

What is Mizzou Advantage?

University faculty, students and alumni worked together to identify competitive assets that set MU apart from other universities. These assets underlie five dynamic initiatives that collectively are called the Mizzou Advantage.

Food for the Future

The culture, economics and production of healthy and affordable food

Media of the Future

New ways to communicate, educate, market and inform

One Health, One Medicine

The convergence of human and animal health

Sustainable Energy

Developing and distributing renewable energy sources

Disruptive and Transformational Technologies

Understanding and managing new innovations that change our lives

The purpose of Mizzou Advantage is to increase MU's visibility, stature and impact in higher education and enhance the quality of faculty and students, instructional programs, success of grant proposals, fundraising results, the U.S. and Missouri economies, venture capital investment, and the value of an MU degree. MU will also develop new educational programs in these five areas to give students a competitive edge in the global marketplace.

Activities related to each initiative are driven by networks of collaborators (faculty members, centers, departments and colleges, corporate partners and other universities). Their efforts will result in more grants and opportunities to recruit top students and the most prominent faculty scholars and scientists. Not only will Mizzou Advantage contribute to MU's positioning in higher education, but it will create jobs and improve the quality of life for Missourians.

For more information, visit mizzouadvantage.missouri.edu or see page 55 for additional contact information.

Mizzou Advantage Projects

In 2010 and 2011, Mizzou Advantage awarded more than \$2.3 million for 64 interdisciplinary projects to bring people together and solve real-world problems. The awards were in the form of network grants of up to \$20,000 and seed grants of up to \$50,000.

Network projects involve activities that build relationships, seed new and productive collaborations, and deepen MU's presence in each of the five Mizzou Advantage initiatives. These activities forge relationships among departments, individual faculty, and external collaborators who are working on related topics in the broad initiative areas, and who are not now working together. Ideally, these collaborations enhance the work of all and perhaps open new opportunities that no one person or center could pursue alone. A total of 27 network grants were awarded.

Seed projects have a very different orientation: they are for activities that will seed substantive research, education, service, or economic development projects in the initiative areas—to build the foundation for future activities in Mizzou Advantage. These projects bring together PIs and other collaborators from on and off campus in innovative ways that enhance opportunities for major efforts in the future. The seed projects are building the substantive foundation for future successes—for our goal of enhancing MU's existing prominence in the five Mizzou Advantage areas. A total of 37 seed grants were awarded.

Network and seed projects have distinct yet complementary goals, and both are essential foundations for the success of the Mizzou Advantage.

Detailed information about the Round One projects begins on page 4 and Round Two projects are detailed beginning on page 22.

Round One (awarded Spring 2010)

In response to the Round One call for proposals, 78 submissions were received totaling over \$2.7 million in requests. 26 proposals were funded – 11 network and 15 seed – at a total of nearly \$1 million.

The awarded projects involve 81 PIs and Co-PIs representing Agribusiness, Agricultural Economics, Agroforestry, Animal Sciences, Art and Archaeology, Arts and Humanities, Biochemistry, Bioenergy Engineering, Biological Engineering, Biological Sciences, Biology, Biotechnology, Business, Chemistry, Civil and Environmental Engineering, Computer Sciences, Convergence Journalism, Dermatology, Economics, Education, Electrical and Computer Engineering, Energy Management, English, Forestry, Genetics, Geography, Health Policy, Informatics, Informational Science and Learning Technologies, Internal Medicine, Journalism, Journalism Library, Law, Library, Management, Marketing, Medical Pharmacology and Physiology, Molecular Microbiology and Immunology, MU Power Plant, Neurology, Nutrition and Exercise Physiology, Ophthalmology, Pathology, Philosophy, Physics, Plant Sciences, Psychological Sciences, Psychology, Public Affairs, Radiology, Science Journalism, Sociology, Statistics, Surgery and MMP, Surgical Oncology, Veterinary Medicine, Veterinary Neurology, and Veterinary Pathobiology.

A 21st Century Program in Cancer Research: Targeting Metastatic Cancer Cells to Improve Diagnosis and Therapy

Seed Project

One Health/One Medicine

In this study, we will develop a flow cytometry system that uses photoacoustic generation and detection of melanoma cells in blood. Once we detect these cells, we will capture them downstream in the cytometer using two phase flow techniques. Once we have cultured these cells derived from the original metastatic cell, we will determine phenotypic characteristics and the presence of key molecular markers of epithelial-mesenchymal transition, the key process that allows tumor cells to become metastatic. This study will result in greater understanding of metastatic disease and may provide the means for personalized cancer therapy.

Steve Alexander is Professor of Biological Sciences. He is a cell biologist studying the molecular basis of cancer chemotherapy. Recently, his lab has discovered new targets for cancer therapy using genetic and proteomic approaches. He was an NIH postdoctoral fellow at the Dana-Farber Cancer Institute at the Harvard Medical School, a faculty member at The Scripps Research Institute, and the recipient of an American Cancer Society Faculty Research Award.

Paul Dale is a Professor of Clinical Surgery and Chief of the Surgical Oncology Division at Ellis Fischel Cancer Center. Dr. Dale also holds the academic honor of being the Margaret Proctor Mulligan Professor in Breast Cancer Research. He completed a fellowship in surgical oncology at the John Wayne Cancer Institute in California. Special interests include breast cancer surgery, colon cancer surgery, liver surgery, pancreatic cancer and surgery, skin cancer, stomach cancer, and surgical oncology.

Mark Hannink has a long-standing interest in the molecular biology of cancer. He earned his PhD at UC-San Diego, working with cancer-causing viruses. As an American Cancer Society postdoctoral fellow with Howard Temin at the McArdle Laboratory for Cancer Research, University of Wisconsin, Dr. Hannink's research revealed how cancer-causing genes are regulated. The current interests of his laboratory at the University of Missouri are the molecular pathways that regulate proliferation and survival of cancer cells.

Scott Holan earned a PhD in Statistics from Texas A&M University in 2004. His research interests include the development and application of time series methods, Bayesian methods, spatio-temporal models, and signal extraction for interdisciplinary research. Dr. Holan has received several awards including an American Statistical Association/National Science Foundation/Bureau of Labor Statistics (ASA/NSF/BLS) Research Fellowship (2005), a National Institute of Statistical Science (NISS) New Researcher Fellowship (2006), and a NISS/NASS (USDA) Cross Sector Research Fellowship (2009).

John A. Viator is an assistant professor of biological engineering and dermatology, specializing in biomedical optics with an emphasis in photoacoustics. He obtained his Ph.D. in electrical engineering from Oregon Health & Science University. He invented the first photoacoustic flowmeter for detection of circulating cancer cells in human body fluids. His current research interests are in optical diagnosis applied to dermatology, oncology, and surgery.

The Architecture of Collaboration: Defining Networks, Developing Methods

Seed Project

Disruptive/Transformational Technology, Food for the Future, Media of the Future, One Health/One Medicine, Sustainable Energy

Mizzou Advantage aims to build networks of very high-achieving individuals and organizations. But no network model of MU exists. We will develop tools for identifying existing networks at MU and between MU and other entities using the Bond Life Sciences Center and the Center for Arts and Humanities as example sub-organizations. Existing databases and personal interviews will be used to characterize existing networks, and to associate network characteristics with desired outcomes. We will invite experts in organizational management, social networking, and science-of-team science communities to advise us on how to optimize campus networks to meet MU's goals.

Kate Anderson, MA, MLS, is Specialized Services Librarian at the Health Sciences and Veterinary Medical Libraries. She was recently appointed Mizzou Advantage Library Liaison, a position designed to coordinate MU Libraries' support of the interdisciplinary networks created by Mizzou Advantage. Anderson has a long-standing interest in scholarly communication issues, digital institutional repositories, and the assessment of publication metrics. She earned her graduate degrees from University of Wisconsin-Madison and her undergraduate degree from Colorado College.

Mary Barile has been a grant writer at MU since 2001 and has a PhD in Theatre. Her research interests are in 19th century American theatre, early African-American theatre and Missouri history. She works with campus faculty and community arts organizations to acquire funding for projects ranging from research and travel, to theatre and literary events. She has published extensively on American frontier theatre and settlement history and is a state coordinator for outreach programs in history and environmental education.

Roger Gafke serves as director of program development for the Donald W. Reynolds Journalism Institute. He specializes in program evaluation, development and training. His work has also emphasized the use of the Internet and related digital technologies for training, education, journalism, and public relations. In recent years he has expanded the international programs and relationships for the School of Journalism. He joined the School's faculty in 1968 as a member of the broadcast news department.

Jeni Hart is an Associate Professor in the Department of Educational Leadership and Policy Analysis. She has two primary strands of inquiry: women faculty and campus climate issues. She was Co-PI on a 3-year NSF ADVANCE project intended to advance women faculty in Science, Technology, Engineering, and Mathematics. She is also Co-PI of an NSF-funded PRISM grant aimed at enhancing interdisciplinarity between and recruiting students to Mathematics in Life Sciences.

Lindsay Leonhard, Graduate Research Assistant for the Office of the Provost, is earning a Master of Arts in Information Science and Learning Technology with an emphasis in Library Science. Lindsay graduated Magna Cum Laude from Western Washington University, majoring in German and Music. She is President-elect of the MU Progressive Librarians Guild and is a volunteer cataloger for The Center's Social Justice Library. Her professional interests include corporate research, database management, and public librarianship.

Tim Matisziw is an Assistant Professor in the Department of Geography and in the Department of Civil & Environmental Engineering. His research is centered on geospatial analysis methodologies, GIS, network modeling, and facility siting in particular. He has developed and implemented geospatial analysis methods for a range of application areas including transportation systems, ecological conservation, public health, telecommunication and most recently in NSF supported research on mitigating threats to critical infrastructure.

Jack Schultz is Director of the Christopher S. Bond Life Sciences Center at the University of Missouri where he promotes and develops interdisciplinary research among 35 scientists whose interests range from plant breeding to electrical engineering. Schultz is Professor of Plant Sciences at MU and Distinguished Professor of Entomology Emeritus at the Pennsylvania State University. His research on plant-insect interactions has been supported continuously by NSF for 32 years and produced over 250 publications.

Yi Shang is a Professor and Director of Graduate Studies in the Department of Computer Science at MU. He has worked extensively on wireless sensor networks, mobile computing, nonlinear optimization, and intelligence distributed computing. He has published over 130 refereed journal and conference papers and has been granted 6 US patents. Some of his works are widely cited. His research has been supported by NSF, NIH, DARPA, Microsoft, Raytheon, and University of Missouri Research Board.

Chi-Ren Shyu is Director of University of Missouri Informatics Institute and holds the Shumaker Professorship. He is also affiliated with MU School of Nursing, MU College of Education, and Utah Biomedical Informatics Department. During his tenure at Mizzou, he received several awards including seven Departmental Teaching Awards, Engineering Faculty Teaching Excellence Award, Engineering Faculty Research Award, and NSF CAREER Award. He research interests are in the areas of biomedical informatics, personalized medicine, and data mining.

Douglas Steinley is an Associate Professor in Psychological Sciences at the University of Missouri. His primary research interests are multivariate statistics, with an emphasis in cluster analysis, mixture modeling, and social network analysis. His research has been supported by NIH, NSF, ONR, and JWAC, with current support being from an NIH Early Career Award.

John Wedman is Professor and Director of the School of Information Science & Learning Technologies at MU. Wedman's background includes work in business/industry, government, higher education, and K-12 schools. He founded two small businesses dedicated to training design and evaluation, and performance improvement. Wedman is the lead developer of the Performance Pyramid framework and associated needs assessment tools, all of which can be found at <http://NeedsAssessment.missouri.edu>.

Randall E. Westgren is a Professor in the Department of Agricultural and Applied Economics. He joined the University in December 2008 as the Al and Mary Agnes McQuinn Chair in Entrepreneurial Leadership. Prior to his appointment at Missouri, he was Professor of Business Administration and Professor of Agribusiness Management at the University of Illinois. Dr. Westgren's research and outreach focus on firm and inter-firm strategies in the agri-food sector, including the development of supply chains for biotechnology products, high-value intrinsic attributes, and other consumer-driven entrepreneurial opportunities.

Bioenergy Plantations: an Integral Part in the Sustainability of the Biomass Supply Chain

Seed Project
Sustainable Energy

With the commitment of the University of Missouri to reduce their consumption of fossil fuels for energy production by 25%, a new chapter in bio-energy production is about to be written. Mizzou's dedication places our university in an elite company of institutions of higher learning that are forging the way to reduce energy dependence and find renewable and sustainable methods for addressing energy needs. This project will lay the groundwork for how to establish, maintain, and understand the economic feasibility of bio-energy plantations that will provide woody biomass for Mizzou's new boiler scheduled to go on-line in 2012.

Francisco Aguilar is an Assistant Professor in the Department of Forestry. His research in the area of renewable energy includes the analysis of the economic feasibility of harvesting woody feedstock materials, private landowners' willingness to supply biomass, investors' preferences for renewable energies, and public policies affecting the use of wood-based energy. Aguilar is a former British Council Scholar, and received awards from the Earth Island Institute, World Resources Institute, and Resources for the Future.

John Dwyer is Associate Professor in the Department of Forestry. His research in the bio-energy field has involved evaluating fast-grown tree species for biomass production and flood tolerance. Recent research efforts to evaluate the economics of harvesting small diameter, low-value trees for biomass production has led to his current research into the sustainability of woody biomass extraction and its long-term impacts on Missouri's forests.

Gene Garrett was formerly Professor of Forest Silviculture and Director of the Center for Agroforestry. Over the last 34 years, Dr. Garrett brought in more than 25 million dollars in support of his program, published more than 200 scientific publications including 11 book chapters and two edited books. He received a US patent on foliar fertilizer to stimulate mycorrhizal development. Research emphasis has been in the area of biomass for energy including alley cropping agroforestry technology to create energy plantations.

Shibu Jose has nearly 18 years of experience in conducting teaching and research on the ecology of agroforestry systems and natural and planted forests in the U.S. and overseas. He holds the H.E. Garrett Endowed Professorship in the School of Natural Resources and is the Director of the MU Center for Agroforestry. He serves as Editor-In-Chief of Agroforestry Systems and Associate Editor of Journal of Forestry. He has published over 100 articles and six edited books.

H.E. 'Hank' Stelzer holds graduate degrees in forest genetics (M.S., University of Missouri, 1978; Ph.D., Purdue University, 1986). After 15 years in the private forest products sector, Stelzer returned to Mizzou to serve as MU State Forestry Extension Specialist. Dr. Stelzer developed an online spatial analysis tool that allows individuals to determine the amount of woody biomass potentially available from forest thinnings based upon location of the energy plant and actual drive time to the facility.

Biomass Supplies in the US Midwest: an Integrated Geospatial Assessment of Environmental and Economic Impacts

Seed Project

Disruptive/Transformational Technology, Sustainable Energy

Bioenergy is of increasing interest in agriculture as biomass becomes the largest source of renewable energy in the United States. Predictions of biomass supplies, however, are mostly derived from crop production statistical records at county or state levels. The lack of spatially explicit information limits our understanding of the current and future bioenergy supplies in major US agricultural regions. This research involved faculty in Sustainable Energy and Transformational Technologies to develop a framework for integrating geospatial data and methods with economic and environmental analysis approaches to explore the interaction between bioenergy policy and regional land use change in the Midwest.

Cuizhen (Susan) Wang is an assistant professor in Dept. of Geography. She received her Ph.D degree at Michigan State University in 2004. Her research areas are bio-environmental remote sensing, GIS and spatial analysis. Particular interests are innovative modeling and applications in biophysical remote sensing, vegetation mapping and environmental stress monitoring. Dr. Wang's past research experiences in bio-environment mapping with geospatial techniques are closely related to Mizzou Advantage's focus areas of Sustainable Energy and Transformational Techniques.

Cancer Drug Development Center Automated Radiopharmaceutical Technology

Seed Project

One Health/One Medicine

This proposal will provide funding to acquire infrastructure to create a state of the art Cancer Drug Development Center (CDDC) which takes advantage of unique strengths at the University of Missouri and the affiliated Harry S. Truman Veterans' Administration Hospital to discover, evaluate, and commercialize new diagnostic imaging and therapeutic agents to directly benefit patients with cancer. Specifically, Mizzou Advantage and internal matching funding will enable the acquisition of automated radiochemistry equipment for developing new clinical diagnostic positron emission tomography (PET) imaging agents for the detection of cancer in a Phase 1 clinical trial environment.

Timothy Hoffman, PhD is a Professor of Internal Medicine, Chemistry, and Nuclear Science & Engineering at MU and a VA Research Career Scientist as well as being the Director of the VA Biomolecular Imaging Center (BIC) at the Harry S Truman Memorial VA Hospital. Dr. Hoffman received doctoral training in radiopharmaceutical chemistry and has spent the past 3 decades collaborating with MU Radiopharmaceutical Sciences Institute faculty performing translational radiopharmaceutical research and molecular imaging related to oncology.

