting with one another about finding stylists, taming curls with various regimens, dealing with curl-bashers and much more. Corporations took notice of the power of the curly bond.

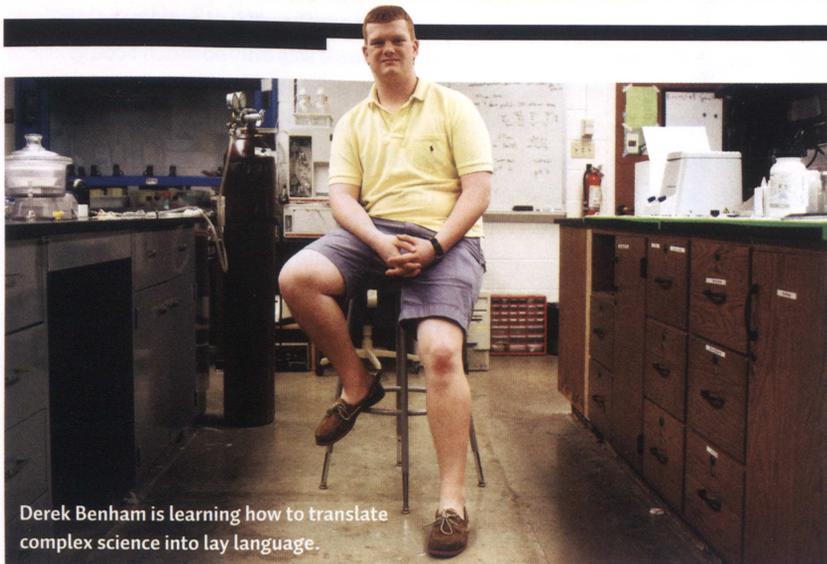
"Within a year, Procter & Gamble came to us and wanted to launch its new Physique brand for curly hair. We thought, 'Wow, people want to pay us for this?'"

At the time, companies and stylists were looking for niches. By 2004, companies regularly called to place ads on the site, which is now chockablock with sales pitches for full lines of Pantene products as well as products with complex names such as Alaffia Beautiful Curls Curl Activating Shea Butter Leave-In Conditioner. The site also has an online boutique. The company's revenue comes from a combination of e-commerce and advertising sales. Advertising is responsible for 60 percent of its profits.

"Back in 2005, we began to feel that it should be a full-time job, so we left the paper and rented office space. It was just two of us at first." Naturallycurly.com now owns two complementary websites:

It acquired curlynikki.com, which covers topics of interest to African-American women who do not straighten their hair, and it created curlstylists.com, which caters to professional hairdressers. "Between the three sites, we have 1.5 million hits a month," Breyer says. A mobile app is in the works that could help boost that figure.

As a youngster, Breyer had a hair ritual. "I'd blow-dry it straight, put it in hot rollers, douse with hair spray and hope it would not be a humid day. I never wanted people to know how curly my hair was. When I went to Mizzou, I had a 'chemical haircut,' a relaxer with another relaxer on top, and my hair broke off. Thank goodness wearing hats was in vogue in the '80s — I had one with 'Deja Vu' on it. It seems everyone has a story about the lengths they go to in dealing with curly hair." Naturallycurly.com gives them a place to tell it. ■



Derek Benham is learning how to translate complex science into lay language.

Photo by Nicholas Benner

SCIENTISTS TRY OUT JOURNALISM

Biochemistry junior Derek Benham is using UVRR to determine the secondary structure of light-harvesting complex.

If you don't have a clue what that means, not to worry. Lay audiences often struggle to understand science, and

conversely, scientists receive little training on how to communicate with the general public. The Hughes Research Fellowship program at Mizzou aims to change that through interdisciplinary training.

The fellowship program, funded by a \$1.5 million Howard Hughes Medical Institute grant, selects 14 MU science undergraduates



Illustration by Blake Dinsdale

to help conduct research and to produce science news. Fellows receive a stipend to dedicate their summer to full-time research and to spend their next two semesters working 10 hours a week in a campus research lab and two to five hours in an online media lab.

The grant also funds four undergraduate journalism students to work alongside the

science majors.

Eight science students participated in the spring 2011 pilot program at MU. During weekly meetings, they learned scientific research and journalism principles from Jack Schultz, director of the Bond Life Sciences Center, and Jon Stemmler, associate director of the Health Communication Research Center. In the

media lab, journalism students and undergraduate researchers produced articles, photos, audio, video and graphics that were posted to a Web portal, scixchange.missouri.edu.

