



August 2019

## ENTREPRENEURIAL DEEP SCIENCE POST DOCS WANTED

Turning patented intellectual property into successful companies. Apply today.

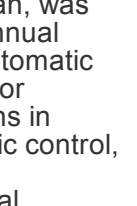


### Patents2Products Program

Post docs to further research and commercialization

Science-based patents often require more research for commercialization. The University of Memphis is shifting the innovation paradigm with a new program that enables post doc fellows to start their own companies using patented intellectual property. Learn [more](#) or [apply](#) today.

## RESEARCH

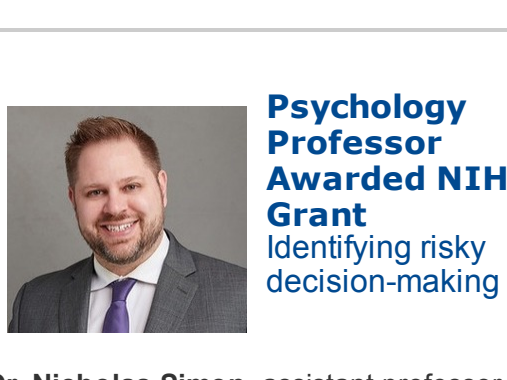


### University of Memphis Math Professor Makes History

Lasiecka first female honored with award

**Dr. Irena Lasiecka**, professor and department chair of Mathematical Sciences, made history recently when she was awarded the 2019 Richard E. Bellman Control Heritage Award. Lasiecka is the first woman to be honored with the award in its 40-year existence.

The award, named after the now-deceased mathematician Richard E. Bellman, was established in 1979 and is an annual honor given by the American Automatic Control Council (AACC). Given for distinguished career contributions in theory or application of automatic control, it is considered the highest acknowledgment of professional achievement for U.S. control systems engineers and scientists. Lasiecka was recognized for her contributions to boundary control theory of distributed parameter systems. The AACC is a U.S. national member organization of the International Federation of Automatic Control. Read full press release [here](#).



### UofM Additive Manufacturing Lab Researchers Publish First Paper

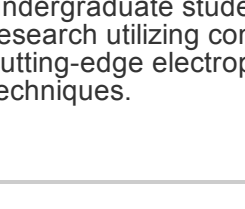
Tests the limits of the Ti-6Al-4V sheet

Mechanical Engineering researchers, **Dr. Behzad Fotovvati**, **Dr. S. Alireza Etesami**, and **Dr. Ebrahim Asadi**, were recently published in the July 2019 issue of the Elsevier's *Materials Science and Engineering Journal*, Volume 760. Their article, "Process-property-geometry correlations for additively-manufactured Ti-6Al-4V sheet," focused on testing the sheet's tensile strength by varying parameters such as microhardness, porosity and microstructure. Their research is also the first paper to be published from the new metal additive manufacturing laboratory. To read the full article, access via the journal website [here](#).

For more information about the UofM Metal Additive Manufacturing Lab, visit the [website](#), or read full press release [here](#).

### Psychology Professor Awarded NIH Grant

Identifying risky decision-making

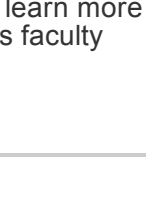


**Dr. Nicholas Simon**, assistant professor in the Department of Psychology, was awarded \$395,791 from the National Institutes of Health (NIH). Co-Investigator, **Dr. Helen Sable**, and Simon's project "Identifying the Neurophysiological Basis of Risky Decision-Making" will help identify the biological mechanisms that promote compulsive reward seeking in the face of punishment. This project will utilize single unit electrophysiology to clarify the neuronal circuitry underlying risky decision making. The SE Asia route led to understanding how aberrant activity in the brain contributes to suboptimal choice in addition. Risk-taking will be measured in rats using the Risky Decision-Making Task (RDT), which assesses preference between small, safe rewards and larger rewards accompanied by an escalating probability of an aversive event.

In addition to elucidating the functional neural activity that encodes addition-relevant risk-taking, this project will expose undergraduate students to meritorious research utilizing complex behavior and cutting-edge electrophysiological techniques.

### UofM's Puckett Published in High Impact Journal

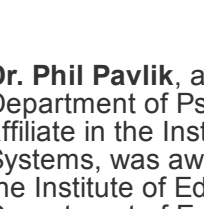
Tracing brown rat descent into Asia and Europe



**Dr. Emily Puckett**, assistant professor in Biological Sciences, was recently published in the *Genome Research*, May 2019 issue. Puckett's study, "Brown rat demography reveals pre-commensal structure in eastern Asia before expansion into Southeast Asia," focused on the two primary routes that rats used during expansion into modern-day Russia and Southeast Asia. The SE Asian route led to human exposure and allowed rats to migrate into Europe. By analyzing 14 genome sequences that represent the major axes of genetic diversity in the species, the study was able to approximate zoo archeologists' findings of brown rats replacing black rats in Europe.