Clinical Interaction Between Stress, Diet, Genetics, and Inflammation in the Etiology of Autism

Seed Project

One Health/One Medicine

Genetics is important to autism, but other factors are also important. Dr. Beversdorf demonstrated prenatal stressors as a risk factor for autism, and subsequently showed in an animal model that prenatal stressors and maternal genetics interact in affecting offspring social behavior, and (with Dr. Will) maternal diets rich in omega-6 also resulted in decreased offspring social interaction. Therefore, to better understand the clinical impact of these factors in autism, we will examine prenatal stress and diet, genetic stress markers, fatty acid profile (with Dr Fritsche), and immunological markers in families of children with autism and families of children without autism.

David Beversdorf graduated from Indiana University and completed Neurology residency at Dartmouth. After his fellowship in Behavioral Neurology at University of Florida, he joined the Ohio State University faculty. He has published on memory disorders, autism, cognitive neuroscience, fMRI, neuropsychopharmacology and drug addiction. He joined the University of Missouri (Radiology, Neurology, Psychology and the Thompson Center) to focus on autism, with particular interest in pharmacofMRI as a potential treatment marker, and gene/stress interactions in autism.

Kevin Fritsche received his doctoral degree from the University of Illinois-Urbana in the field of nutritional biochemistry. He has worked in the area of omega-3 fatty acids for over 20 years with a particular emphasis in investigating how they modulate inflammatory responses and the immune system. He is a recognized leader in this field and has recently published several important reviews regarding the health effects of fatty acids.

Matthew Will received his doctoral degree from the University of Colorado in the field of Behavioral Neuroscience, followed by an NIH sponsored postdoctoral fellowship at the University of Wisconsin, Madison. His research has included examining the rewarding nature of both drugs of abuse and food, as well as the role of diet and stress on behaviors related to autism.

Communication Markets

Network Project

Disruptive/Transformational Technology

Communication Markets is a new area of study encompassing three levels of analysis of how communication processes develop, operate and are disrupted in markets. The first level examines how individuals' participation in communication markets is changing as a function of the digital revolution. The second level examines processes at the organizational level, that is, how news, marketing, and strategic communication businesses are struggling to remain viable as individuals rapidly change how they communicate. The third level concerns the economics of communication and includes such topics as pricing electronic content, media bias and persuasion; externalities of communication markets; geographic differentiation of communication markets; and communication markets and public policy.

Murali K. Mantrala is the Sam. M. Walton Distinguished Professor of Marketing at MU. He holds a PhD in Marketing from Northwestern University, and MBAs from the Indian Institute of Management Calcutta, and University of Minnesota. His current research focuses on media firms' marketing mix management, pricing, and sales force design. He serves on the editorial boards of Marketing Science, Journal of Marketing, Journal of Retailing, and the Journal of Personal Selling and Sales Management.

Esther Thorson is the Journalism Associate Dean for Graduate Studies and Reynolds Journalism Institute Director of Research. A recent bibliographic study showed she is one of the most published researchers in advertising. Her research also includes econometric modeling of newspaper revenues, health communication, and the structures of news. In 2010 her 39th and 40th doctoral advisees will complete their degrees.

Corporate Governance: The Role of the Board of Directors in Understanding and Managing Disruptive and Transformational Technologies

Seed Project

Disruptive/Transformational Technology

Recent events, from the Enron failure to the subprime crisis, increased attention to improving the board's ability to manage risks, particularly those of a disruptive or transformational nature. Research is needed to improve our understanding of the role of the board in managing risks and innovative means of increasing the effectiveness of boards. We are organizing an international conference to bring together an unusually wide variety of complementary perspectives including economics, law, accounting, finance, marketing and management. The conference should help make Mizzou a recognized expert in the role of the board in understanding and managing disruptive and transformational technologies.

Elaine Mauldin, Ph.D., CPA (inactive), is an Associate Professor of Accounting, and the BKD Professor, in the Trulaske College of Business. She received her Ph.D. in 1997 at the University of Nebraska-Lincoln. Elaine has published articles in The Accounting Review, Accounting Organizations and Society, Journal of Information Systems, International Journal of Accounting Information Systems, and other academic journals. Her primary research interests are corporate governance and control in organizations. Link to more information: <http://business.missouri.edu/87/252.aspx>.

Karen Schnatterly, Ph.D., is an Assistant Professor of Management in the Trulaske College of Business. She received her Ph.D. in 2000 from the University of Michigan. Karen has published articles in the Strategic

Management Journal, the Academy of Management Journal, the Journal of Management Studies, the Journal of High Technology Management Research, and other academic journals. Her primary research interests are corporate governance and fraud in organizations. More information can be found at: <http://business.missouri.edu/1409/3608.aspx>.

The Dark Archives Project

Network Project

Disruptive/Transformational Technology

Newspaper archives provide a snapshot of a community's culture frozen in time. Over the past three years, 156 newspapers have either closed or stopped publishing their print edition. Many archives have no physical home. We risk losing a vast slice of American history forever. Creating a "dark archive" for orphaned newspaper content would insure that the historical record of communities, formerly served by print newspapers, would be committed to long-term access in digital format. We will convene a conference of scholars and digitization experts to discuss the feasibility and logistics of creating and managing a "dark archive" of orphaned newspapers.

Denice Adkins is an Associate Professor in the School of Information Science & Learning Technologies and former Fulbright Scholar to Honduras. She earned her Master's Degree in Library Science and Ph.D. from the University of Arizona. Her research interests are in public libraries and the information-seeking needs of Latinos.

Kate Anderson, MA, MLS, is Specialized Services Librarian at the Health Sciences and Veterinary Medical Libraries. She was recently appointed Mizzou Advantage Library Liaison, a position designed to coordinate MU Libraries' support of the interdisciplinary networks created by Mizzou Advantage. Anderson has a long-standing interest in scholarly communication issues, digital institutional repositories, and the assessment of publication metrics. She earned her graduate degrees from University of Wisconsin-Madison and her undergraduate degree from Colorado College.

Brian Brooks is associate dean for undergraduate studies at the Missouri School of Journalism, where he earned bachelor's and master's degrees. Upon graduation, he served in the U.S. Army in Germany and Vietnam, where he earned the Bronze Star. He joined the Missouri faculty in 1974 after working for the Memphis (Tenn.) Press-Scimitar. Brooks has been the editor of two daily newspapers, the Columbia Missourian and Stars and Stripes. He is the co-author of four major textbooks.

John Budd is a Professor with the School of Information Science and Learning Technologies. He has published several books and numerous journal articles. Among his areas of interest are the administration of higher education, scholarly communication, and academic libraries. Some of his work has addressed economic issues related to those fields. His teaching areas mirror his research; he teaches courses on the academic library, financing of higher education and academic library, and managing collections and access to information.

Dorothy Carner, MA, MLIS, is Head of the Journalism Libraries and Adjunct Professor at the Missouri School of Journalism. A member of the MU Libraries Committee for Digital Initiatives and Co-PI on LSTA Grant Award for digitization of 1904 Louisiana Exposition Material, she partnered with the State Historical Society of Missouri on two NDNP grant awards to digitize historical Missouri newspapers, a joint initiative of the Library of Congress and National Endowment for the Humanities.

Stephanie Craft's research focusing on press practices and performance and journalism ethics has appeared in a number of journals, including Journalism & Mass Communication Quarterly, Journal of Mass Media Ethics, Communication Law & Policy, and the International Journal of Public Opinion Research. She also

completed chapters for the Handbook of Media Ethics and Journalism Ethics: A Philosophical Approach. Craft is an Associate Professor of Journalism. Before earning a doctorate, Craft worked as a newspaper journalist.

Charles N. Davis serves as Executive Director of the National Freedom of Information Coalition at the School of Journalism and is an associate professor in the News-Editorial Department. A veteran journalist, Davis conducts scholarly research on access to governmental information and media law issues. Teaching awards include: 2008 Scripps Howard Foundation National Journalism Teacher of the Year Award, 2001 Provost's Award for Junior Faculty Teaching, and the 2008 University of Missouri Alumni Association's Faculty/Alumni Award.

Debra Mason, PhD, is an award-winning journalist with more than 25 years of experience creating tools and training to improve the coverage of faith and values news. She directs the interdisciplinary Center on Religion & the Professions and Religion Newswriters Association. In addition to being an online media entrepreneur, she has edited or authored numerous publications and resources, including Readings on Religion as News, Religion Reporting: A Guide to Journalist's Best Beat, and ReligionLink.org.

Earnest L. Perry is associate professor and chair of Journalism Studies. He teaches Cross Cultural Journalism and undergraduate and graduate media history. Dr. Perry has conducted research on the African-American press, the media's role in serving underrepresented groups and the lack of ethnic minority journalists in the mainstream media. He is president of the American Journalism Historians Association and vice chair of the Association for Education in Journalism and Mass Communication Standing Committee on Research.

Richard C. Reuben is the James Lewis Parks Professor of Law and co-director of the Center for the Study of Conflict, Law & the Media. A Senior Fellow at the Law School's Center for the Study of Dispute Resolution, Professor Reuben is the co-author of one of the country's leading ADR law school casebooks, Dispute Resolution & Lawyers (4th ed. 2009). Reuben is one of the nation's leading authorities on confidentiality in ADR processes.

Lilliard Richardson is a Professor and Associate Director for Policy Research in the Truman School of Public Affairs. Richardson received his PhD in Government from the University of Texas. He has published over thirty-five academic articles on the policy process and health policy, including in the American Journal of Public Health and Journal of Policy Analysis and Management. He has directed policy reports and presented research to public officials and academics in America, Europe and Asia.

Developing and Validating Emission Models for Commercial Swine Finishing Barns

Seed Project

Food for the Future, One Health/One Medicine

Many large animal feeding operations (AFOs) are facing more stringent regulations. The goal is to leverage the existing National Air Emission Monitoring Study (NAEMS) data and human infrastructure to calibrate/develop process-based models, and provide in-depth data interpretation, based on the largest ever agricultural aerial pollutant emission data base. This research will be important and meaningful because results are expected to be distributed before the completion of regulatory work of emission inventory and possibly permitting aerial pollutant emissions, of many livestock and poultry facilities, for positive impacts.

Albert Heber has 24 years experience in livestock facility research, education, and consulting with emphasis on air quality. He directs Purdue's Agricultural Air Quality Laboratory, and the National Air Emissions Monitoring Study. He developed a mobile air quality lab in 1994 to monitor gas emissions, and to establish science-based air emission factors for livestock. Dr. Heber has led several large-scale, comprehensive emission measurement campaigns with 11 other universities and dairy, swine and poultry producers.

Teng Lim graduated from Purdue University, and is a licensed professional engineer. He has been focusing on the assessment and mitigation of dust, odor and gas emissions of agricultural facilities. Dr. Lim has also developed a web-based, interactive odor-setback distance guideline. He is a faculty of the Agriculture System Management, and Commercial Agriculture Program. Dr. Lim's current research involves application and improvement of bio-filtration and anaerobic digester.

Jiqin Ni's research interest is in knowledge, methodology, and technology in environmental protection, including data processing, analysis and interpretation; pollution assessment and mathematical modeling; design of laboratory and field experiment systems; development of data acquisition and control software quality assurance project plans, and standard operating procedures. Dr. Ni has conducted measurement of baseline gases, dust, and odor at animal agriculture using advanced setup and instruments; and laboratory and field tests of air pollution control technologies.

Early Breast Cancer Detection Using Novel Optical Imaging Techniques

Seed Project

One Health/One Medicine

Breast cancer is the most common type of cancer among women in the United States. Development of reliable technologies for early and accurate detection of breast cancer is most significant since the earlier that a breast cancer is diagnosed the more likely the disease is curable with therapies. The goal of this proposal is to develop a new biomedical optical imaging system, frequency domain heterodyne based fluorescence mediated tomography for early imaging of primary and secondary human breast cancer with high sensitivity and specificity. The technology can be used in cancer diagnosis as well as development of tumor targeting pharmaceuticals.

Ping Yu is associate professor from the Department of Physics and Astronomy. He is a physicist whose research combines laser physics and biomedical optical imaging. His research contributions include the pioneering work on ZnO room temperature lasing, contribution to understanding semiconductor quantum dots, and innovation in holographic optical coherence imaging and fluorescence mediated tomographic imaging. The biomedical imaging techniques that he is working with have shown great potential for pre-clinical and clinical imaging applications.

Food and Society Speaker Series

Network Project

Food for the Future

The "Food and Society Speaker Series" will offer a sequence of educational and networking events at the Museum of Art and Archeology during the Fall 2010 semester. Bringing distinguished scholars to campus, while also highlighting local research expertise, the series seeks to explore current research on the complex relationships among food, culture, and society, as well as to develop an association of scholars examining these dimensions of food. This speaker series is the first of its kind at MU, opening the door for cross-disciplinary collaborations on some of the crucial issues facing the future of food in our society.

LuAnne Roth has been in MU's English Department since 2001, where her research and teaching have primarily focused on American folklore (especially foodways) and film studies (especially "food films" and horror). Before her recent appointment as Education Coordinator for Mizzou Advantage, she also served as editor for the Center for eResearch and the Journal of American Folklore. Roth's current research project interrogates media representations of the Thanksgiving meal in terms of ethnicity, gender, and power.

Food, Fuel and Society

Network Project

Food for the Future, Media of the Future, Sustainable Energy

“Food, Fuel and Society,” presented by KBIA 91.3 FM and the Reynolds Journalism Institute, will be an interactive forum presented by MU faculty from a range of disciplines, including agriculture, natural resources, science, sociology, immigration studies, international programs and journalism. Faculty will work together to bring key organizations, journalists and citizens from across the region, to participate in a day of discussion and exchange. The result will be an ongoing community of innovators, scholars, advocates, citizens and journalists promoting education and understanding around the issues of food and fuel in our society.

Janet Saidi is an assistant professor of radio-television journalism and news director at KBIA, one of the most successful NPR affiliates in the country. She came to KBIA in 2006 from California, where she was the associate producer for the four-hour series "Remaking American Medicine," broadcast nationally on PBS in October 2006. Saidi also co-produced a nightly culture magazine on San Diego's NPR-affiliate station. She has written for the Christian Science Monitor and the Los Angeles Times. Saidi earned a master's degree in literature from University College, London.

Metagenomics Use at a Former Coal Mining Environment to Bio-prospect for Enzymes with Applications to Sustainable Energy

Seed Project

Sustainable Energy

“Red Lake”, just north of Columbia at the Rocky Fork Lakes Conservation Area, represents an “extreme” environment. Located on former coal mining area, it possesses an acidic pH and high levels of iron and sulfate. Fresh and weathered biomass, (leached from remnant coal seams), enter into the lake, providing a natural enrichment for lignin and other biomass degrading microorganisms. Thus, “Red Lake” provides a unique opportunity for us to further develop metagenomic expertise directed towards identifying novel enzymes, specifically for biomass breakdown. Anticipated results include recovery of extremophilic biofuel enzymes and an enhanced network of research collaborators across Missouri.

Melanie Mormile is an Associate Professor in the Department of Biological Sciences at Missouri S&T. She is an environmental microbiologist with expertise in extremophilic microorganisms, anaerobic microbiology, and biodegradation. At S&T, she teaches Microbiology, Environmental Microbiology, Bioremediation, and Astrobiology. She has received S&T’s Faculty Excellence Awards five times and was named S&T’s Woman of the Year in 2008. She is currently on sabbatical leave and enjoying doing research in Dr. Gary Stacey’s laboratory.

Gary Stacey is a Professor of Plant Sciences at the University of Missouri whose research focuses on plant-microbe interactions. He was awarded the 2007 Distinguished Research Award in the College of Agriculture, Food and Natural Resources. In 2008, he was elected a Fellow of the American Association for the Advancement of Science (AAAS). In 2010, he was elected a Fellow of both the American Academy of Microbiology and the American Society for Plant Biology.

Mizzou Advantage in Reproduction Biology

Network Project

Food for the Future, One Health/One Medicine

Reproductive biology is a critical Animal Science discipline in part due to the pressing global need for a safe, plentiful, reliable, and affordable food supply. In our minds, we clearly have strength in Animal Reproductive Biology at Mizzou. We now have an opportunity (Mizzou Advantage) to morph our reproductive biology program into a larger program. This larger program will ensure the long-term health of reproductive biology on the MU campus. The inaugural event for the Mizzou Advantage in Reproductive Biology will be a two-day science-based conference that brings premier reproductive biologists (Nobel Laureates and National Academy of Sciences members) to MU in the fall of 2010.

Matthew C. Lucy, Professor, is the leader of the Food for the 21st Century Reproductive Biology Cluster. He has a BS from Cornell University, an MS from Kansas State University, and PhD from the University of Florida. Dr. Lucy's research focuses on the interaction of nutrition with reproduction in farm animals.

Randall S. Prather, Curators' Professor, serves as Associate Leader of the Food for the 21st Century Reproductive Biology Cluster, and Co-Director of the National Institutes of Health funded National Swine Research and Resource Center. He has a BS and MS from Kansas State University, and PhD and Postdoc from the University of Wisconsin-Madison. For the past 28 years, Dr. Prather's research has focused on the early mammalian embryo.