Benham, a junior biochemistry major from Webb City, Mo., applied for the program in hopes of becoming an accessible researcher. (In simple terms, he studies

how plants harvest light for food and fuel.)

"I've seen graduate students struggle with getting their research across, and I've sat through a lot of presenters talking over my head," Benham says. "I've often thought to myself, 'There has to be a better way to do this.'"

Kayla Knuf, junior biochemistry major from Highland, Ill., was

also interested in the fellowship for practical reasons. She plans to apply to medical school and works at two local hospitals where she regularly sees patients confused over doctors' words.

"As a doctor, you have expertise that others don't, and if you can't communicate knowledge with others, it's kind of pointless." ■



THE DIGITAL AGE OF ART

Art, music and theater schools typically emphasize classical techniques, but new student generations — who grew up with synthesized sound, computer-generated art, virtual museums and iTunes — are expecting more.

“One of the things we’re seeing in the School of Music are students who have

learned what they know about music in non-traditional ways,” says Robert Shay, director of the School of Music. “Are we ready for students like this? Is there a way for us to embrace them while incorporating the other stuff they need to know?”

To explore these questions and increase public awareness of the digitization of the

arts, Shay and Andrea Heiss, assistant professor of magazine journalism, will host a symposium and festival in fall 2012. The public event, which will include speakers and performances, is a collaboration among faculty from art, art history, music, theater, architectural studies and journalism. Shay hopes the conference will spur discussions on how new media and technology are affecting art and how MU can prepare students for art careers. ■



Photo by Rob Hill

Music Professor Tom McKenney, right, works with music composition graduate student David Witter in McKenney’s office. They are discussing MetaSynth composition and sound design software.

REACHING WOMEN

Fewer than one in 10 women in abusive relationships seek professional help, and for those who turn to the Web for resources, online advice is typically generic.

Tina Bloom, assistant professor in the Sinclair School of Nursing, is researching a Web-based program designed to help women develop individualized safety plans. Women answer a series of questions, and the program helps assess their danger and priorities. The program suggests strategies based on specifics, such as the ages of their children, whether they plan to remain in the relationship, prior violent incidents and the level of danger.

“We’ve found that women really like the privacy and anonymity,” says Bloom, who worked on the program’s pilot study when she was a doctoral student at the Oregon Health and Sciences University School of Medicine. “Computers don’t judge.”

A National Institute of Mental Health grant has funded a second study in Arizona, Maryland, Oregon and Missouri, where Bloom leads the work. She will measure whether the program helps women reduce their exposure to violence and how the program affects their mental health symptoms. She’s also working on a supplement for rural women, whose closest domestic abuse agency is often more than 70 miles away.

If the research shows that the decision-aid program is effective, Bloom hopes it will become widely available for free on the Web and in kiosks at doctors’ offices, emergency rooms and libraries for women who don’t have safe access to a home computer. ■

WHERE FILM AND JOURNALISM COLLIDE

As documentary films gain more mainstream appeal, especially among adult audiences no longer wowed by box-office heartthrobs and teen comedies, Columbia has emerged as a cinematic city of choice for nonfiction fans.

That shouldn't come as a surprise. With Mizzou's growing film studies major and journalism school — set against the backdrop of the city's booming, eight-year-old True/False Film Fest — Columbia is a natural breeding ground for conversations about

similarities and differences between journalistic and documentary storytelling. A December 2011 conference will bring the discussions together.

Stephanie Craft, associate professor of journalism, and Brad Prager, associate professor of German, are planning the conference, funded by a Mizzou Advantage grant. Film studies scholars, journalism researchers and film critics will discuss the ethics and changing formats in documentaries and journalism.

The conference will raise questions, such as: Where do journalism ethics and documentary ethics meet, if at all? Although documentary filmmakers are not always aiming to provide a balanced account, Craft says there's some indication that the public is open to this type of advocacy in journalism, too. Blogs and social media have somewhat legitimized the idea of journalists sharing their opinions.

The conference also will explore the implications of

journalism being produced by institutions versus documentaries being produced free from institutional ties or with some influence from the project's funders. These discussions become more important to society as documentaries increasingly offer investigative stories traditionally in the realm of journalism.

"There are at least three cable networks with 24-hour news, but no one takes the time to look at anything in-depth," Prager says. "There's a hunger for

real investigative stories."

As Craft points out: "Two people yelling at each other is cheaper than sending someone to Libya."

