RESEARCH AT MARYLAND
N E W S L E T T E R

CONNECTING *the* UNIVERSITY *of* MARYLAND RESEARCH COMMUNITY

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NEH GRANT GIVES VOICE TO BALTIMORE'S VOICELESS

ON TV NEWS, REACTION TO BALTIMORE RESIDENT FREDDIE GRAY'S DEATH IN POLICE CUSTODY looked like a straightforward riot, with buildings in flames and unchecked looting.

But students at Frederick Douglass High School, near where the April 2015 unrest began, lamented that a relatively small number of wrongdoers was the focus, instead of the many citizens who rose up in legitimate protest against systemic injustice and racism, says **SHERI PARKS**, associate dean for research, interdisciplinary scholarship and programming in the College of Arts and Humanities.

"That was not us," they said. "We have to change the narrative about us."

That urge was at the heart of a project Parks oversaw entitled "Baltimore Stories: Narratives and the Life of an American City." Funded by a $225,000 grant from the National Endowment for the Humanities (NEH), the project sponsored 19 events throughout 2016, including forum discussions, workshops bringing young people and police together, art exhibits and film screenings.

"The dominant narrative about Baltimore didn't include everyone," Parks says. "So we wanted to disrupt and supplement it with a more inclusive set of stories."

Parks and collaborators will gather and archive stories from the events to enrich an online curriculum based on Baltimore Stories. NEH has also funded a successor project, "Home Stories," overseen by **ANA PATRICIA RODRIGUEZ**, associate professor in the Department of Spanish and Portuguese and U.S. Latina/o Studies, applying the Baltimore Stories model to give recent immigrants a voice in narratives about them.

"People are hearing stories they've never heard before," Parks says.

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DIVISION OF RESEARCH
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FACULTY AWARDS & HONORS

Rita Colwell, a Distinguished University Professor Emerita in UMIACS, was named a fellow of the National Academy of Inventors, which cited her research and applied outreach in fighting cholera around the world.

Allison Druin, a professor in the College of Information Studies and UMIACS, and **Louiqa Raschid**, a professor in the Robert H. Smith School of Business and UMIACS, became fellows of the Association for Computing Machinery.

Department of Mechanical Engineering Distinguished Professor **Ashwani Gupta** and Department of Sociology Distinguished University Professor **Stanley Presser** are fellows of the American Association for the Advancement of Science.

NEW FACULTY

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

Maissam Barkeshli, an assistant professor of physics, focuses on topics in complex quantum many-body phenomena.

Damien Smith Pfister, an associate professor of communication, examines the confluence of digitally networked media, rhetorical practice, public deliberation and visual culture.

Allison Reilly, an assistant professor of civil and environmental engineering, researches hazard risk assessments, decision-making and infrastructure system performance and protection.

Neslihan Uler, an assistant professor of agricultural and resource economics, conducts research in the fields of public, environmental and experimental economics.

NEW STAFF

Erin Fitzgerald is the director of national research initiatives for the Division of Research, responsible for identifying and cultivating research opportunities and relationships between UMD researchers and external funding sources including federal agencies and labs, medical centers and universities.

Julie Lenzer is UMD associate vice president of economic development and co-director of UM Ventures for the Division of Research. She will foster development in the Discovery District and Greater College Park, facilitate collaboration to launch startup ventures based on UMD intellectual property and promote synergy with the University of Maryland, Baltimore to encourage technology commercialization.

RESEARCH AT MARYLAND
NEWSLETTER

CONNECTING *the* UNIVERSITY *of* MARYLAND RESEARCH COMMUNITY

Accessing the World: UMD Human-Computer Interaction Researchers Expand Access for Disabled

From filling out an online job application to negotiating a sidewalk for a doctor's appointment, people with disabilities or age-induced limitations face potential roadblocks everywhere. What if you can't read the type on the screen, or broken pavement proves impassible?

UMD researchers are increasingly using computing technology to remove barriers in both the digital and physical realms, opening pathways to information and the outside world.

Last fall, the groundbreaking Trace Research and Development Center moved to Maryland's College of Information Studies after 45 years at the University of Wisconsin. Trace, led by **GREGG VANDERHEIDEN**, now a professor in the iSchool, has helped tech giants like Microsoft, Apple and IBM make their products accessible and usable for people with disabilities.