Modeling Childhood/Adolescent Obesity in a Pig

Seed Project

One Health/One Medicine

A Presidential Memorandum established a Task Force on Childhood Obesity on February 9, 2010. Strategies to address the best scientific evidence information are mandated. However, insufficient scientific information is available. It is unethical to collect such information from children. Our project addresses this science deficiency with uniquenesses at Mizzou. The proposal will employ a special type of pig, which has "thrifty" genes to store fat in large amounts when food is abundant. Pigs will be overfed and the development of obesity, cardiovascular disease and type 2 diabetes will be determined in young pigs to mimic these developing disorders in children.

Frank Booth, Ph.D, is an international expert as to how changes in gene plasticity by exercise prevent metabolic diseases and as to how sedentary lifestyle is a primary cause of metabolic diseases. He has numerous recent papers on obesity and metabolic dysfunctions when physical activity is decreased. He has three Honor Awards for research related to his work. Other PIs on the grant are Jamil Ibdah, James Perfield, Scott Rector, and Cuihua Zhang.

Jamal Ibdah is currently the Senior Associate Dean for Research and Professor of Internal Medicine, Medical Pharmacology and Physiology, Raymond E. and Vaona H. Peck Chair, and Director of the Division of Gastroenterology and Hepatology. His research focuses on utilizing animal models to explore the role of genetic and environmental alterations in mitochondrial fatty acid oxidation in the development of fatty liver disease. Dr. Ibdah's recent publications and work in the lab explore the effects of exercise on fatty liver disease.

One Health, One Medicine, One Community Network

Network Project

One Health/One Medicine

Through the One Health One Medicine One Community Network, Missouri communities with strong MU Extension presence and University faculty will be organized to address health disparities in Missouri using Community-Based Participatory Research (CBPR) models. The outcomes include: a Network of committed community and university partners who are responsive to CBPR funding opportunities and a CBPR action plan for addressing the social determinants of health in Missouri. The Network will honor the value of each unique Missouri community and at the same time highlight our shared goal of ensuring equitable access to healthcare for all Missouri communities through strong MU leadership.

Karen Edison, MD, is Chair of the Department of Dermatology, Medical Director of the Missouri Telehealth Network, and Director of the Center for Health Policy (CHP) at the University of Missouri. She served as RWJ Health Policy Fellow in the US Senate from 1999-2001. She has helped to lead work on health care access, telemedicine policy, Missouri Medicaid data analysis, health equity, health information technology, and improving health literacy for all Missourians.

Opportunistic Discovery of Information

Seed Project

Disruptive/Transformational Technology, Media of the Future

Opportunistic discovery of information (ODI) is common in every type of human endeavour; however, research on ODI is fragmented and with a limited impact on current information systems. With an objective to establish understanding in interdisciplinary, fundamental research on ODI, our team will study ODI by integrating perspectives from library and information science, media psychology, information systems, and computer science. We plan to organize The First International Workshop on ODI, to conduct a study of ODI among academics at MU, to identify grant funding opportunities for ODI research, and become a leading research team in this emerging area.

Guilherme DeSouza is an Assistant Professor at the Department of Electrical and Computer Engineering, an Adjunct Assistant Professor at the Computer Science Department and the founder of the Vision-Guided Intelligent Robotics Lab (ViGIR) at MU. He is also a founding member and the chair of the MU Chapter of the IEEE Computational Intelligence Society and his research/teaching interests include: Robotic Vision, Human Robot Interaction, Visual Sensor Networks, 3D Modelling and Object/Pattern Recognition.

Sanda Erdelez is an Associate Professor at the School of Information Science and Learning Technologies and the founder of Information Experience Laboratory. As a Fulbright Scholar from Croatia, she received Ph.D. from Syracuse University. Her research on human information behavior (information search, accidental discovery of information) has been funded by SBC Communication, Dell and NSF. She is the co-editor of *Theories of Information Behavior* (Information Today, 2005) and author of more than 50 peer-reviewed publications.

Chi-Ren Shyu is Director of University of Missouri Informatics Institute and holds the Shumaker Professorship in Engineering. He is affiliated with School of Nursing, College of Education, and Utah Biomedical Informatics Department. During his tenure at MU, he received several awards including seven Departmental Teaching Awards, Engineering Faculty Teaching Excellence Award, Engineering Faculty Research Award, and NSF CAREER Award. His research interests are in the areas of biomedical informatics, personalized medicine, and data mining.

Antonie Stam is the Leggett & Platt Distinguished Professor of Management Information Systems in the Management Department, and co-Director of the MU Center for the Digital Globe. He holds a PhD in Management Science from the University of Kansas and has served as a Visiting Professor and Research Scientist in Belgium, Austria, Finland, France, Italy, South Africa and Spain. His research interests include information systems, decision support systems, applied artificial intelligence, multicriteria decision making and applied statistics.

Kevin Wise is an Assistant Professor of strategic communication and co-director of the Psychological Research on Information and Media Effects (PRIME <<http://primelab.missouri.edu/>>) Lab at the MU School of Journalism. He earned his bachelor's and master's degrees from Indiana University and his doctorate from Stanford University. His research explores how different features of online media affect cognition and emotion.

Print for the People

Network Project

Disruptive/Transformational Technology, Media of the Future

Our network brings together campus and local archival units to work together on integrated digital humanities projects, extending our ongoing initiatives. We will harness faculty expertise to shape how our unique digital materials are selected and presented to the campus, state, and beyond. Proposed mentorship of graduate and undergraduate students will provide opportunities to make use of these materials; we also hope to make connections to K-12 educators. "Print for the People" will advance scholarly and curricular innovations in digital humanities and media, anchored by interdisciplinary collaborations and a proposed national symposium on the history of print and visual culture.

Michael Holland is Director of the Special Collections, Archives, and Rare Books Division (SCARaB) of the University of Missouri Libraries. He has served as PI on a number of state and federal digitization grants. Holland has served as President of the Academy of Certified Archivists (ACA) and President of the Missouri Center for the Book (MCB). His research interests include the history of modern science, the history of libraries, and government information policy.

Berkley Hudson has taught at the Missouri School of Journalism since 2003. He earned his doctorate at the University of North Carolina at Chapel Hill. For twenty-five years, including at the Los Angeles Times, he worked as a journalist. His scholarly publications include ones in Southern Cultures, Media History, Visual Communication Quarterly, Literary Journalism Studies, and book chapters in Journalism 1908: Birth of a Profession and The Oxford History of U.S. Popular Print Culture.

Devoney Looser is Professor of English at MU. She is the author of British Women Writers and the Writing of History, 1670-1820 and Women Writers and Old Age in Great Britain, 1750-1850, published by Johns Hopkins UP. She is co-editor of the Journal for Early Modern Cultural Studies and serves on the Advisory Committee of PMLA. She has held fellowships from the NEH, the National Humanities Center, and the American Philosophical Society, among others.

Proposal to Establish Evolutionary Studies and Science Studies on Campus

Network Project

Disruptive/Transformational Technology, Food for the Future, Media of the Future, One Health/One Medicine

The Life Sciences & Society Program will use this grant to establish two campus-wide working groups – in Evolutionary Studies and Science Studies – that will bring together the many and varied faculty

members presently working in these areas in isolation. Evolutionary Studies uses evolutionary theory to understand a broad range of biological and cultural processes. Science Studies investigates the reciprocal interaction of science and culture. We will institute (1) research briefings, (2) invited talks, (3) on-line communities, and (4) an interdisciplinary educational program to (a) foster collaboration on and beyond campus, (b) increase external funding, and (c) assist recruitment of faculty and graduate students.

Heidi Appel, a Senior Research Scientist in the Division of Plant Sciences since 2007, was previously a Research Scientist at The Pennsylvania State University after receiving her PhD in Biology from the University of Michigan. Her research focuses on the ecology and evolution of plant-insect interactions. She has been involved in innovative science education at all educational levels, always with an emphasis on science as an ongoing process of discovery and understanding of the world.

Stefani Engelstein, currently Director of the Life Sciences & Society Program and Associate Professor of German, has been at MU since her 2001 PhD in Comparative Literature at the University of Chicago. She studies the human body in literature, aesthetics, natural history, medicine, and the sciences of human population diversity, particularly in Germany and Britain around 1800. Her research relates this work to theories of subjectivity, gender, race, ethical behavior, political organization, and scientific self-understanding.

Noah Heringman is currently Associate Professor of English at MU and has been on the faculty here since receiving his PhD in English from Harvard in 1998. In the past he has published research on both Romantic literature and the history of geology. His current research draws more broadly on natural history as well as archaeology in the era of Captain Cook to track the emergence of deep time as an alternative to classical antiquity.

Mark Smith trained as both a medieval historian and a historian of science at the University of Wisconsin and has been a member of the history department here at MU since 1986. Viewed narrowly, his research-interest focuses on the development of optics and visual theory from Greek antiquity to the early modern theory. Viewed more widely, it extends to various aspects of the history of pre-Darwinian science, from medical and biological thought to mathematics and methodological theory.

Realistic Decision-Making

Seed Project

Disruptive/Transformational Technology

MU has enormous potential to be the site of path-breaking inter-disciplinary research on realistic decision-making. To spark the realization of this potential, we will organize a major conference which will bring together relevant MU faculty and internationally renowned figures from psychology, economics, and philosophy who work on realistic decision-making. The conference will have six sessions spread over two days, to be held in the spring semester of 2011. Each session will include a 50 minute presentation from a distinguished outside researcher, a 20 minute commentary by an MU researcher, and ample opportunity for the audience to ask questions.

David Mandy, Professor of Economics and Department Chair at MU, received his Ph.D. in economics from the University of Illinois in 1987 and joined MU in 1994. He teaches microeconomic theory with particular emphasis on business strategy and the economic organization of industries. He has published numerous monographs and peer-reviewed articles in these areas as well as in econometrics, forecasting and policy analysis. Mandy serves on the editorial board of the Journal of Regulatory Economics and the University of Missouri Research Board.

Andrew Melnyk, Professor of Philosophy and Department Chair at MU, holds three degrees from Oxford University and joined MU in 1991. He has published many papers in leading international journals on issues in philosophy of mind and philosophy of science, and also a monograph, *A Physicalist Manifesto: Thoroughly Modern Materialism* (Cambridge University Press, 2003). Before becoming chair, he served for many years as the Philosophy Department's Director of Undergraduate Studies.

Ann Bettencourt is also an Investigator on this grant.

Regional Symposium on Molecular Biophysics: Single-Molecule Analysis of Macromolecules

Network Project

Food for the Future, One Health/One Medicine, Sustainable Energy

Biophysics, particularly Molecular Biophysics, is poised to become a strength in the Life Sciences at MU. In recent years, significant university investments in faculty appointments and infrastructure for this fundamental and rapidly growing area have established a broad base of excellence from which we can attain national and international prominence. However, there is no campus identity for biophysics. As a first important step in developing a campus-wide biophysics network, we propose a recurring regional Symposium on Molecular Biophysics, the first of which will highlight Single Molecule Analysis, one of the newest and most vibrant areas in the molecular Life Sciences.

Gerald Hazelbauer is a biochemist who studies transmembrane receptors and sensory transduction. He received his Ph.D. from the U. Wisconsin and did postdoctoral work in Paris. Prior to MU, he was a faculty member in Uppsala, Sweden and Washington State University. He received awards or honors from the Alfred P. Sloan Foundation, the McKnight Foundation, the American Cancer Society, the American Academy of Microbiology and the AAAS. He has been funded for more than 30 years by the NIH.

Symposium and Faculty Workshop on Integrin Signaling in Physiology and Disease

Network Project

One Health/One Medicine

Integrins are cell surface receptors that control key cellular functions including adhesion and motility, have been linked to a variety of diseases and pathologies, and are significant therapeutic targets. The MU campus has an excellent core of researchers investigating the role of integrin signaling in cardiovascular physiology, and other laboratories examining integrin function in development, disease and tissue engineering. The proposal aims to leverage campus strengths in integrin signaling by organizing a regional symposium and faculty workshop to identify challenges facing the field, and to provide a forum for intensive interactions among campus faculty to facilitate new collaborations.

Anand Chandrasekhar received undergraduate degrees in 1987 in biology and electrical engineering from Birla Institute of Technology and Science in India, and a PhD in developmental biology in 1994 from the University of Iowa. Following post-doctoral work at the University of Michigan, Dr. Chandrasekhar joined the Division of Biological Sciences at MU in 1998. His lab uses cell biological and genetic tools to investigate signaling pathways regulating neuronal migration in the zebrafish and mouse brain.

A Symposium on Building Networks for the Center for Translational Neuroscience

Network Project
One Health/One Medicine

A two-day symposium will be launched to promote the newly-established Center for Translational Neuroscience (CTN) at the University of Missouri-School of Medicine. This Center aims at bridging basic neuroscience and clinical research, and providing the catalyst and synergism for neuroscience investigators to collaborate and interact in a multi-disciplinary environment. The newly renovated space is on the 7th floor of the Medical Science Building. Besides laboratory space, it includes four specialized neuroscience cores. This symposium will bring nationally recognized scientists in Alzheimer's disease and stroke to visit the Center, and to build networks with neuroscience faculty on the MU campus.

Doug Anthony, M.D., Ph.D. – Professor, Pathology&Anatomical Sciences (PAS), Neurology, INP. Dr. Anthony's research is focused on the neuronal cytoskeleton and brain tumors, including both primary brain tumors and metastatic tumors of the brain. He is a neuropathologist, a member of the Interdisciplinary Neuroscience Program (INP), and director of the MD-PhD program. He has special interests in neuroanatomy and neuropathology, and the translation of research findings from basic molecular research to the practice of medicine.

Targeting Plasminogen Activator Inhibitor-I to Inhibit Neointimal Hyperplasia

Seed Project
One Health/One Medicine

Balloon angioplasty and bypass surgery are used to treat patients with blocked coronary arteries. While these procedures are highly effective, both are limited by the subsequent re-formation of blockages that obstruct blood flow to the heart and cause heart attack. The overall objective of this proposal is to develop new strategies to prevent new blockages from forming in coronary arteries and bypass grafts by pharmacologically inhibiting the blood clotting system.

William Fay, MD, is Professor of Internal Medicine and Medical Pharmacology & Physiology, and Director, Division of Cardiovascular Medicine, University of Missouri. Dr. Fay's main research interests are thrombosis (abnormal blood clotting) and mechanisms and treatment of coronary artery disease. Dr. Fay's research is funded by NIH, the Department of Veterans Affairs, and the Missouri Life Sciences Research Board. In addition to his research interests, Dr. Fay is a practicing clinical cardiologist.

Whole Genome Sequencing of an Animal Model of Cerebral Cortical Dysplasia: Developing the Next Generation of Genomics for Human and Animal Health

Seed Project
One Health/One Medicine

Cortical dysplasias are congenital brain malformations that cause intractable seizures in children as well as their canine companions. The next generation of gene sequencing technology is now available at MU and permits sequencing of the entire genome of an individual in a cost effective manner. We will apply this new paradigm of gene discovery to search for the mutation responsible for a hereditary cortical dysplasia in a family of Standard poodles. Identifying the gene responsible will illuminate the pathways involved in development of higher brain functions and the causes of epilepsy, ultimately benefiting both human and canine health.

Gary Johnson received a PhD from Kansas State University in 1971 and was postdoctoral student at Johns Hopkins University from 1971 to 1973. He received a DVM from the University of Minnesota in 1977 and was postdoctoral student from 1977 to 1980 at the New York State Department of Health. He joined the faculty in the College of Veterinary Medicine in 1980 and is currently an Associate Professor in the Department of Veterinary Pathobiology.

Marty Katz obtained his undergraduate education at Marquette University in 1974 graduating Summa Cum Laude. He obtained his doctoral degree from the University of California in Santa Cruz in 1981 with a primary emphasis on biochemistry. From 1981 to 1986 he was on the research staff at the National Eye Institute. Since 1986 he has been a faculty member at the University of Missouri, Department of Ophthalmology and currently holds the rank of Professor.

David Lardizibal is Assistant Professor of Neurology and Medical Director Epilepsy Center and Intraoperative Monitoring at the School of Medicine. Prior to joining MU in 2006, he was a resident in neurology and a fellow in epilepsy at Cleveland Clinic Foundation. He received his MD degree from Cebu Institute of Medicine, Philippine in 1992, completed a residency in medicine at Cebu Velez Hospital in 1996 and residency in neurology at Philippine General Hospital in 1999.

Dennis O'Brien is Professor of Veterinary Neurology in the College of Veterinary Medicine and the Chancellor's Chair in Comparative Neurology. He received his DVM degree from the University of Illinois in 1975. After 3 years in general practice in Chicago, he returned to U of I to complete a residency in neurology and a PhD in neuroscience.

