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CONNECTING *the* UNIVERSITY *of* MARYLAND RESEARCH COMMUNITY

A Digital Rx for Health Care

February forum to explore expanding UM health IT initiatives

No matter the outcome of the discussion in Washington over health-care reform, one thing remains certain: Any significant changes to the U.S. health-care system will require the use of health information technology, or health IT.

A university forum on Feb. 9 will address the challenges of this digital transformation—offering a research-driven dialogue on how health IT can expand access, improve the quality of care, prevent medical errors, reduce costs and give consumers more control over their health care.

Sponsored by the Division of Research, the event (see back page for details) will explore the idea of establishing a cross-campus research initiative dedicated to understanding the role of technology in improving consumer-driven health care and health promotion.

For this to happen, Maryland faculty will need to develop a strategic vision for strengthening already-established research in health IT, while also looking at ways to build new partnerships and better compete for high-impact federal research grants.

"The U.S. health-care system is facing complex questions that bridge policy, technology, strategy and public health concerns," says **Ritu Agarwal**, the Robert H. Smith Dean's Chair of Information Systems, who is a featured speaker at the event and will lead the discussion. "We expect the university to be a national leader in offering administrative and technological solutions that are driven by consumer needs."

Agarwal says interdisciplinary expertise is vital to implement health IT in areas like chronic disease management, remote monitoring and treatment, telemedicine and the use of mobile platforms like iPhones to relay health-related information.

The key, Agarwal says, is the ability to create and adapt health IT solutions for multiple stakeholders, including health-care professionals and consumers in inpatient or outpatient settings.

PHOTO BY RHODA BAER

Ritu Agarwal

Health IT will also improve health-care policies and practices derived from the systematic, scientific study of the effectiveness of various treatments, says **Robert S. Gold**, dean of the School of Public Health.

The Division of Research will host a forum in February to discuss interdisciplinary research in health IT that is focused on consumer-driven health care.

And it can identify incentives for lifestyle behaviors that promote health for individuals and communities, adds Gold, an expert in public health informatics who is also scheduled to speak at the forum.

Researchers from almost every school and college at Maryland—including business, public health, information studies, engineering, life sciences and physical sciences—can contribute to this new health IT effort, he says.

The university also plans to reach out to biomedical researchers and clinicians at the University of Maryland, Baltimore including the Schools of Medicine, Dentistry, Pharmacy and Nursing.

"We can complement medical research in health IT with our strengths in applying informatics and IT to support individual and community-based health promotion and disease prevention programs for at-risk populations and health systems," says Gold. "Our capacity in health literacy and cultural competence and experience in management and analysis of diverse health-related surveillance systems, are also synergistic with UMB."

Faculty Win NIH Training Grants

Several university programs have won a series of grants that provide research and training support for Maryland doctoral students and postdoctoral fellows.

Known as T32 training grants, the significant five-year awards from the National Institutes of Health, or NIH, acknowledge the high quality of training by a number of research groups at Maryland.

"It's a real partnership that benefits faculty, our research groups and particularly our students and postdocs," says **Arthur Popper**, professor of biology and co-director of the Center for Comparative and Evolutionary Biology of Hearing. The center is now in its 16th consecutive year of conducting NIH-supported research on topics such as hearing loss in older adults, the development of hearing and how the brain analyzes sounds.

In the Department of Kinesiology, doctoral students in exercise biology and aging use the federal grants to complete dissertation research projects on age-related changes in body composition, musculoskeletal function and cardiovascular disease risk factors, says **James Hagberg**, professor of kinesiology.

Other T32 grants were awarded in virology, in molecular and cellular biology and in clinical psychology. There is a pending award in the neuroscience of addiction. In December, the Division of Research hosted a workshop for UM faculty to further stimulate interest in the NIH T32 program.

THE FEDERAL CORNER

UPDATE FROM THE OFFICE OF FEDERAL RELATIONS

Appropriations Act Includes Increases for Research Funding

The 2010 Consolidated Appropriations Act recently signed by President Obama increases funding to federal agencies and foundations that support scientific research at America's colleges and universities.

The $447 billion legislation includes approximately $7 billion for the National Science Foundation, or NSF. This represents a $436 million increase from FY09 and is seen as a sign that the flat funding and minimal increases for scientific research the NSF has seen in recent years may be subsiding.

The National Institutes of Health, or NIH, will receive $31 billion, which is $692 million above the FY09 level and $250 million more than the president's budget request. This is particularly good news for Maryland faculty, as the university has dozens of research projects and partnerships—with others in the pipeline—involving NSF and NIH.

The appropriations act also includes $2 billion to support research on global climate change. This is also relevant to the Maryland research community, as we are recognized as a leader in research and public policy analysis as it relates to climate adaptation.

Overall, federal research programs appear to have received greater increases than educational programs in this latest appropriations bill.

Look to the Federal Corner for more information regarding higher education and the federal government. If you have a specific matter you would like to see discussed in this column, please contact Rae Grad, director of federal relations, at rgrad@umd.edu.

UM Is Designated U.S. Intelligence Center

The federal government has designated the University of Maryland a U.S. intelligence community "Center of Academic Excellence," becoming the first higher education institution in the state to be selected for the program, and one of only 14 universities nationwide.