From bank terminals to desktop computers to the way the internet itself operates, Trace research is baked into most corners the computing realm.

"We are less interested in seeing how many papers we can publish than we are in seeing how many things in the world we can change," Vanderheiden says. "Trace is a very mission-oriented organization."

With information increasingly available only online, one of Trace's latest pushes to open up the digital world is called "automated personalization." It allows users to take their individualized settings to any computer they interact with via a swipe card or other electronic key.

"Someday it will give you the ability to walk up to any device and have it instantly change into something you're able to use," Vanderheiden says. "For example, it could automatically make everything larger by changing the resolution or magnifying things, or change the screen contrast, or spread the words out or provide a simpler interface to improve readability for people with reading disabilities."

Trace is beginning research in libraries and schools to push the technology into the real world via a larger effort to create an accessible computing infrastructure known as the Global Public Inclusive Infrastructure (GPII).

Just down the hall from Vanderheiden in UMD's Human-Computer Interaction Lab, another UMD researcher— **JON FROEHLICH**, an assistant professor of computer science with a joint appointment in the Institute for Advanced Computer Studies (UMIACS)—is developing computerized systems to help people navigate the outside world.

One of his research efforts, Project Sidewalk, is recruiting volunteers to use Google Street View images to construct a crowdsourced map of Washington, D.C., sidewalks accessible to people who use wheelchairs or otherwise have limited mobility.

Using artificial intelligence, he hopes to one day automate the process and quickly scope out the accessibility of sidewalks worldwide, with users guided by turn-by-turn directions similar to those in apps like Google Maps or Waze.

While initially conceived to meet the needs of people with disabilities, the technology could help everyone, Froehlich says.

"Traffic data is copious, but there's not much to help you move around the city if you're not in a car," he says. "We've all pulled luggage or pushed a stroller, and if there's no sidewalk, it affects my ability to move around the world outside."

CORE FACILITY EXPOSES NEW FRONTIERS IN SCIENCE

Until recently, UMD researchers who needed to conduct a precise analysis of small molecules in environmental or biological samples had to find a lab off campus or make do with UMD's less sensitive, older equipment.

That's changed with the opening of the Exposome Small Molecule Core Facility, located in the School of Public Health (SPH). Scientists can use advanced equipment to trace subtle contamination of food, air, water, plants, soil and bio-fluids.

"Our new Core facility is equipped with a cutting-edge liquid chromatography tandem mass spectrometer that enables researchers to quantify these chemicals at part-per-trillion levels," says **AMIR SAPKOTA**, associate professor in SPH's Maryland Institute for Applied Environmental Health and director of the new facility. "It puts us at a whole different level. For instance,

researchers across the campus will be able to leverage this facility to make their grant applications more competitive."

Potential users are lining up, says **ANGUS MURPHY**, chair of the Department of Plant Science and Landscape Architecture and the facility's associate director.

"I've been keeping in contact with P.I.s who would be primary users, and they are now beginning to write new proposals with this facility in mind," Murphy says. Graduate and post-doctoral students will use the facility for mass spectrometry training, as well.

The Core facility was created with financial support from the School of Public Health, the College of Agriculture and Natural Resources, and the offices of the Vice President for Research and the Provost.