Bob Schnabel is Research Assistant Professor in the Division of Animal Sciences at the University of Missouri-Columbia. His postdoctoral research was in the Bovine Functional Genomics group at the USDA in Beltsville Maryland. Bob received his B.S. and M.S. degree in Biology from the University of Akron and a Ph.D. in Genetics from Texas A&M University.

Jerry Taylor is Professor of Animal Sciences and Genetics. He holds the Wurdack Chair in Animal Genomics in the Division of Animal Sciences and is a Fellow of the AAAS. Prior to joining MU in 2002, he was Director of Genomics at RTI International in the Research Triangle Park. From 1986 to 2000, he was an Associate and then full Professor in the Faculty of Genetics and Department of Animal Science at Texas A&M University.

Round Two Projects (awarded Spring 2011)

For the second round of Mizzou Advantage grants, nearly 140 proposals were received totaling over \$5 million in requests. Mizzou Advantage funded 16 seed and 12 network projects; additionally, the Chancellor's Fund for Excellence funded ten projects that have potential for major external collaborations and/or have major components in the Arts and Humanities. In all, 38 projects were been funded at a total of slightly more than \$1.4 million.

310 on-campus PIs and Co-PIs are involved in these projects, representing Agricultural and Applied Economics, Agricultural Sciences, Agricultural Systems Management, Animal Science Research Center, Animal Sciences, Anthropology, Applied Social Sciences, Architectural & Environmental Engineering, Architectural Studies, Art, Art Education, Art History and Archaeology, Asian Affairs Center, Astronomy, Biochemistry, Bioengineering, Bioinformatics, Biological Engineering, Biological Sciences, Biomedical Sciences, Business, Business Management, Cambio Center, Campus Facilities-Energy Management, Career Center, Centennial Investors Angel Network, Center for Agroforestry, Center for Applied Research and Environmental System, Center for e-Research, Center for Family Policy & Research, Center for Health Policy, Center for Multicultural Research, Center for Sustainable Energy, Chemical Mechanical and Aerospace Engineering, Chemistry, Child Health, Civil and Environmental Engineering, Clinical Family and Community Medicine, Commercial Agriculture Program, Computer Science, Cyclotron Engineer, Dermatology, Educational Leadership and Policy Analysis, Electrical and Computer Engineering, Electrical Engineering, English, Environmental Studies, Ergonomics, Extension - Agricultural Engineering, Extension: [Agriculture, Beef Genetics, Commercial Agriculture Program, Organizational Development, Plant Sciences, Swine Veterinary Medicine], Family and Community Medicine, Film Studies, Food and Agricultural Policy Research Institute (FAPRI), Food Science, Food Systems, Forestry, Geography, German and Russian Studies, Grants and Publications, Gynecology, Health Communication Research Center, Health Management and Informatics, Health Promotion, Health Psychology, Healthcare Lab, History, Immunology, Industrial and Manufacturing Systems Engineering, Informatics, Information Science & Learning Technologies, Interdisciplinary Neuroscience Doctoral Program, Interior Design and Architectural Studies, International Center, Journalism, KBIA-FM, Labor Education Program, Law, Learning Teaching and Curriculum, Life Sciences, Life Sciences & Society Program, Mathematics, Measurement & Statistics, Mechanical and Aerospace Engineering, Medical Pharmacology and Physiology, Medicine, Microbiology, Missouri Innovation Center, Missouri Training Institute, Molecular Microbiology and Immunology, MU Libraries, MU Power Plant, MU Research Reactor, Museum of

Anthropology, Museum of Art and Archaeology, Music, Neonatology, Neurology, Nuclear Engineering, Nuclear Science and Engineering Institute, Nursing, Nutrition and Exercise Physiology, Nutrition and Health Education, Obstetrics, Occupational Therapy, Office of Service Learning, Oral Biology, Pathology and Anatomical Sciences, Peace Corps Fellows Program, Philosophy, Physical Sciences, Physics, Physiology, Plant Sciences, Political Science, Psychological Sciences, Public Health, Radiology, Religious Studies, Reproductive Biology, Romance Languages and Literature, Rural Health, Rural Policy Research Institute (RUPRI), Rural Sociology, Science Journalism, Social Work, Sociology, Soil Environmental and Atmospheric Sciences, South Africa Education Program, Strategic Communications, Strategic Opportunities, Student Health Center, Study Abroad, Swine Research, Textile and Apparel Management, Theatre, Toxicology, Truman School of Public Affairs, Veterinary Biomedical Sciences, Veterinary Clinical Sciences, Veterinary Internal Medicine, Veterinary Medicine, Veterinary Pathobiology, Veterinary Surgery, Water Resources Research Center, Western Historical Manuscripts Collection, Women's and Gender Studies, and Women's Health.

Additionally, the projects include 67 external collaborators ranging from local to global.

(In most cases, bios are provided for PIs and collaborators taking a lead role in the project; for a few projects involving a particularly large interdisciplinary team, a larger list of bio is included.)

Bio2Cor: The Biomass/Biofuel Corridor along the Mississippi/Missouri River

Network Project
Sustainable Energy

The goal of this proposal is to strengthen the development of a world-class consortium with an ambitious agenda to create a biomass/biofuel corridor along the Mississippi/Missouri Rivers. There are over 100 individual researchers/industry leaders participating in this project. This interdisciplinary team includes agronomists, soil scientists, foresters, molecular biologists, biochemists, landscape ecologists, wildlife biologists, supply-chain management specialists, economists, transportation specialists, chemical engineers, industrial engineers, sociologists, statisticians and modelers. The outcomes will include a conference, a formal MU-led regional consortium - Bio2Cor, potential \$45 million funding, opportunity to compete for other external funding, enhanced regional biomass-biofuel production/supply chain, and new educational opportunities.

Shibu Jose is the Garrett Endowed Chair Professor and Director of the Center for Agroforestry. Prior to joining MU, he was Professor of Forest Ecology at the University of Florida, Gainesville. He received his M.S. and Ph.D. from Purdue University. Current research efforts focus on ecological sustainability and ecosystem services of agroforestry systems and mixed-species biomass plantations. He serves as Editor-In-Chief of Agroforestry Systems, Associate Editor (former Editor) of Journal of Forestry and Editorial Board Member of International Journal of Ecology.

Biomass Refinery Operation: Upstream and Downstream Processing at High Pressure

Seed Project
Sustainable Energy

Biomass is our carbon resource. This requires implementation of the biomass refinery concept. This project integrates existing expertise at Mizzou to address important issues that hinder widespread implementation of this concept. These issues involve upstream processing (slurry and solids feeding) and downstream processing (separations). Both of these challenges are addressed at high-pressure, enhancing the utility and impact of the work.

William Jacoby directs the Modular Biomass Process Development Laboratory focusing on upstream processing, thermochemical conversion, and downstream processing of biomass into energy fuels and chemicals.

Bioterrorism and Complex Systems

Network Project
Disruptive/Transformational Technology; Food for the Future; Media of the Future; One Health/One Medicine

Bioterrorism and Complex Systems represent an area of national and international concern. The field is composed of many concerns touching on four key areas in Mizzou Advantage (Disruptive and Transformational Technologies, Media of the Future, One Health, One Medicine and Food for the Future.). The need for an interdisciplinary approach to a bioterrorism event has been an international priority. This group has been assembled to address the issues of integrating campus wide expertise along with national expertise to set up a framework for an interdisciplinary collaboration by hosting a workshop in the area.

Glen T. Cameron is Gregory Chair in Journalism Research and founder of the MU Health Communication Research Center. Author of hundreds of manuscripts, as well as books translated into 9 languages, Cameron is a popular international lecturer. He has participated in over \$68M in external funding of health public relations projects from sources such as NIH, NCI, Missouri Foundation for Health, USDA, CDC, the U.S Department of Defense, and Monsanto.

Sheila A. Grant is an associate professor in the Biological Engineering Department at the University of Missouri. A former post-doctoral researcher and research engineer for Lawrence Livermore National Laboratory in California, Grant has received research funding from the National Science Foundation, the National Institute of Health, the National Pork Board, the Missouri Beef Council Agency, Medtronic, Covidien, MTF, Inc. and the Department of Agriculture via a subcontract with the University of Minnesota.

Mark Prelas has expertise in the areas of: wide band-gap electronic materials; fabrication of wide band-gap materials by chemical vapor deposition; impurity removal from semiconductor materials; wide band-gap photovoltaics; doping of wide band-gap materials; plasma diagnostics; ion driven lasers; spectroscopy; microwave driven lamps; lamp driven solid state lasers, arms control (having spent a year at the US Department of State as a William C. Foster Fellow in Arms Control); chemical-biological and nuclear sensors; terrorism; and counter terrorism.

Annette Sobel is an adjunct professor in the Electrical and Computer Engineering Department, the Nuclear Science Engineering Institute at the University of Missouri, and with MU's Family and Community Medicine program. She also serves as an assistant to the provost for strategic opportunities at MU. A former Major General in the National Guard, Sobel's work primarily focuses on innovative educational platforms, performance sustainment under stressful conditions, bioinformatics tools for early warning of disease outbreaks, and countermeasures to weapons of mass destruction.

George C. Stewart is the chair of Department of Veterinary Pathobiology and McKee Professor of Microbial Pathogenesis.

Building a Relevance-based Search Engine for Quality Online Media

Seed Project

Disruptive/Transformational Technology; Media of the Future

The abundance of news information generated by non-professionals raises significant concerns about the quality and credibility of online news, potentially jeopardizing the functioning of democracy. This project seeks to explore new ways to develop a news credibility model, a content relevance model, and a personalized semantic search engine that leverages these models for news media consumption, analysis and production. The project will strengthen the relationships and leverage the expertise among faculty in Journalism, Computer Science, Information Science & Learning, Life Sciences, business, and external collaborators. It has the potential to help shape quality online media, result in larger project proposals, and create new spin-off businesses.

Dr. Sanda Erdelez is an Associate Professor at the School of Information Science and Learning Technologies (SISLT) and works closely with the IE Lab (Information Experience Laboratory). Her current research interests include human information behavior, serendipity and opportunistic discovery of information, and usability evaluation of web-based information systems. She received her Ph.D. in Information Transfer from Syracuse University

Wenjun “Kevin” Zeng is an associate professor in the Computer Science Department at the University of Missouri. An associate editor for IEEE Transactions on Multimedia and an editor for IEEE Multimedia Magazine, Zeng came to MU with industrial experience at PacketVideo Corp. and Sharp Labs.

Randall Smith, BJ '74, is the first Donald W. Reynolds Endowed Chair in Business Journalism. He joined the Missouri School of Journalism in August 2009. His 30-year career at The Kansas City Star began in 1979, and he has worked on both the news and business sides. Smith started as a copy editor, rising to the positions of business editor and deputy managing editor, and most recently, to director of strategic development.

Dr. Dong Xu, PhD, is James C. Dowell Professor and Chair of Computer Science Department, with appointments in the Christopher S. Bond Life Sciences Center and the Informatics Institute at the University of Missouri. His research includes protein structure prediction, high-throughput biological data analyses, in silico studies of plants, microbes, and cancers. He has published more than 180 papers.

Collaborative Portals for Interdisciplinary Working Groups: Evolutionary Studies and Science Studies

Network Project

Disruptive/Transformational Technology; Education; Food for the Future; Media of the Future; One Health/One Medicine

We have successfully established two widely interdisciplinary working groups – Evolutionary Studies and Science Studies. We will expand these collaborations and their impact by building interactive Web 2.0 “Collaborative Portals.” The resulting multi-functionality will facilitate discussions between researchers; provide a platform for blogs and discussions; showcase talks and interviews by scholars (conducted by student journalists); and establish a wiki-dictionary for explaining terms across disciplines. The platform we construct will be useful for other networks across campus and beyond. It will also contribute to our expanding visibility, which has already led to a planned collaboration with three international partners in Evolutionary Studies.

Stefani Engelstein (Ph.D. Comparative Literature, University of Chicago), currently Director of the Life Sciences & Society Program and Associate Professor of German, has been at MU since 2001. Engelstein studies the human body in literature, aesthetics, natural history, medicine, and the sciences of human population diversity, particularly in Germany and Britain around 1800. Her research relates this work to theories of subjectivity, gender, race, ethical behavior, political organization, and scientific self-understanding.

Heidi Appel, a Senior Research Scientist in the Division of Plant Sciences since 2007, was previously a Research Scientist at The Pennsylvania State University after a PhD in Biology from the University of Michigan. Her research focuses on the ecology and evolution of plant-insect interactions. She has been involved in innovative science education at all educational levels, always with an emphasis on science as an ongoing process of discovery and understanding of the world.

André Ariew (PhD, Arizona, 1997), Associate Professor of Philosophy, joined MU in 2006. From 1997-2006 he was an Assistant then Associate Professor of Philosophy at the University of Rhode Island and an Associate at the Museum of Comparative Zoology at Harvard. His specialty is philosophy of science. He has held visiting positions at University of Wisconsin and Cambridge University. He is currently working on a monograph, entitled How Probability Changed Natural Selection.

Glen T. Cameron is Gregory Chair in Journalism Research and founder of the MU Health Communication Research Center. Author of hundreds of manuscripts, as well as books translated into 9 languages, Cameron is a popular international lecturer. He has participated in over \$68M in external funding of health public relations projects from sources such as NIH, NCI, Missouri Foundation for Health, USDA, CDC, the U.S Department of Defense, and Monsanto.

Lynn Chien-Hui Chiu (MS Psychology; BS Life Sciences) is a graduate student at the Department of Philosophy. She currently works as a research assistant with Drs. Randall Westgren (Agricultural Economics) and Andre Ariew (Philosophy) on the application of biological and psychological models to the field of entrepreneurship, and with the LSSP-Evolutionary Studies Group. Her research focus is philosophy of biology and philosophy of cognition/consciousness, with an interest in the nature of interdisciplinary collaborations.

Dr. David C. Geary, PhD is a Curators' and Thomas Jefferson Professor in the Department of Psychological Sciences. He has published nearly 200 articles, commentaries, and chapters across a wide range of topics, including three books; *Children's Mathematical Development, Male, Female: The Evolution of Human Sex Differences* (now in second edition), and *The Origin of Mind*. He served on the President's National (U.S.) Mathematics Advisory Panel, and is a recipient of a MERIT award from the National Institutes of Health.

Noah Heringman is currently Associate Professor of English at MU and has been on the faculty here since he received his PhD in English from Harvard in 1998. In the past he has published research on both Romantic literature and the history of geology. Heringman's current research draws more broadly on natural history as well as archaeology in the era of Captain Cook to track the emergence of deep time as an alternative to classical antiquity.

Amit Prasad (PhD Univ of Illinois-Urbana-Champaign, 2004), currently an Assistant Professor of Sociology, has been at MU since 2006. Prasad studies intertwining issues of law, national and trans-national policies, and laboratory practices in relation to technoscientific research and development. He has just completed a book on MRI research, development, and use in the US, India, and the UK. He also works on trans-national medical practices such as medical transcription, drug trials, and medical tourism.

Jack Schultz is Director of the Christopher S. Bond Life Sciences Center at the University of Missouri where he promotes and develops interdisciplinary research among 35 scientists whose interests range from plant breeding to electrical engineering. Schultz is Professor of Plant Sciences at MU and Distinguished Professor of Entomology Emeritus at the Pennsylvania State University. His research on plant-insect interactions has been supported continuously by NSF for 32 years and produced over 150 publications.

Mary K. Shenk received her Ph.D. from the University of Washington in 2005, and is currently Assistant Professor of Anthropology. Her research combines evolutionary, microeconomic, and demographic approaches to human behavior, using both quantitative and qualitative methods to investigate marriage, family, and kinship systems. She has conducted field research on the economics of marriage in South India and is currently working on an NSF-funded project on the causes of rapid fertility decline in Bangladesh.

Jon Stemmler is the associate director of the Health Communication Research Center at the Missouri School of Journalism. He began as a reporter with the Asbury (NJ) Park Press and continued at newspapers around the country for more than a decade. Stemmler has spent the last 15 years in public relations and strategic health communication. His primary research areas deal with tailored health communication, social marketing practices and community-based health interventions.

Jerry Taylor holds the Wurdack Chair in Animal Genomics in the Division of Animal Sciences. He is an elected Fellow of the American Association for the Advancement of Science and is the 2008 CAFNR Celebration of Excellence Distinguished Researcher. He won the 2008 USDA Technology Transfer, 2009 FLC Excellence in Technology Transfer and 2010 USDA Secretary's Honors awards. He has received \$36M in competitive grants, has mentored 11 postdocs and 37 graduate students and has authored 164 papers.

Columbia Pecha Kucha

Network Project

Disruptive/Transformational Technology; Education; Food for the Future; Media of the Future; One Health/One Medicine; Sustainable Energy

We propose to establish a monthly series of Pecha Kucha events in Columbia beginning in April, 2011 at Ragtag Cinema. Speakers will use 20 slides at 20 seconds each to present a creative idea. A Steering Committee will review and screen presenter nominations. Members of the Steering Committee have been selected to provide wide-ranging interests and connections in the community and on campus. Our goal is to extend MU networks beyond campus in all of the MA areas, using these events to bring individuals with creative ideas together in a fast-paced presentation format at events that foster making personal connections.