As a result of the conference, Craft and Prager plan to produce a scholarly publication, which will be one of the first to deal exclusively with the overlap of journalism and documentary film. The project will also sponsor a public panel at True/False 2012 and could spur the formation of a new documentary film course at Mizzou. ■

AND THE OSCAR GOES TO ...

The advent of digital convergence has placed new creative and academic demands on the modern Mizzou student. Nowadays, careers require multimedia know-how — whether working with press releases, plea bargains or petri dishes.

Several departments at MU have recognized this trend and incorporated film projects into the curriculum. The most comprehensive example comes from an interdisciplinary class through the College of Engineering, which began work on its fourth feature film during the spring 2011 semester.

"A good number of students want to study critical analysis of film but are also interested in learning the hands-on aspect of how to edit and shoot video," says Roger Cook, director of film studies.

The roller-derby-vampire-themed movie will follow in the

footsteps of *Aztec Revenge*, the fantastical Mexican wrestling flick filmed by a similar class in 2009. The scripts are unrelated, but students will again work on every phase of production, including story boarding, shot testing, script breakdown and shot sequence.

Also on campus during the 2010-11 academic year:

- Student Life hired four freshmen to document their first year and to provide logistical help for companies that want to film on campus.
- The Fresh Films competition for MU freshmen encourages novice videographers to create original material and explore filmmaking techniques.
- The Silverscreen Film Festival enjoyed its fourth year at MU on April 15, 2011. What began as a collaboration between Mizzou and Stephens College now includes student films from across the U.S.
- A graduate-level epidemiology class created 60-second YouTube videos about healthy behavior; some students even dressed up like cavemen: youtube.com/watch?v=jxp52_SMTI.

watch?v=jxp52_SMTI.

"Being able to film and edit video is becoming as necessary as managing a spreadsheet or

creating a website," says Kathy Murray, assistant director of campus activities for student life. ■

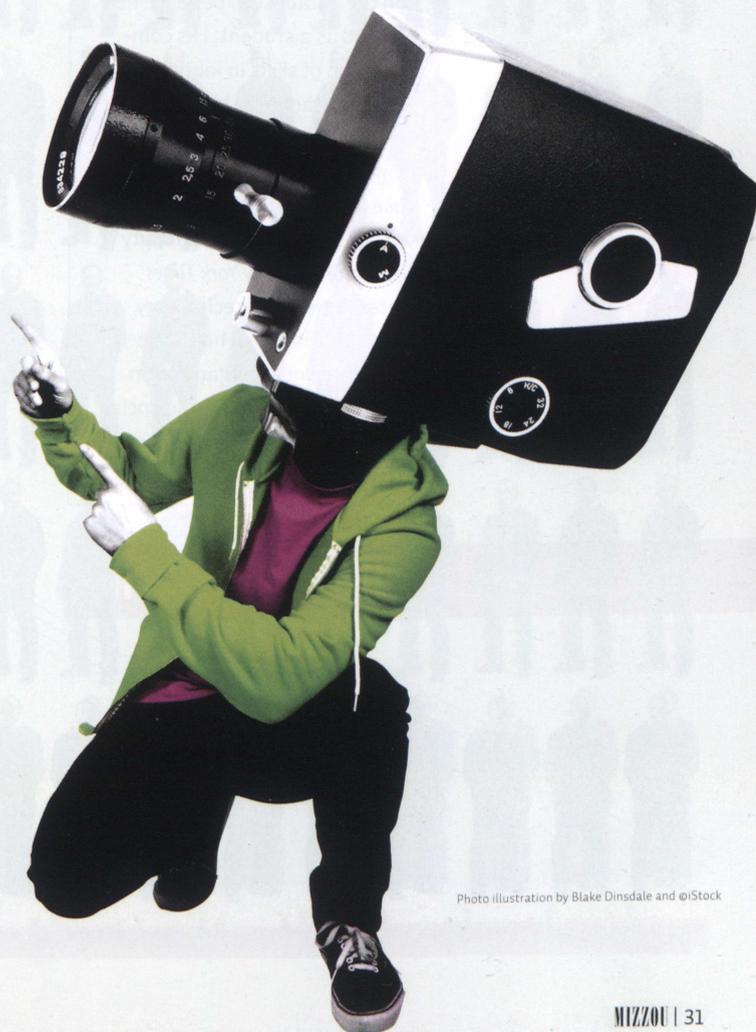


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