UMD WELCOMES NEW DEANS

DR. BORIS LUSHNIAK arrived at the School of Public Health from the Uniformed Services University of the Health Sciences, where he was professor and chair of preventive medicine and biostatistics. He previously served as deputy U.S. surgeon general.
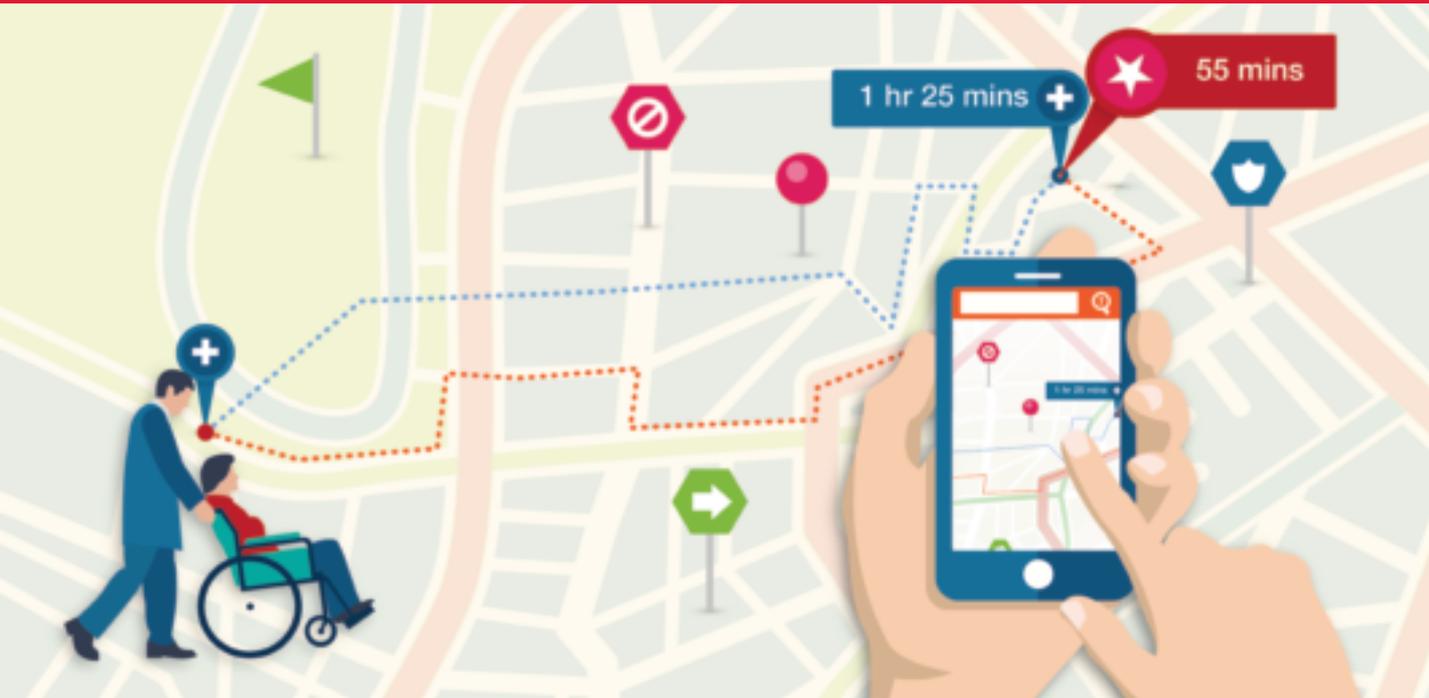
KEITH MARZULLO came to the College of Information Studies from the White House, where he directed the Networking and Information Technology Research and Development Program. He is a former professor and chair of computer science and engineering at the University of California, San Diego.

SONIA HIRT came to the School of Architecture, Planning and Preservation after serving as associate dean at the College of Architecture and Urban Studies at Virginia Tech. Her books and articles explore how social and cultural values affect the urban built environment.

UMD, VA RESEARCH NANOTECH TO CONTROL MULTIPLE SCLEROSIS

Nanotechnology could give doctors the power to control multiple sclerosis (MS) with vaccine-like specificity while keeping the rest of a patient's immune system healthy.

The four-year $1.1 million project is led by **CHRISTOPHER M. JEWELL**, assistant professor in the Fischell Department of Bioengineering, working with Veterans Affairs Maryland Health Care System researchers.

"We hope the project will shed new light on some of the mechanisms of autoimmunity, and contribute to more specific and long-lasting treatment options for veterans that also reduce the financial burden on veterans and their families," Jewell says.

MS is an autoimmune disease in which the coverings of nerve cells in the brain and spinal cord are mistakenly attacked by the immune system, resulting in a wide range of potentially disabling symptoms. Current treatments suppress the immune system to limit damage, but leave patients with less protection from infection. The Jewell-VA approach would use nanomaterials to allow the immune system to fight disease more specifically while sparing patients' neurological function.

"[Jewell's] study merges immunology, bioengineering, and chemistry, and presents an exciting new direction for biomedical research at our facility," says Dr. Thomas Hornyak, associate chief of staff for research and development at VA Maryland.