Roger Cook is a Professor of German and serves as the Director of Film Studies. I oversee the interdepartmental Film Studies Program, which includes courses from such diverse departments as German and Russian Studies, English, Romance Languages, Theatre, Art History and Archaeology, Philosophy, Classical Languages and the IT Program.

Stefani Engelstein (Ph.D. Comparative Literature, University of Chicago), currently Director of the Life Sciences & Society Program and Associate Professor of German, has been at MU since 2001. Engelstein studies the human body in literature, aesthetics, natural history, medicine, and the sciences of human population diversity, particularly in Germany and Britain around 1800. Her research relates this work to theories of subjectivity, gender, race, ethical behavior, political organization, and scientific self-understanding.

Jack Schultz is Director of the Christopher S. Bond Life Sciences Center at the University of Missouri where he promotes and develops interdisciplinary research among 35 scientists whose interests range from plant breeding to electrical engineering. Schultz is Professor of Plant Sciences at MU and Distinguished Professor of Entomology Emeritus at the Pennsylvania State University. His research on plant-insect interactions has been supported continuously by NSF for 32 years and produced over 150 publications.

Contemplative Studies in Higher Education: Balancing Old and New Transformational Technologies

Network Project

Disruptive/Transformational Technology; Education; Media of the Future; One Health/One Medicine

Our goal is to establish a think tank and outreach center to investigate and practice, through research, teaching, and service to the MU community, the ways that old contemplative technologies—including meditation, breath awareness, contemplative reading, etc.—beneficially intervene in the cognitive and health disruptions that emerge alongside the benefits of new, transformational technologies. Contemplative practices are ancient transformational technologies

that can bring balance to contemporary lives and education that are increasingly dependent on new ones. In other words, these practices bring essential health and cognitive benefits that complement and help to manage the use of new digital technologies.

Donna Strickland is Assistant Professor of English and Associate Director of Composition at MU. She is the author of *The Managerial Unconscious in the History of Composition Studies*, as well as co-editor of *The Writing Program Interrupted: Making Space for Critical Discourse*. Since 2008, she has been regularly teaching a course in Mindful Writing. Among other professional affiliations, she is a charter member of the Association for Contemplative Mind in Higher Education.

Terry Wilson, M.Ed., R.N., is Director of Health Promotion at the MU Student Health Center. As a longstanding practitioner of holistic health that encompasses mind, body and spirit, Terry has woven these teachings into contemplative practice courses at MU since 2002. She is certified in Integrative Yoga Therapy and Integrative Restoration (iRest Yoga Nidra) and teaches Mindfulness-Based Stress Reduction. Her graduate degree is from the University of Missouri and she has advanced professional training through the Center for Mindfulness at the University of Massachusetts Medical Center and the Integrative Restoration Institute.

Kennon Sheldon, Ph.D. in Social/Personality Psychology, University of California-Davis, primarily studies goals, motivation, and psychological well-being.

Richard Reuben is James Lewis Parks Professor of Law. His research emphasizes the relationship between dispute resolution and law, as well as democratic governance. He is one of the nation's leading authorities on confidentiality in ADR processes, and served as a Reporter for the Uniform Mediation Act. He is a Senior Fellow at the law school's Center for the Study of Dispute Resolution and co-director of the Center for the Study of Conflict, Law and the Media.

Dr. Todd Schachtman, PhD, Professor, Psychological Sciences, Doctoral work at SUNY-Binghamton, Postdoctoral training at the University of York, U.K. and Univ. of Rochester Med. Center. Research specialization is information processing in animals, with much of the work aimed at differentiating the processes of acquisition, retention, and retrieval of information as causes of test performance deficits and the role of metabotropic glutamate receptors.

Creative Convergence Network (CCN): International Symposium on Assessment and Facilitation of Creativity in New Media

Network Project

Disruptive/Transformational Technology; Education; Media of the Future

We propose a network for understanding creative behavior in new media by involving an interdisciplinary team from architecture, art education, textile design, film studies, theatre, psychology, information science, and computer science. The goal is to understand and discuss assessments in select new media across disciplinary areas in the hope to identify, evaluate and facilitate environments for creative behavior. The topic is appropriate for disruptive technologies because it identifies problems and potential in creative behavior. The topic is appropriate for the media of the future because it involves virtual reality worlds, remote collaboration, and visualization interfaces as a subject of the study.

Dr. Newton D'souza is an Assistant Professor in Architectural Studies and works closely with the Environment-Behavior program as well as the Design with Digital Media program of Architectural Studies. His current work includes research in the potential of virtual reality for design education and the use of multiple intelligences in creative behavior among architectural designers. He received his Ph.D. in architecture from the University of Wisconsin-Milwaukee.

Dr. Bimal Balakrishnan is an Assistant Professor in Architectural Studies and currently heads the iLab (Immersive Laboratory) at the Design with Digital media program of Architectural Studies. His current research interests include 3D stereoscopic visualization environments for design, design computing and cognition, and human-computer interaction. He received his Ph.D. in Mass Communication from Pennsylvania State University.

Dr. So-Yeon Yoon is an Assistant Professor of Architectural Studies and the coordinator of graduate program in Design with Digital media of Architectural Studies. Her current research interests include human-computer interaction in virtual environments and effects of digital media in various design contexts. She received her Ph.D. in Information Science and Learning Technology from University of Missouri-Columbia.

Dr. Sanda Erdelez is an Associate Professor at the School of Information Science and Learning Technologies (SISLT) and works closely with the IE Lab (Information Experience Laboratory). Her current research interests include human information behavior, serendipity and opportunistic discovery of information, and usability evaluation of web-based information systems. She received her Ph.D. in Information Transfer from Syracuse University

Dr. Kathleen Unrath is an Associate Professor of Art Education at the Department of Learning, Teaching and Curriculum. Her current research includes theories of artistic development and art education. She serves in the editorial board of the journal of Visual Arts Research and received her Ph.D. from University of Missouri-Columbia

Dr. Jeffrey Uhlmann is an Associate Professor in the Computer Science Department at the University of Missouri. His current research includes quantum computing, information technology and entertainment engineering. He has also conducted multidisciplinary projects with film studies. He received his Ph.D. from the University of Oxford in the United Kingdom.

Dr. Kenneth Sheldon is a professor in the Department of Psychological Sciences and directs the Sheldon Motivation lab. His research interests include motivation, psychological well-being and personality factors affecting creativity and the relationship of creativity to motivational conflict and style. He received his Ph.D. in Social/Personality Psychology from the University of California, Davis.

Julie Chatman is an adjunct instructor at Architectural Studies and a computer graphic artist for the College of Human Environment Sciences extension. Her research interests include visual design and the creative process, creativity among gifted children and design process. She received her M. Ed in Art Education from the University of Missouri, Columbia.

Dr. Arthur Mehrhoff is an Academic Coordinator for the Museum of Art and Archeology and an adjunct faculty member at Architectural Studies. He was a coordinator for 'creative impulse' a collaborative group discussing issues about the nature of human creativity, the role of social networks in fostering human creativity, and the rapidly emerging public policy issue of "creative communities." He received his Ph.D. in American Studies from Saint Louis University.

Suzanne Burgoyne, Ph.D., is an MU Curators' Distinguished Teaching Professor of Theatre. An intrepid voyager across interdisciplinary borders, Suzanne was a Kellogg National Fellow (leadership training and interdisciplinary research, 1981-84), and a Carnegie Scholar (2000/2001). She served as a co-investigator on two major MU grants using interactive theatre to promote diversity on campus: Ford Difficult Dialogues and Mizzou NSF ADVANCE. Suzanne is currently co-authoring a script analysis textbook and developing a course in creative thinking for the non-arts major.

Roger Cook is a Professor of German and serves as the Director of Film Studies. I oversee the interdepartmental Film Studies Program, which includes courses from such diverse departments as German and Russian Studies, English, Romance Languages, Theatre, Art History and Archaeology, Philosophy, Classical Languages and the IT Program.

Mathew Kritis is an instructor and a Ph.D. student in the Department of Textile and Apparel Management. He completed his M.S. thesis on the efficacy of organic thickening agents for screen-printing of natural dyes onto sustainable fabrics and held a thesis exhibition of 25 textile designs inspired by Turkish culture. He has been recognized in his field of study by receiving the Oris Glisson International Fellowship. Matthew's current scholarship involves sustainable design and cause-related marketing.

Current Textile Labeling Requirements: Disruptive and Transforming?

Network Project

Disruptive/Transformational Technology; Sustainable Energy

In response to U.S. Federal Trade Commission's (FTC) call for rigorous research and public discourse about green and/or sustainability-related labeling practices in textiles and apparel for policy improvement, this project proposes to hold a Summit, in order to establish relationships and to create a new collaborative network among MU faculty, consumer advocacy groups, policy makers, and policy administrators. Through these networking activities, we expect to situate MU as a MAJOR contact/collaborator for FTC's textile label regulation efforts. At the moment, there is no other academic institution with which FTC is collaborating on this topic. This project supports for Disruptive and Transformational Technology and Sustainable Energy initiatives.

Jung Ha-Brookshire (PI) is an assistant professor in the Department of Textile and Apparel Management. Her research interests include global supply chain and sourcing strategies, sustainable production and consumption of textile and apparel, and firm/industry identity issues. She teaches Global Sourcing, Supply Chain Management of the Global Softgoods Industry, Retail Marketing and Merchandising. Prior to her appointment at MU, she worked as an apparel sourcing manager in New York City over 8 years.

Glen T. Cameron is Gregory Chair in Journalism Research and founder of the MU Health Communication Research Center. Author of hundreds of manuscripts, as well as books translated into 9 languages, Cameron is a popular international lecturer. He has participated in over \$68M in external funding of health public relations projects from sources such as NIH, NCI, Missouri Foundation for Health, USDA, CDC, the U.S Department of Defense, and Monsanto.

Ingolf Gruen, a native of Germany, received his Ph.D. in Human Nutrition and Foods from Virginia Tech in 1993. After completing a post-doc, he worked for two years in the bioanalytical industry before joining the MU faculty in 1996. He currently is the program chair of food science and teaches food chemistry and food

analysis. His research focuses on analytical food chemistry with an emphasis on ingredients effects on flavor and bioactive compounds.

Jana Hawley was named Professor and Department Head for Textile and Apparel Management at the University of Missouri in July 2010. She earned her Ph.D. at the University of Missouri and her Masters from Oklahoma State University in Clothing and Textiles. She is a HERS Bryn Mawr Summer Institute Fellow, 2008; a Global Scholar to Thailand, and a Fulbright Scholar to India. Areas of expertise include sustainability, textile recycling, service learning, and global initiatives.

Zhiqiang Hu is an assistant professor in the Department of Civil and Environmental Engineering at the University of Missouri. His research interests include wastewater treatment, environmental nanotechnology and biotechnology, bacterial adhesion and biofilm processes, small flow wastewater treatment systems, emerging renewable energy issues and bioreactor landfills. Hu's research has been funded by the U.S. EPA, the National Science Foundation, Water Environment Research Foundation and the U.S. Geological Survey.

Mathew Kritis is an instructor and a Ph.D. student in the Department of Textile and Apparel Management. He completed his M.S. thesis on the efficacy of organic thickening agents for screen-printing of natural dyes onto sustainable fabrics and held a thesis exhibition of 25 textile designs inspired by Turkish culture. He has been recognized in his field of study by receiving the Oris Glisson International Fellowship. Matthew's current scholarship involves sustainable design and cause-related marketing.

Beth Myers is an assistant professor in the Department of Textile and Apparel Management. Her research interests include consumer behavior and branding, particularly related to sustainability and socially responsible business practices. One avenue of research she is currently investigating is how consumers' responses to and evaluations of a cause-related marketing campaign vary based on the amount of information they are exposed to concerning the campaign.

Pam Norum is an Associate Professor in the Department of Textile & Apparel Management. She earned her Ph.D. at Cornell University in Consumer Economics. Dr. Norum's research focuses on economic analyses of household consumption patterns, consumer preferences and willingness to pay for natural fibers, and consumer related issues such as textile labeling.

Richard Reuben is James Lewis Parks Professor of Law. His research emphasizes the relationship between dispute resolution and law, as well as democratic governance. He is one of the nation's leading authorities on confidentiality in ADR processes, and served as a Reporter for the Uniform Mediation Act. He is a Senior Fellow at the law school's Center for the Study of Dispute Resolution and co-director of the Center for the Study of Conflict, Law and the Media.

Antonie Stam is the Leggett & Platt Distinguished Professor of Management Information Systems (MIS) in the Trulaske College of Business, and co-Director of the Center for the Digital Globe. He has served in Visiting Professor and Research Scientist roles in Belgium, Austria, Finland, France, Italy, South Africa and Spain, and has consulted with organizations in the US, China and Finland. His research interests include information systems, decision support systems and applied AI.

"Ediciones Vigía" and the Aesthetics of Bricolage

Seed Project

Disruptive/Transformational Technology; Media of the Future; Sustainable Energy

This collaborative and multidisciplinary Mizzou Advantage initiative will be developed around Ediciones Vigía at the intersection of Media of the Future, Sustainable Energy and Understanding and Managing Disruptive and Transformational Technologies. We propose to explore the press' innovative and experimental aesthetics, graphic design, practices of book creation through bricolage, its institutional organization as collective entrepreneurship, and its implications as related to "new media," as well as disruptive and transformational innovation.

Professor **Juanamaria Cordones-Cook** has published extensively articles on contemporary Spanish American literature and culture with special interest on Afro-Hispanic, writers in major national and international journals in the United States, Canada, Europe, and Latin America. Her articles have appeared in *Revista Iberoamericana*, *Chasqui*, *Hispanamérica*, *Revista de Estudios Canadienses*, *Hispanófila*, *Plural*, *La Palabra y el Hombre*, *Théâtre*, *Conjunto*, *Casa de las Américas*, *Anales del Caribe*, among others. She works on projects related to postcolonial theories and issues of identity, race, and gender as they relate to the Afro-Latin American Diaspora.

Jana Hawley was named Professor and Department Head for Textile and Apparel Management at the University of Missouri in July 2010. She earned her Ph.D. at the University of Missouri and her Masters from Oklahoma State University in Clothing and Textiles. She is a HERS Bryn Mawr Summer Institute Fellow, 2008; a Global Scholar to Thailand, and a Fulbright Scholar to India. Areas of expertise include sustainability, textile recycling, service learning, and global initiatives.

Berkley Hudson, an associate professor, since 2003 has taught on the Magazine Faculty of the Missouri School of Journalism. He earned his doctorate at the University of North Carolina. For twenty-five years, including at the Los Angeles Times, he worked as a journalist. He is a media historian who focuses on the American South and visual history. His scholarly publications include ones in *Literary Journalism Studies*, *Southern Cultures*, and *Visual Communication Quarterly*.

Exploring Human-Companion Animal Interaction for Families of Children with Autism

Seed Project

Media of the Future; One Health/One Medicine

Seed grant funds are requested for a preliminary study opening a promising area of inquiry that addresses One Health and Media of the Future. The study will identify the roles of companion animals (dogs) in families of children with autism, to what extent pet ownership is beneficial or problematic, and will apply semantic mapping of the messages provided to these families about pet ownership through social media such as the blogosphere, twitterverse, and Facebook.

Rebecca A. Johnson, Ph.D., R.N., F.A.A.N, is Millsap professor of gerontological nursing (Sinclair School of Nursing), and founder/director of the Research Center for Human Animal Interaction (MU College of Veterinary Medicine). Her research program is focused on the role that positive human-companion animal interaction (HAI) can play in promoting healthy behavior and well-being in people. She is President of the International Association of Human Animal Interaction Organizations, dedicated to promoting research and practice in HAI.

Glen T. Cameron is Gregory Chair in Journalism Research and founder of the MU Health Communication Research Center. Author of hundreds of manuscripts, as well as books translated into 9 languages, Cameron is a popular international lecturer. He has participated in over \$68M in external funding of health public relations projects from sources such as NIH, NCI, Missouri Foundation for Health, USDA, CDC, the U.S Department of Defense, and Monsanto.

Micah Mazurek, Ph.D. is an Assistant Professor in the Department of Health Psychology and a clinical child psychologist at the Thompson Center for Autism and Neurodevelopmental Disorders. Dr. Mazurek has clinical expertise in evidence-based assessment and treatment of children and adolescents with autism and other neurodevelopmental disorders. Her research has focused on disability issues, understanding social and emotional development in children with autism, and developing new models for autism intervention and outcome measurement.

Exploring the Health Benefits and Economic Opportunities of the Bioactive Compounds Isolated from Eastern Redcedar in Missouri

Seed Project

Education; One Health/One Medicine

Eastern Redcedar (ERC) is an important source of bioactive secondary metabolites. More than 17 bioactive compounds isolated from ERC not only have shown strong inhibitory activities against melanin biosynthesis, but also strong anti-microbial activities against a wide range of pathogenic bacteria. An interdisciplinary collaborative approach was proposed to 1) characterize the modes of action against human and animal pathogens, 2) develop a pilot-scale production process, and 3) identify the immediate and potential commercial applications. The knowledge generated from the proposed study will provide the opportunities to turn abundant, low-value, renewable materials from the ERC into a lucrative industry in Missouri.