The program provides $300,000 annually for up to five years to enhance Maryland's ability to prepare students for government service and leadership positions in the nation's intelligence community.

As a Center of Academic Excellence, the university will enhance instruction and create new educational opportunities and internships in a broad range of areas, from information and cybersecurity to foreign language acquisition, cross-cultural studies, mathematics, physical sciences and engineering.

The program will be based in the School of Public Policy, but will include participation across campus and from other parts of the University System of Maryland.

SPOTLIGHT

NEW FACULTY

We introduce you to new faculty and research scientists in the Maryland research community.

Ethan Cohen-Cole is an assistant professor of economics. His work on financial institutions has focused on the links between bank regulation and monetary policy as well as the nature and path of the financial crisis during the past two years.

Rada Dagher is an assistant professor of health services administration. Her research focuses on the risk and protective factors of postpartum depression, employee health and health-care response to domestic violence.

Paul Leisnham is an assistant professor of environmental science. His research is centered on the ecology of native and invasive mosquitoes in water-filled containers, wetlands and drainage systems.

Daniel Butts is an assistant professor of biology. His research interests include how the brain processes sensory information. He works closely with neurophysiologists to design and perform experiments to show how the brain computes data.

Minglang Zhou is a professor of Chinese language and literature. He has written extensively on Chinese multilingualism and has edited or co-edited four volumes of essays on Chinese sociolinguistics.

Designing scaffolds that help heal broken bones

Researchers in bioengineering aren't usually known for constructing bridges or designing intricate scaffolding structures. Unless, of course, the bridges are built from living human tissue and the scaffolds include chemical polymers that assist in healing and bone tissue growth.

Research by **John Fisher**, associate professor in the Fischell Department of Bioengineering, involves novel techniques that may soon help doctors treat patients with severe injuries to facial bones—especially the fragile, orbital bones under the eye sockets. Current clinical treatments for craniofacial trauma, including the implantation of plastics or metals, are often inadequate, as they may lead to a loss of function as well as poor aesthetics.

In his Tissue Engineering & Biomaterials Laboratory, Fisher is researching the use of degradable chemical polymers that can be used as small "scaffolds" to support these fragile bones as they heal. "We are trying to engineer structures that include viable, living tissue that we can implant and help the body to regenerate tissue that has been lost," he says.

John Fisher

The key, Fisher explains, is to implant healthy bone cells within a degradable hydrogel, which is then grafted onto the damaged bone area, providing both support and a suitable environment for quick regeneration of damaged cells.

"It is a two-fold process, in that the materials need to be compatible with the tissue already there, and they also need to be safely absorbed into the system after they have done their job," says Fisher, whose research in craniofacial trauma and other areas of tissue engineering is funded by the National Institutes of Health, the National Science Foundation and the state of Maryland stem cell research fund.

FACULTY AWARDS & HONORS

William Dorland, professor of physics and director of the university's Honors College, is one of six national winners of the E.O. Lawrence Award, given by the U.S. Department of Energy for "exceptional contributions to the development, use, control or production of energy in basic and applied research." Dorland is recognized for his comprehensive computer simulations of plasma turbulence, which may one day lead to nuclear fusion energy.

Frederick Khachik, senior research scientist of chemistry and biochemistry, received the Astellas Award from the American Chemical Society, which recognizes significant scientific contributions to public health through research in the chemical and related sciences. Khachik's work focuses on dietary compounds found in fruits and vegetables called carotenoids, and how these compounds can help prevent a loss of central vision due to age-related macular degeneration.

Matthew Kirschenbaum, associate professor of English and director of Digital Culture and Creativity, a new living and learning program, received the Modern Language Association's annual Prize for a First Book for his publication, *Mechanisms: New Media and the Forensic Imagination*. The MLA calls *Mechanisms* "a genuinely original, field-defining contribution to media studies, promising to have a major impact on the fields of literary studies, book history and digital culture."

UPCOMING EVENTS & CONFERENCES

CAMPUS HEALTH IT FORUM

Campus Health Information Technology Forum

Featured speakers: Ritu Agarwal, the Robert H. Smith Dean's Chair of Information Systems, and Robert S. Gold, professor and dean, School of Public Health.

Tuesday, Feb. 9, 10 a.m. to 1 p.m.
3121 Symons Hall
RSVP to vpr@umd.edu by Feb. 5

DIVISION OF RESEARCH SEMINAR SERIES

NSF CAREER Mentoring Workshop

Featured speakers: National Science Foundation program managers from engineering and math and physical sciences will join past and current university Faculty Early Career Development (CAREER) award recipients for a panel discussion.

Monday, March 1, 9 a.m. to 1:30 p.m.
Kay Boardroom
Jeong H. Kim Engineering Building
RSVP to vpr@umd.edu by Feb. 25

For more information contact geronimo@umd.edu

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The Division of Research publishes RESEARCH@MARYLAND several times per semester. Its goal is to better inform and connect the research community at the University of Maryland. Your comments and suggestions are welcome. Please e-mail them to Anne Geronimo, Division of Research, at geronimo@umd.edu.

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