Dr. Chung-Ho Lin is a Research Assistant Professor in the MU Center for Agroforestry and Department of Forestry. His research has been focused on natural products, bioremediation, odor abatement, biocatalysts, biofuel and chemical ecology research. He specializes in compound purification, derivatization, metabolite profiling, quantification and characterization. Current research involves the development of a cost-effective and environmentally friendly bioprocessing procedure to isolate the high value-added natural products from eastern redcedar (*Juniperus virginiana*) in Missouri.

XiaoQin Zou holds a Ph.D. from University of California-San Diego.

The Food Dialogue Center

Seed Project

Disruptive/Transformational Technology; Food for the Future; Media of the Future; One Health/One Medicine; Sustainable Energy

The Food Dialogue Center focuses on the Food for the Future strategic initiative while incorporating initiatives related to safe, healthy and abundant food supplies. The Food Dialogue Center capitalizes on the Commercial Agriculture Program's strengths of systems-based teams addressing agricultural production goals of safe, environmentally responsible and economically sustainable food. The Food Dialogue Center will develop a national consumer-focused food center for disseminating food production information by funding: agricultural, educational and journalistic collaboration,

documenting agriculture's capacity to feed the world while preserving the environment and maintaining human health. Deliverables include an implementation and marketing plan for the consumer food center.

Ray Massey is an extension professor with the Division of Applied Social Sciences and Commercial Agriculture Program in the College of Food, Agriculture, and Natural Resources at the University of Missouri. Massey's research and extension programs focus on the impact of production agriculture on the environment.

Craig Payne is an assistant extension professor in Veterinary Medical Extension and Continuing Education in the College of Veterinary Medicine and College of Agriculture, Food and Natural Resources. His research and extension programs primarily focus on improving beef cattle health and well-being.

Rex Ricketts is the Director of the University of Missouri Extension Commercial Agriculture Program. The Program is composed of educators tasked to work on multidisciplinary teams to create opportunities for entrepreneurs dedicated to profitable and sustainable agriculture and food systems. These teams visualize the future competitive landscape in agriculture and identify challenges that successful agricultural systems will face. The teams then develop and implement focused educational programs emphasizing systems management to enable entrepreneurs to enhance success.

Formation of an International Symposium Series on Muscle and Mineralized Tissues

Network Project

One Health/One Medicine

This collaboration will draw together leading musculoskeletal tissues researchers from Mizzou and UMKC. Together we will plan the first international symposia, to be thereafter held biannually in Kansas City. This series will bring together leading researchers and their students; draw international attention to the excellent research done in Missouri and the Midwest Region; and serve the international community of dental and musculoskeletal tissues researchers by creating a venue for the rapid and open exchange of ideas and research results in this important field. The first such symposium will be held in late 2012, with the first planning meeting for this event to be held in April, 2011 for which we are requesting support.

Dr. Lynda Bonewald's research at UMKC has focused on osteocyte biology and she is director of an NIH NIAMS program project entitled "Osteocyte Function and Effects of Mechanical Strain". She is an Associate Editor for Journal for Bone and Mineral Research and serves on the editorial boards for the Journal for Biomolecular Techniques, Bone, and Experimental Biology and Medicine. She is the recipient of the Distinguished Scientist award in the area of mineralized tissue from AADR/IADR and the Remodeling in Bone Award from the Sun Valley Workshop. She now serves as Secretary/Treasurer for the American Society for Bone and Mineral Research and will be President-Elect.

Gateway to the West: Launching Digital Humanities at Mizzou

Network Project

Disruptive/Transformational Technology; Education; Media of the Future

Our network will initiate a major digital humanities project, "Gateway to the West," to further harness and advance campus expertise in this interdisciplinary field; to create new scholarly and pedagogical opportunities; and to increase potential for external funding and visibility. We intend to

draft a five-year plan for digitizing unique manuscript and print materials related to Missouri's role in Western expansion. Crucial to this plan will be the mentoring of graduate and undergraduate students who will work on faculty-led teams. An important part of our collective work will be to propose a graduate certificate in digital publishing and electronic editing.

Michael Holland is Director of the Special Collections, Archives, and Rare Books Division (SCARaB) of the University of Missouri Libraries. He has served as PI on a number of state and federal digitization grants. He is a member of the Missouri Secretary of State's Digital Grant Review Committee. Holland has served as President of the Academy of Certified Archivists (ACA) and President of the Missouri Center for the Book (MCB). His research interests include the history of modern science, the history of libraries, and government information policy.

Berkley Hudson, an associate professor, since 2003 has taught on the Magazine Faculty of the Missouri School of Journalism. He earned his doctorate at the University of North Carolina. For twenty-five years, including at the Los Angeles Times, he worked as a journalist. He is a media historian who focuses on the American South and visual history. His scholarly publications include ones in Literary Journalism Studies, Southern Cultures, and Visual Communication Quarterly.

Noah Heringman is currently Associate Professor of English at MU and has been on the faculty here since he received his PhD in English from Harvard in 1998. In the past he has published research on both Romantic literature and the history of geology. Heringman's current research draws more broadly on natural history as well as archaeology in the era of Captain Cook to track the emergence of deep time as an alternative to classical antiquity.

Dr. Jeffrey Uhlmann is an associate professor in the Computer Science Department at the University of Missouri. His current research includes quantum computing, information technology and entertainment engineering. He has also conducted multidisciplinary projects with film studies. He received his Ph.D. from the University of Oxford in the United Kingdom.

Health, Wealth & Society

Seed Project

Media of the Future; One Health/One Medicine

"Health, Wealth & Society" would be a new, interactive reporting "desk" covering issues surrounding the health and wealth of citizens, families and communities in our region, and putting a light on the impact of state economic and health care policy on Missourians, through engaging, in-depth reporting and dialogue across media platforms.

The "Health, Wealth & Society" desk would be based on MU's campus, at KBIA radio, and would bring together important research and resources from campus experts and beyond, utilizing data analysis and computer-assisted reporting expertise, combined with the new-media know-how of our partners, to provide interactive, engaging information and dialogue on air, online and in the community. Through produced series, panel discussions, public forums and community outreach on air, online and in public spaces, the reporting would document the effects of place, ethnicity and socioeconomic status on individual and family health, wealth and quality of life in mid-Missouri communities.

Janet Saidi is the news director at KBIA and an assistant professor on the faculty of the Missouri School of Journalism. Saidi works with and reports for National Public Radio and the BBC from her post at the KBIA newsroom. Before joining KBIA, she wrote for the Christian Science Monitor and the Los Angeles Times, and wrote a regular media column for the San Diego Union-Tribune. Saidi's public radio work began with "The Lounge," a nightly half-hour culture magazine on San Diego's NPR-affiliate station, which she co-hosted and co-produced for three years. Saidi lived for several years in England, where she earned a Master's in Literature from University College, London (UCL).

Identification and Pharmacological Targeting of the C-peptide Receptor

Seed Project

Disruptive/Transformational Technology; One Health/One Medicine

C-peptide originates from proinsulin and is released with insulin. An injectable synthetic C-peptide has been successfully used in clinical trials for the treatment of diabetic complications; however, the molecular target of C-peptide is not known. For FDA approval, the drug target must be known. This project is designed to test the widely held hypothesis that C-peptide activates a G protein-coupled receptor(s) and to initiate a drug discovery process based on the identified receptor(s). This discovery will hasten FDA approval of synthetic C-peptide and eventually allow for the development of orally viable drugs that target the C-peptide receptor(s).

Bradley T. Andresen, PhD, is an assistant professor in the Department of Internal Medicine. He is a Pharmacologist studying the role of G protein-coupled receptor regulation and signal transduction in cardiovascular disease with a focus on novel drug targets for the treatment of hypertension and diabetes. He was a postdoctoral fellow at the NIDCR and an instructor at Georgetown University, and he serves on the editorial advisory boards of JPET and Frontiers in Vascular Physiology.

Dr. Wade Davis, PhD is an Assistant Professor of Biostatistics in the Department of Health Management and Informatics, and Co-Director of Biostatistics in the School of Medicine. His research interests include the development and application of dimension-reduction methods for high-dimensional problems with insufficient sample size, and more general methods in statistical bioinformatics for interdisciplinary research. Dr. Davis has served on the editorial boards of the Journal of the American Statistical Association and The American Statistician. He has been supported by numerous grants from NIH, DoD, VA, and AHRQ.

Amy DeClue, DVM, MS, DACVIM (SAIM) received her DVM from the University of Illinois and then completed a residency in small animal internal medicine and post-doctoral fellowship at the University of Missouri. She is board certified by the American College of Veterinary Internal Medicine in Small Animal Internal Medicine and is currently an Assistant Professor of Veterinary Internal Medicine at the University of Missouri. Her professional interests include sepsis, pulmonary inflammatory disorders and endocrinology.

Dmitry Korkin, PhD, is an assistant professor in the Department of Computer Science, Informatics institute and is affiliated with the Bond Life Science Center. His research interest is in computational approaches to study protein-protein interactions and larger protein complexes. Other research interests include host-pathogen molecular interactions, computational genomics, data mining, and machine learning. Dr. Korkin was a postdoc at the University of California, San Francisco and Rockefeller University. He is a NSF CAREER award recipient.

Imagine Democracy

Seed Project

Disruptive/Transformational Technology; Media of the Future

The purpose of this submission is to raise the seed funding necessary for the initiation of the ImagineDemocracy multi-platform media project. Its two key elements are: (1) a theatrical documentary film retracing – and building upon -- Alexis de Tocqueville's many journeys across America in search of democracy (we, too, will be in search of American Democracy, circa 2011); and (2) the creation and build-out of the DemocracyChannel, an online portal and cable channel that will be available to cable systems nationally and throughout the world. The creative concept of the ImagineDemocracy project was conceived by two innovative entrepreneurs in the media industry. The project is similar in nature to the birth of The History Channel and the National Geographic Channel, now billion dollar businesses, that also grew from a simple but elegant concept.

The transformational content of the DemocracyChannel will include original programming as well as acquired/licensed films. It will break new ground by uploading innovative digital media from citizen journalists, students of all ages, independent producers, network archives, and studio libraries from domestic and international sources.

Randall Smith, BJ '74, is the first Donald W. Reynolds Endowed Chair in Business Journalism. He joined the Missouri School of Journalism in August 2009. His 30-year career at The Kansas City Star began in 1979, and he has worked on both the news and business sides. Smith started as a copy editor, rising to the positions of business editor and deputy managing editor, and most recently, to director of strategic development.

Antonie Stam is the Leggett & Platt Distinguished Professor of Management Information Systems (MIS) in the Trulaske College of Business, and co-Director of the Center for the Digital Globe. He has served in Visiting Professor and Research Scientist roles in Belgium, Austria, Finland, France, Italy, South Africa and Spain, and has consulted with organizations in the US, China and Finland. His research interests include information systems, decision support systems and applied AI.

William J. Carner, Ph.D. was Director of the Business Foundations Program and a Senior Lecturer in the Marketing Department in the McCombs School of Business at the University of Texas at Austin before coming to Columbia in 2007. In addition to the University of Texas, Dr. Carner has taught marketing at the University of Missouri-Columbia, St. Edward's University, and Southwest Missouri State University. He also taught bank management at the University of Missouri.

Richard Johnson is the Emma S. Hibbs/Frederick C. Middlebush Chair in Entrepreneurship, Professor of Management. He received a B.S. University of Miami, 1982 and a Ph.D. Texas A&M University, 1992.

The Impact of Federal Health Care Reform Legislation on Missouri Citizens and Institutions

Network Project

Disruptive/Transformational Technology; Education; One Health/One Medicine

The Patient Protection and Affordable Care Act will bring about changes in health care delivery that no single department at MU is equipped to research and understand. The goal of this proposal is to bring together a network of faculty from diverse units to help establish MU as a leader in research and teaching issues relating to the changes in health care delivery. The project is important

to MU and appropriate for Mizzou Advantage funding because it will make it possible for new and better research and education efforts under the one health and transformational technologies initiatives.

The P.I.s for this project are Victoria Osborne, Paul Rainsberger, Lilliard Richardson, and Molly Vetter-Smith.

In Utero Exposure to the Endocrine Disruptor, Bisphenol A: a Root Cause for a Wide Range of Epigenetic-based Diseases

Seed Project

Disruptive/Transformational Technology; Education; Food for the Future; One Health/One Medicine

At 8 billion lb per annum, bisphenol A (BPA) is one of the highest volume chemicals produced worldwide. Our studies in male deer mice indicate that in utero exposure to BPA leads to post-natal neurobehavioral and testicular abnormalities. Our goal is to seek the underlying cause of these pathologies, and particularly whether BPA exposure induces chemical changes in the DNA of genes that drive key developmental events in the brain and testes as the male deer mouse fetus ultimately becomes an adult animal. As boys appear to be more at risk than girls to adverse developmental conditions, in general, and to BPA, in particular, our work will also provide useful information about these sex differences in susceptibility to environmental insults while the fetus is in the womb.

Dr. Gerald Arthur, MD, MS (Informatics), is a pathologist who was awarded a National Library of Medicine Fellowship in Biomedical Informatics at the University of Missouri in 2004. Following completion of the fellowship in 2007, he joined the Department of Pathology and Anatomical Sciences as an Assistant Research Professor where his research involves translational biomedical informatics as related to a variety of biomedical domains including genomics, histopathologic image analysis and decision support systems.

Dr. Jeffrey Bryan, DVM, MS, PhD, is a board-certified veterinary oncologist with a Masters in targeted radiopharmaceuticals and a PhD in epigenetics. He is currently an Assistant Professor in Veterinary Clinical Sciences at Washington State University. His current research in epigenetics is focused on genome-wide identification of the patterns of methylation in canine lymphomas using array and bisulfite-based techniques. He is interested in elucidating the relationship between methylation patterns and gene expression as it contributes to carcinogenesis.

Dr. Charles Caldwell, MD, PhD, Professor of Pathology and Anatomical Sciences, CRC Missouri Chair in Cancer Research, and Director of Ellis Fischel Cancer Center. Dr. Caldwell is an active clinician in the area of cancer diagnosis and treatment, and his research laboratory focuses on the epigenetics of cancers, both human and veterinary. He has had continued external funding for over 20 years.

Dr. Jianlin Cheng, PhD, is an assistant professor in the Computer Science Department. His research is focused on bioinformatics, computational systems biology, machine learning and data mining. His group designed and developed a number of cutting-edge computational methods for protein structure and function prediction, proteomics, genomics, biological network simulation, and machine learning. These bioinformatics software tools and web services are publicly available and used by life scientists from around the world.

Dr. Wade Davis, PhD, is an Assistant Professor of Biostatistics in the Department of Health Management and Informatics, and Co-Director of Biostatistics in the School of Medicine. His research interests include the development and application of dimension-reduction methods for high-dimensional problems with

insufficient sample size, and more general methods in statistical bioinformatics for interdisciplinary research. Dr. Davis has served on the editorial boards of the Journal of the American Statistical Association and The American Statistician. He has been supported by numerous grants from NIH, DoD, VA, and AHRQ.

Dr. David C. Geary, PhD, is a Curators' and Thomas Jefferson Professor in the Department of Psychological Sciences. He has published nearly 200 articles, commentaries, and chapters across a wide range of topics, including three books; Children's mathematical development, Male, female: The evolution of human sex differences (now in second edition), and The origin of mind. He served on the President's National (U.S.) Mathematics Advisory Panel, and is a recipient of a MERIT award from the National Institutes of Health.

Dr. Rex A. Hess, PhD, Professor Emeritus, Comparative Biosciences, University of Illinois at Urbana-Champaign. Dr. Hess was trained in zoology and animal physiology, receiving his M.S. from the University of Missouri-Columbia and PhD from Clemson University. His postdoctoral training was in reproductive toxicology at the US EPA. At the University of Illinois his laboratory has a major focus on male reproductive endocrinology and toxicology. His laboratory discovered the first known function for estrogen in the male reproductive tract.

Dr. Gayle Johnson, DVM, PhD, DACVP, professor in Veterinary Pathobiology, is particularly interested in neuropathology. She has experience with interpretation of neurodegenerative lesions and with Immunohistochemical techniques, with a particular interest in quantitating damage in neurodegenerative conditions of animals. She is a member of the Comparative Neurology Program at the University of Missouri, where she has contributed to characterizations of, among others, degenerative myelopathy of dogs, ATF-2 mutation, and multiple systems atrophy.

Dr. Dennis Miller, PhD, an associate professor of Psychology, is internationally known for research in neuropsychopharmacology and toxicology. He works with multiple techniques to study drug- and toxicant-induced behavioral (e.g., locomotor activity, place conditioning and drug discrimination) and neurochemical (e.g., neurotransmitter release and radioligand binding) and changes in rodents. Dr. Miller is Co-Investigator on an NIH/NIA-funded study of drug-evoked neurotransmitter release from rodent brain neurons in an animal model of Alzheimer's disease.

Dr. Michael Roberts, PhD, is a Curators' Professor at the University of Missouri, with appointments in Animal Sciences, Biochemistry and Veterinary Pathobiology. He is currently an investigator in the Christopher S. Bond Life Sciences Center. He is currently studying specification of trophoblast as it emerges from pluripotent stem cells, generating induced pluripotent stem cells from swine for testing the efficacy and safety of grafts in a large animal model, creating trophoblast stem cells by reprogramming differentiated somatic cells. His work is supported by National Institutes of Health (NIH) and the United States Department of Agriculture (USDA), and also through Missouri State funds in support of agriculture.

Dr. Cheryl S. Rosenfeld, DVM, PhD, is an associate professor in Biomedical Sciences and a Bond Life Sciences Center Investigator. She gained her B.S. and D.V.M. degrees at the University of Illinois at Urbana-Champaign and PhD in Reproductive Biology at the University of Missouri. Her laboratory is funded by the National Institutes of Health. Dr. Rosenfeld's laboratory has demonstrated that early exposure to the EDC, bisphenol A (BPA), affects spatial navigational ability in male deer mice leading to their rejection by prospective female partners and hinders learning and memory responses in viable yellow (Avy) mice, which are considered a classic epigenetic animal model.

Dr. Todd Schachtman, PhD, professor of Psychological Sciences, did his Doctoral work at SUNY-Binghamton, and Postdoctoral training at the University of York, U.K. and Univ. of Rochester Med. Center. His Research specialization is information processing in animals, with much of the work aimed at differentiating the processes of acquisition, retention, and retrieval of information as causes of test performance deficits and the role of metabotropic glutamate receptors.

Fred vom Saal is Curators' professor of biology. His research is on abnormal development of reproductive organs, neurobehavioral effects and metabolic processes due to exposure during fetal life to the estrogenic chemical Bisphenol A (BPA) in plastic. In addition, numerous collaborative projects relating BPA with diseases in humans are being conducted. His research is funded by the National Institutes of Health.

Dr. Dong Xu, PhD, is James C. Dowell Professor and Chair of Computer Science Department, with appointments in the Christopher S. Bond Life Sciences Center and the Informatics Institute at the University of Missouri. His research includes protein structure prediction, high-throughput biological data analyses, in silico studies of plants, microbes, and cancers. He has published more than 180 papers.

Information Overload: Creating a More Readable Electronic Health Record (EHR) Model

Seed Project

One Health/One Medicine

Federal initiatives will drive widespread Electronic Health Record (HER) adoption across the US. However, barriers to HER adoption include useability, productivity loss, and divergent stakeholder information needs all crammed into one form-factor. We propose a model of a multi-layer HER of physician documentation, with several distinctly displayed layers aimed at different stakeholders. We will (1) identify information display needs of key stakeholders (physicians, patients, auditors), and (2) create a working model of HER display targeted at those needs. We will develop this model further with external funding from AHRQ, and pursue commercialization through the Tiger Institute.

Jeffrey Belden, MD, is associate professor of Clinical Family and Community Medicine, and Affiliated Faculty in MU's Information Experience Laboratory. He is a practicing Family Physician, and member of the Tiger Institute Living Lab team. He is co-author of a white paper "Defining and Testing EMR Usability: Principles and Proposed Methods of EMR Usability Evaluation and Rating." He was an invited advisor at NIST's strategic conference "Usability in Health IT: Technical Strategy, Research, and Implementation."

Linsey M. Barker is an assistant professor and Director of the Ergonomics, Safety, and Health Laboratory in the Department of Industrial and Manufacturing Systems Engineering at the University of Missouri. Her research uses human factors and ergonomics to improve human performance, safety, and satisfaction in complex systems. Currently, her interests focus on patient and provider safety and overall quality within healthcare systems. Dr. Barker also has experience conducting ergonomic and usability evaluations of medical technologies.

Min Soon Kim, PhD, is an assistant professor at the Department of Health Management and Informatics at the University of Missouri School of Medicine. His research centers on a range of areas within biomedical informatics, including health information technology evaluation and cost-effective computational aids for evidence-based medical decisions. Prior to joining to MU, he has served as a research fellow at the Mount Sinai School of Medicine, NYC, NY and Mayo Medical Center at Rochester, MN

Richelle J. Koopman, MD, MS, is assistant professor in the Department of Family and Community Medicine. She is a practicing family physician with a Masters Degree in Clinical Research. She is funded by the Agency for Healthcare Research and Quality to investigate “Patient Readiness to Use Internet Health Resources.” She is on the editorial boards of Family Medicine and BMC Family Practice and received the 2010 MU School of Medicine’s Spurgeon Distinguished Medical Research Award.

Joi L. Moore, PhD, is an Associate Professor in the School of Information Science and Learning Technology and a Faculty Member of the Information Experience Lab; both roles are in MU’s College of Education. Her research expertise includes designing User-Centered Web Applications (Human-Computer Interaction) and Electronic Performance Support Systems. Dr. Moore will contribute her experience and expertise with usability testing, user-centered design, and information seeking behavior of users.

Intense Beam Loading and Shock Compression of Deuterium Loaded Palladium for LENR Studies

Seed Project

Disruptive/Transformational Technology; Sustainable Energy

In late 2009, the Defense Intelligence Agency (DIA) issued a report stating; “DIA assesses with high confidence that if low-energy nuclear reactions (LENR) can produce nuclear-origin energy at room temperatures, this disruptive technology could revolutionize energy production and storage.” By leveraging the unique resources of various entities both inside and outside of the University, we propose a series of never performed LENR experiments, possible within the limited funding and time constraints of the Mizzou Advantage program. These experiments will produce data for much larger research proposals to outside funding agencies, who have already demonstrated interest in the topic.

John Michel Gahl is the C.W. LaPierre Professor in the Electrical and Computer Engineering Department at the University of Missouri.

Midwest Renewable-Energy Generation and Storage Solutions (Seed)

Seed Project

Sustainable Energy

This project is aimed at supporting the Mizzou Advantage strategic initiative in the area of Sustainable Energy. In particular, the project focuses on preparatory studies that will enable us to compete for national funding and recognition in the area of Renewable Energy resources. This proposal will fund exploratory efforts for understanding: 1) Midwest wind and solar energy resources, 2) Midwest options for storing renewable energy, and 3) Midwest policies and economics which impact these efforts. The project will culminate in a one-day symposium for presenting project results, for identifying national funding opportunities, and for assessing the success of this work. These efforts will draw from participants across Missouri’s energy sector for the purposes of building a network of collaboration. A companion networking proposal is also being submitted to Mizzou Advantage.

Noah Manring is the Glen A. Barton professor of fluid power in the Mechanical and Aerospace Engineering Department and the chairman of the Electrical and computer Engineering department at the University of Missouri. Manring’s research interests include hydraulic control systems and the transfer of fluid power.

Manring holds 10 US Patents in this field, has written a textbook on the subject of hydraulic controls, and has been extensively funded by government and industry sponsors.

Neil Fox is an associate professor of atmospheric science at the University of Missouri. Fox's research interests include the use of radar for rainfall estimation and forecasting, and boundary layer meteorology. He has published more than 30 peer-reviewed papers, including a recently completed study of wind speeds at wind turbine heights across Missouri.

Ray Massey is an extension professor with the Division of Applied Social Sciences and Commercial Agriculture Program in the College of Food, Agriculture, and Natural Resources at the University of Missouri. Massey's research and extension programs focus on the impact of production agriculture on the environment.

Missouri Metagenomics Symposium

Network Project

Disruptive/Transformational Technology; Food for the Future; One Health/One Medicine

We shall organize and host a national Symposium on the emerging field of metagenomics at the University of Missouri-Columbia in Fall 2011. We shall recruit internationally recognized researchers in mammalian, plant, insect, viral, microbial and ecological metagenomics to come to the Columbia campus to present their work and establish scientific relationships with our faculty. The objective of this Symposium is to educate our faculty and students on the tools and approaches being used to study the biology of symbiotic species and to establish collaborative relationships which will facilitate our ability to recruit world class faculty to the University.

Michael Calcutt is an Associate Professor in the Departments of Veterinary Pathobiology, and Molecular Microbiology and Immunology. He received his Ph.D from the Department of Biochemistry, University of Leicester, UK in 1988 and joined MU in the same year. His current research focuses on the genomics of bacterial pathogens of ruminants and swine, with particular interest in surface proteins and mobile genetic elements.

Jack Schultz is Director of the Christopher S. Bond Life Sciences Center at the University of Missouri where he promotes and develops interdisciplinary research among 35 scientists whose interests range from plant breeding to electrical engineering. Schultz is Professor of Plant Sciences at MU and Distinguished Professor of Entomology Emeritus at the Pennsylvania State University. His research on plant-insect interactions has been supported continuously by NSF for 32 years and produced over 150 publications.

Jerry Taylor holds the Wurdack Chair in Animal Genomics in the Division of Animal Sciences. He is an elected Fellow of the American Association for the Advancement of Science and is the 2008 CAFNR Celebration of Excellence Distinguished Researcher. He won the 2008 USDA Technology Transfer, 2009 FLC Excellence in Technology Transfer and 2010 USDA Secretary's Honors awards. He has received \$36M in competitive grants, has mentored 11 postdocs and 37 graduate students and has authored 164 papers.

MU Environmental Policy Network to Enhance the Stature and Impact of Mizzou Advantage Strategic Areas

Network Project

Education; Food for the Future; Media of the Future; Sustainable Energy

The aim of this project is to enable productive collaborations among faculty from various MU Departments and experts outside campus to bring MU to greater national and international prominence in the environmental policy arena by establishing the MU Environmental Policy Network. The Environmental Policy network will facilitate a stronger position for the University in education and research areas thus deepening MU's presence in three specific Mizzou Advantage initiatives. The Network will facilitate the creation of a Graduate Certificate Program, a Speaker Series, and a Student Essay contest.

Shibu Jose is the Garrett Endowed Chair Professor and Director of the Center for Agroforestry. Prior to joining MU, he was Professor of Forest Ecology at the University of Florida, Gainesville. He received his M.S. and Ph.D. from Purdue University. Current research efforts focus on ecological sustainability and ecosystem services of agroforestry systems and mixed-species biomass plantations. He serves as Editor-In-Chief of Agroforestry Systems, Associate Editor (former Editor) of Journal of Forestry and Editorial Board Member of International Journal of Ecology.

Sandy Rikoon divides his time between being Curators Distinguished Professor of Rural Sociology and Associate Dean for Research and Graduate Studies in HES. He also directs the Interdisciplinary Center for Food Security, which he founded in 2004. Primarily an environmental sociologist, Rikoon has conducted research throughout the US, as well as in Eastern Europe and Central Asia. He has published six books and more than ninety articles and serves on a variety of national committees.

MU GLOBAL CONNECT - Proposal for the Development of a Digital Global Studies Undergraduate Certificate Program

Seed Project

Disruptive/Transformational Technology; Education; Food for the Future; Media of the Future; One Health/One Medicine

The Digital Global Studies Undergraduate Certificate is a 15 hour project-oriented and interdisciplinary program that allows students to explore the impact of technology, in particular digital technology, in two key areas: business/entrepreneurship and the nonprofit (NGO) sector. The certificate emphasizes the relationship between cultural diversity, globalization, and digital communications and their effects on international business and the NGO sector. The major desired outcome is to mentor and guide students to gain a high degree of cultural competence in the uses, ethics and stakes of digital technology globally, thus preparing them for work in the digital age. Additionally, students will gain hands-on experience in international business and the NGO sector through internship/volunteer work in global organizations and businesses.

Monika Fischer is associate teaching professor and Director of Undergraduate Studies in the German & Russian Studies Department. She holds a PhD in Comparative Literature from the University of Oregon and a MEd in Higher Education Administration from Baruch College CUNY. Her research is centered on cultural analysis, cultural identity and new media developments.

Jung Ha-Brookshire (PI) is an assistant professor in the Department of Textile and Apparel Management. Her research interests include global supply chain and sourcing strategies, sustainable production and consumption of textile and apparel, and firm/industry identity issues. She teaches Global Sourcing, Supply Chain Management of the Global Softgoods Industry, Retail Marketing and Merchandising. Prior to her appointment at MU, she worked as an apparel sourcing manager in New York City over 8 years.

Jana Hawley was named Professor and Department Head for Textile and Apparel Management at the University of Missouri in July 2010. She earned her Ph.D. at the University of Missouri and her Masters from Oklahoma State University in Clothing and Textiles. She is a HERS Bryn Mawr Summer Institute Fellow, 2008; a Global Scholar to Thailand, and a Fulbright Scholar to India. Areas of expertise include sustainability, textile recycling, service learning, and global initiatives.

Valerie Kaussen is an Associate Professor of French at MU. She is the author of *Migrant Revolutions: Haitian Literature, U. S. Imperialism and Globalization*. She regularly travels to Haiti where she has conducted seminars on Francophone literature for high school instructors and where she is currently assisting grassroots organizations to establish libraries and communications centers. Her current research focuses on the role of new media and governance in post-Earthquake Haiti.

Jonathan Kriekhaus is an associate professor in the Department of Political Science. He received his degree from Princeton University in 2000, specializing in the politics of developing countries. He conducts research on democracy, colonialism, and financial markets, with a particular emphasis on how these processes shape long-run economic development.

Beth Myers is an assistant professor in the Department of Textile and Apparel Management. Her research interests include consumer behavior and branding, particularly related to sustainability and socially responsible business practices. One avenue of research she is currently investigating is how consumers' responses to and evaluations of a cause-related marketing campaign vary based on the amount of information they are exposed to concerning the campaign.

Randall Smith, BJ '74, is the first Donald W. Reynolds Endowed Chair in Business Journalism. He joined the Missouri School of Journalism in August 2009. His 30-year career at The Kansas City Star began in 1979, and he has worked on both the news and business sides. Smith started as a copy editor, rising to the positions of business editor and deputy managing editor, and most recently, to director of strategic development.

Antonie Stam is the Leggett & Platt Distinguished Professor of Management Information Systems (MIS) in the Trulaske College of Business, and co-Director of the Center for the Digital Globe. He has served in Visiting Professor and Research Scientist roles in Belgium, Austria, Finland, France, Italy, South Africa and Spain, and has consulted with organizations in the US, China and Finland. His research interests include information systems, decision support systems and applied AI.

National Hunger Atlas and Summit

Seed Project

Food for the Future

The Interdisciplinary Center for Food Security, which has achieved national prominence for its Missouri Hunger Atlas, proposes activities to establish MU as home to the National Hunger Atlas. These activities include 1) additional networking with MU researchers, technology specialists, and development officers; 2) bridging to other universities and establishing an academic/agency/private sector partnership, and 3) hosting a 3-day National Summit combining public activities and a working conference for researchers, agencies, national ngos, funders, and policy-makers to develop the objectives, research, scope, media, funding and other steps preparatory to establishing the first US National Hunger Atlas.

Sandy Rikoon divides his time between being Curators Distinguished Professor of Rural Sociology and Associate Dean for Research and Graduate Studies in HES. He also directs the Interdisciplinary Center for Food Security, which he founded in 2004. Primarily an environmental sociologist, Rikoon has conducted research throughout the US, as well as in Eastern Europe and Central Asia. He has published six books and more than ninety articles and serves on a variety of national committees.

Dr. Colleen Heflin is an Associate Professor in the Truman School of Public Affairs. Her interdisciplinary research program focuses on understanding the survival strategies employed by low-income households to make ends meet, the implications of using these strategies for individual and household well-being, and how public policies influence well-being. A central focus of her work has been on understanding the causes and consequences of material hardship.

New Media, New Technologies, and the Future of the Arts

Network Project

Disruptive/Transformational Technology; Media of the Future

New media and technologies are profoundly changing the way we create, disseminate, and receive art. Electronic, digital, and networked creative processes are rapidly finding their place alongside traditional production methods, and new delivery systems are similarly changing the way art reaches the public. Understanding these new media and technologies will be essential for anyone wanting to participate in today's rapidly evolving cultural conversations. By exploring these developments, we expect to stimulate a conversation that can lead to future planning, answering the question, What must MU do today to prepare the campus and - more broadly - Missourians for the art of tomorrow?

Andrea Heiss has served as the director of the interdisciplinary Arts-in-Depth Program at the Missouri School of Journalism since 2007. She has worked for numerous publications, including the Chicago Sun-Times, Korea Business Week and Modern Fiction Studies. In addition, she coordinated programs at the Des Moines Art Center and the Miami Art Museum (Miami, Florida), where she produced an award-winning documentary. Her publications, broadcasts and conference lectures examine contemporary art, cultural history, and journalism.

Robert Shay has been Professor and Director of the School of Music at MU since 2008. He previously served as Vice President and Dean at the Longy School of Music (Cambridge, Mass.) and on the faculty of Lyon College (Arkansas). Dr. Shay's publications include *Purcell Manuscripts* (Cambridge University Press, co-authored with Robert Thompson), a recipient of the Music Library Association's Duckles Award, given annually to "the best book-length bibliography or other research tool in music." His articles and reviews have appeared in *Choral Journal*, *Early Music*, *Journal of Seventeenth-Century Music*, *Music & Letters*, and *Notes: The Quarterly Journal of the Music Library Association*, and in the books *Purcell Studies* (Cambridge University Press) and *King Arthur in Music* (D. S. Brewer). Dr. Shay holds degrees from UNC-Chapel Hill, New England Conservatory, and Wheaton College. He participated in Harvard University's Institute for Educational Management in 2006.

Dr. Newton D'souza is an Assistant Professor in Architectural Studies and works closely with the Environment-Behavior program as well as the Design with Digital Media program of Architectural Studies. His current work includes research in the potential of virtual reality for design education and the use of multiple intelligences in creative behavior among architectural designers. He received his Ph.D. in architecture from the University of Wisconsin-Milwaukee.

Overcoming Barriers for Regulating Environmental Endocrine Disrupting Chemicals

Network Project

Disruptive/Transformational Technology; One Health/One Medicine

In 1991 participants in a workshop, Chemically Induced Alterations in Sexual Development: The Wildlife-Human Connection released “The Wingspread Consensus Statement” and a book identifying the previously unrecognized hazard posed by endocrine disrupting chemicals with recommendations for public health policy makers. The purpose of the proposed workshop is to explore barriers that have prevented governments from incorporating findings from endocrine disruption research and taking regulatory action to reverse the trends in endocrine related disorders. Fifteen external and three internal participants with the following expertise: science, medicine, environment, communications, policy, regulations, economics, history, and national and international security will attend.

Fred vom Saal is Curators’ professor of biology. His research is on abnormal development of reproductive organs, neurobehavioral effects and metabolic processes due to exposure during fetal life to the estrogenic chemical Bisphenol A (BPA) in plastic. In addition, numerous collaborative projects relating BPA with diseases in humans are being conducted. His research is funded by the National Institutes of Health.

Rapid Molecular Detection of GBS in Pregnant Women

Seed Project

One Health/One Medicine

The ultimate goal of this project is to transfer electrochemical DNA biosensing technology (MU patent pending) to outpatient- and hospital-based care for rapid detection of pathogens, using the detection of the Group B Streptococcus [GBS] as a proof of concept. The sensitivity of this nanostructured and three-dimensional DNA biosensing device has made it feasible to directly detect infectious agents in clinical samples. The funding through Mizzou Advantage will enable us to achieve our short-term goal of detecting clinical specimens and help us to create longlasting funded projects through NIH R01/SBIR grants for successful transfer of the technology to clinical applications.

Michael Sherman is a professor of Child Health. He joined the MU faculty in 2009 as a neonatologist. A Professor Emeritus at UC Davis, Sherman has studied the reasons why newborns are susceptible to GBS and other infections and defined methods for their diagnosis and treatment. In pregnant women, urogenital tract colonization with group B streptococci [GBS] is the major risk for neonatal infection. Current research addresses rapid detection of GBS colonization using a biosensor.

Michael Calcutt is an Associate Professor in the Departments of Veterinary Pathobiology, and Molecular Microbiology and Immunology. He received his Ph.D from the Department of Biochemistry, University of Leicester, UK in 1988 and joined MU in the same year. His current research focuses on the genomics of bacterial pathogens of ruminants and swine, with particular interest in surface proteins and mobile genetic elements.

Doctor Qingsong Yu is an associate professor in the department of Mechanical and Aerospace Engineering, College of Engineering. Trained as a chemical engineer, Dr. Yu has a research specialty in surface and interface engineering of materials. Dr. Yu has published over 70 peer-reviewed research articles in his

research field. In this project, Dr. Yu will work closely with the project team and take a leading role in construction and electrochemical characterization of the biosensor.

Reality-Based Filmmaking: Journalism and the New Documentary in the Twenty-First Century

Network Project

Education; Media of the Future

What accounts for the growing public fascination with documentary film? What does that interest and enthusiasm tell us about the seismic shifts in media presently challenging traditional modes of newsgathering? Through public workshops, a conference, and a publication, this initiative analyzes the crossing boundaries between nonfiction storytelling forms, the appeal of advocacy in that storytelling, and the cultural and ethical implications of journalism and documentary film's convergence. Taking advantage of key academic resources on campus as well as in the Columbia community, the project will heighten MU's visibility by establishing it as a center for research in this emerging area.

Stephanie Craft is Associate Professor of Journalism. Her research, focusing on press practices and performance and journalism ethics, has appeared in a number of journals as well as in the Handbook of Media Ethics and Journalism Ethics: A Philosophical Approach, published by Routledge and Oxford, respectively. She received a BA from Washington University and an MA from Missouri. Before earning a PhD at Stanford University, Craft worked as a newspaper journalist.

Valerie Kaussen is an Associate Professor of French at MU. She is the author of *Migrant Revolutions: Haitian Literature, U. S. Imperialism and Globalization*. She regularly travels to Haiti where she has conducted seminars on Francophone literature for high school instructors and where she is currently assisting grassroots organizations to establish libraries and communications centers. Her current research focuses on the role of new media and governance in post-Earthquake Haiti.

Brad Prager is Associate Professor of German and an active member of the MU's Program in Film Studies. He received his BA from Stanford University and his PhD in 1999 from Cornell University. His areas of research include Film History and Contemporary German Cinema, Holocaust Studies, and the art and literature of German Romanticism. He is the author of numerous articles, a monograph on the filmmaker Werner Herzog, and a study of German Romantic aesthetics.

Tim P. Vos is an assistant professor of Journalism Studies. His research focuses on organizational and institutional factors that shape journalistic content. Vos (Ph.D. Syracuse University) is co-author of *Gatekeeping Theory* and author of book chapters on gatekeeping and media history. His research has been published in the *Journal of Broadcasting & Electronic Media*, *Journal of Public Relations Research*, *Journalism: Theory, Practice & Criticism* and *Journalism Studies*. He worked as a broadcast journalist for 12 years.

Regenerating Intestinal Crypt Culture for Biomedical Research

Seed Project

One Health/One Medicine

Unlike other organs, a major limitation to intestinal disease research has been the failure to develop a culture system that recapitulates the intestinal lining. Recent breakthroughs have enabled culture of stem cells from millions of intestinal glands (crypts). Multicellular "organoids" are produced that

mimic the intestine and can be amplified in number for drug testing, etc. However, application to biomedical research has yet to be realized. The proposed project will validate the utility of the culture system for this purpose and, through collaborations at MU, will establish MU as an early leader for this technological advancement of gastroenterological research.

Lane Clarke is a professor of Biomedical Sciences. He is an ion transport specialist who investigates acid-base and nutrient transport in the disease cystic fibrosis (CF). Current studies focus on intracellular pH regulation during stem cell proliferation in normal and CF intestinal epithelium. He was a postdoctoral fellow at the University of North Carolina Cystic Fibrosis Research Center, and received a Ph.D. from North Carolina State University and a D.V.M. from the University of Missouri.

Regional Symposium on RNA Structure and Function: CornBelt RNA 2011

Network Project

Food for the Future; One Health/One Medicine

RNA biochemistry and RNA biology have been a defining focus of the molecular life sciences for over 40 years, exemplified by the awarding of five Nobel prizes for work in this area since 2001. This area is relevant to Mizzou Advantage initiatives in Food, Health and Transforming Technologies (synthetic biology). RNA science is a significant strength at the University of Missouri, with over a dozen interactive research groups. Smaller-scale growth has taken place at universities in Missouri and bordering states. We propose building this network by hosting "Corn Belt RNA" in November 2011.

The P.I.s for this project are Donald Burke, Brenda Peculis and Frank Schmidt.

Selective Controlled Femtosecond Laser-Induced Chemical Reactions in Peptide Systems

Seed Project

Food for the Future; One Health/One Medicine

This interdisciplinary project brings together three faculty members from three departments at MU to join their expertise in proof-of-principle research proposal to create the basis of a novel technology of selective and controlled modification and/or destruction of peptides by femtosecond laser pulses. The technology is based on chemical reactions that are selectively initiated and precisely controlled by the laser pulses. The capability of selective and controlled modifications of peptides opens up tremendous opportunities for developing medical technologies of targeted and safe regulation of peptide content in tissues. Once proof-of-concept has been established this research has an exceptional potential for longterm external support from NIH, USDA, and the food industry. It will significantly elevate the stature and impact of MU in several promising research areas. The chances of success of this research are very high.

Jay Thelen is an Associate Professor in the Biochemistry Department at the University of Missouri. He studies plant seed development and metabolic regulation in model and crop plants using biochemical and systems approaches including advanced proteomics. He also studies global protein phosphorylation in plants and maintains an active interest in developing and refining quantitative proteomics approaches for research and applied applications. He is a National Science Foundation Young Investigator Awardee and was recently awarded the University of Missouri System's 2011 Presidential Early Career Faculty Award for Excellence.

Dmitry Korkin, PhD is an Assistant Professor in the Department of Computer Science, Informatics institute and is affiliated with the Bond Life Science Center. His research interest is in computational approaches to study protein-protein interactions and larger protein complexes. Other research interests include host-pathogen molecular interactions, computational genomics, data mining, and machine learning. Dr. Korkin was a postdoc at the University of California, San Francisco and Rockefeller University. He is a NSF CAREER award recipient.

Socially Intelligent Computing in Action: A Community-Driven Platform for Host-Pathogen Interactions

Seed Project

Disruptive/Transformational Technology; Education; One Health/One Medicine

Infectious diseases in humans, animals, and plant claim millions of lives and have an economic impact of billions dollars every year. A pathogen causing an infectious disease generally exhibits extensive interactions with its host at the molecular level. Unfortunately, the data on host-pathogen interactions are scattered, often organized by a specific pathogen or disease. By employing the state-of-art bioinformatics and human-computer interaction methods, we propose to integrate the automated literature mining with the community-driven data gathering and annotation into a centralized platform for host-pathogen interaction data. This seed proposal will be further expanded to an NIH R01 grant.

Dmitry Korkin, PhD is an Assistant Professor in the Department of Computer Science, Informatics institute and is affiliated with the Bond Life Science Center. His research interest is in computational approaches to study protein-protein interactions and larger protein complexes. Other research interests include host-pathogen molecular interactions, computational genomics, data mining, and machine learning. Dr. Korkin was a postdoc at the University of California, San Francisco and Rockefeller University. He is a NSF CAREER award recipient.

Joi L. Moore, PhD is an Associate Professor in the School of Information Science and Learning Technology and a Faculty Member of the Information Experience Lab; both roles are in MU's College of Education. Her research expertise includes designing User-Centered Web Applications (Human-Computer Interaction) and Electronic Performance Support Systems. Dr. Moore will contribute her experience and expertise with usability testing, user-centered design, and information seeking behavior of users.

Soy Protein Gold Nanoconjugates, with PTP 1B Inhibition Activity, for Metastatic Breast Tumor Therapy

Seed Project

One Health/One Medicine

Metastatic breast cancer remains a largely incurable disease. A recent statistics shows that after documentation of metastasis, the median survival time of the patient is 2 years. Thus, further advances in the treatment of metastatic breast cancer will require the development of new therapeutic modalities and novel approach targeting this disease. The utilization of sophisticated technologies such as nanotechnology, in the design of new therapeutic agents will provide the future advances in treatment of patients with metastatic breast tumor. Nanoparticle mediated therapy technique treats the cancer at cellular level processes thus, possesses the potential to cure metastatic breast cancer.

Raghuraman Kannan, Ph.D Chemistry, Indian Institute of Science, Bangalore, is an Assistant Professor in the Department of Radiology/Chemistry.

Treating Autism Spectrum Disorders: A Technological Innovation for Children's Health Care

Seed Project

Disruptive/Transformational Technology; Education; Media of the Future; One Health/One Medicine

Funding of this proposal will permit the participants to complete the initial, formative steps in developing a technology startup that markets a computer/Web based product that can assess the needs of children with ASD, determine resources to meet those needs, and then generate applications for public private programs that provide care. At the conclusion of this phase, the participants will have resolved technological issues, determined market and demand, and begun the process of developing a business plan to support requests for investment capital for the creation of new technology company based in Columbia, Mo.

Dr. Janet Farmer is the Director of Academic Programs at the Thompson Center for Autism and Neurodevelopmental Disorders. She is a professor of health psychology and child health. Dr. Farmer's research examines ways to improve quality of life for children and families affected by special health care needs, including those with autism spectrum disorders (ASD). She has a particular interest in advancing children's access to quality care.

Glen T. Cameron is Gregory Chair in Journalism Research and founder of the MU Health Communication Research Center. Author of hundreds of manuscripts, as well as books translated into 9 languages, Cameron is a popular international lecturer. He has participated in over \$68M in external funding of health public relations projects from sources such as NIH, NCI, Missouri Foundation for Health, USDA, CDC, the U.S Department of Defense, and Monsanto.

Michael J. Grinfeld, associate professor of journalism, studies media effects on conflict and dispute resolution processes. He teaches courses in magazine writing, journalism and conflict, law and the courts, covering terrorism and science, health and environmental writing. Grinfeld is also the co-director of MU's Center for the Study of Conflict Law and the Media.

Richard Reuben is James Lewis Parks Professor of Law. His research emphasizes the relationship between dispute resolution and law, as well as democratic governance. He is one of the nation's leading authorities on confidentiality in ADR processes, and served as a Reporter for the Uniform Mediation Act. He is a Senior Fellow at the law school's Center for the Study of Dispute Resolution and co-director of the Center for the Study of Conflict, Law and the Media.

Jon Stemmler is the associate director of the Health Communication Research Center at the Missouri School of Journalism. He began as a reporter with the Asbury (NJ) Park Press and continued at newspapers around the country for more than a decade. Stemmler has spent the last 15 years in public relations and strategic health communication. His primary research areas deal with tailored health communication, social marketing practices and community-based health interventions.

Use of Botanicals in Chronic Pain Research

Seed Project

One Health/One Medicine

New and innovative advances are needed in every area of pain research, from the molecular sciences to the behavioral/social sciences, and in the translation of this research to improved healthcare. The Project has two primary aims: 1) to bring to and further develop at Mizzou, a convenient, tractable rodent model of radicular (back) pain suitable for molecular and behavioral studies of botanicals that mitigate and help individuals manage chronic pain; 2) to form a collaborative, interactive network of molecular, behavioral and plant scientists who will contribute to the identification, characterization and development of botanical medicines suitable for mitigating and managing chronic pain.

Dr. William Folk, PhD, teaches undergraduate, graduate and medical students and directs a laboratory whose research focuses on studies of gene expression and replication of cancer viruses, and of the analysis of plants used for food and medicine. He is Co-Director of the NIH/NCCAM funded International Center for Indigenous Phytotherapy Studies (TICIPS) and is Associate Director of the MU Center for Botanical Interaction Studies, and is Program Director of the Howard Hughes Medical Institute sponsored Maps in Medicine K-12 Science Education Program.

Dr. Jiankun Cui, MD, is research assistant professor in the Department of Pathology and Anatomical Sciences. She trained in neurobiology/neuroscience while associated with Baylor College of Medicine and Burnham Institute for Medical Research. Dr. Cui is a skilled practitioner of microsurgery including various stroke models both in the rat and mouse, and is a major contributor to the MU Alzheimer's Disease Program Project Grant.

Dr. Zezong Gu, MD, PhD is Assistant Professor of Pathology and Anatomical Sciences where he focuses on understanding the molecular mechanisms of redox modulation, particularly the roles of environmental-induced nitrosative/oxidative stress in cell signaling, and the impact to stroke and other neurological diseases. He trained in Cell Biology and Neuroscience at the University of Texas Medical Branch, Galveston, and is Director of the Molecular and Microscopy Core in the Center for Translational Neurosciences and Co-investigator for the MU Center for Botanical Interaction Studies.

Dr. Dennis Miller, PhD, associate professor of Psychology, is internationally known for research in neuropsychopharmacology and toxicology. He works with multiple techniques to study drug- and toxicant-induced behavioral (e.g., locomotor activity, place conditioning and drug discrimination) and neurochemical (e.g., neurotransmitter release and radioligand binding) and changes in rodents. Dr. Miller is Co-Investigator on an NIH/NIA-funded study of drug-evoked neurotransmitter release from rodent brain neurons in an animal model of Alzheimer's disease.

Dr. Grace Sun, PhD, professor of Biochemistry and of Pathology and Anatomical Sciences, is an internationally recognized authority in neurodegenerative diseases, particularly Alzheimer's Disease, Scientific Director for the Center for Translational Neurosciences (a main goal for her laboratory is to investigate malfunctioning of central nervous system signaling pathways associated with neurodegenerative diseases). PI of the NIH funded Alzheimer's Disease Program Project Grant, and a Project Leader for the MU Center for Botanical Interaction Studies.

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