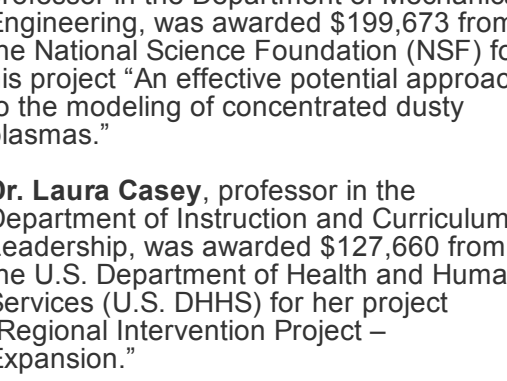
*Genome Research* is a high-impact, peer-reviewed scientific journal focusing on research that provides insight into the genome bioscience, including advances in genomic medicine. To read the full article, visit the journal's website [here](#).

### UofM Professor Receives Invitation to Join Editorial Board



Assistant professor of Mechanical

Engineering, **Dr. Ranga Gopalakrishnan**, has been invited to join the Editorial Board of *Scientific Reports*. *Scientific Reports* is an online, open access journal from the publishers of *Nature*. The *Nature International Journal of Science* is a weekly international publication for the finest peer-reviewed research in all fields of science and technology. To learn more about Gopalakrishnan, visit his faculty [webpage](#).



### UMRF Research Park Joins Blockchain Consortium

Reclaims meds and tracks waste

The University of Memphis UMRF Research Park today became the second node in a nationwide consortium of prescription repositories, health care organizations and higher education institutions to reclaim medications and track prescription waste. The network, established by Good Shepherd Pharmacy, utilizes RemediChain's blockchain technology to track medications across the country.

The network is developing the same way the Internet and Facebook did – one university "node" at a time. Consortium members build and maintain servers to collect and track data on donated medications in their local areas. Each member organization pays an annual fee to support the consortium's network and to access the data for research and other educational pursuits, which will allow them to generate further insights on how this work can benefit patients in the long run. To learn more on this initiative, read the full press release [here](#).

For more information on the [Research park](#), contact Troy Parkes [tparkes2@memphis.edu](mailto:tparkes2@memphis.edu).

### New Research Awards

July 2019

**Dr. Phil Pavlik**, associate professor in the Department of Psychology and faculty affiliate in the Institute for Intelligent Systems, was awarded \$1,240,151 from the Institute of Education Sciences, U.S. Department of Education for his project "Using Adaptive Practice to Improve Recall and Understanding in Postsecondary Anatomy and Physiology."

**Dr. Nicholas Simon**, assistant professor in the Department of Psychology, was awarded \$395,791 from the National Institutes of Health (NIH), for his project "Identifying the neurophysiological basis of risky decision-making."

**Dr. Abby Parrill-Baker**, dean of the College of Arts and Sciences and professor of Chemistry, was awarded \$336,677 from the National Institutes of Health (NIH) in collaboration with the University of Tennessee Health Science Center (UTHSC) for the project "BK Channel Steroid Interactions."

**Dr. Ranga Gopalakrishnan**, assistant professor in the Department of Mechanical Engineering, was awarded \$199,673 from the National Science Foundation (NSF) for his project "An effective potential approach to the modeling of concentrated dusty plasmas."

**Dr. Laura Casey**, professor in the Curriculum and Instruction and Curriculum Leadership, was awarded \$127,660 from the U.S. Department of Health and Human Services (U.S. DHHS) for her project "Regional Intervention Project – Expansion."

**Dr. Kris Berlin**, associate professor in the Department of Psychology, was awarded \$115,066 from the National Institutes of Health (NIH) in collaboration with the University of Tennessee Health Science Center (UTHSC) for the project "Translating basic habituation research to childhood obesity treatment."

**Dr. Kensha Clark**, assistant professor in the Department of Chemistry, was awarded \$110,000 from the American Chemical Society Petroleum Research Fund (ACS-PRF), for her project "Design and Reactivity of Transition Metal-Based Sterically Frustrated Lewis Pairs."

**Dr. James McCutcheon**, assistant professor in the Department of Criminology and Criminal Justice, was awarded \$107,304 from the U.S. Department of Justice (U.S. DoJ) in collaboration with the Memphis Police Department (MPD) for this project "Evaluation of Sexual Assault Kit Testing."

**Dr. John Gnuschke**, professor and director of the Sparks Bureau of Business and Economic Research, was awarded \$95,586 from the City of Memphis for his project "City of Memphis Revenue Forecasting."

**Dr. Todd Zoblotzky**, research assistant professor in the Center for Research in Educational Policy (CREP), was awarded \$85,915 from Shelby County Schools (SCS) for his project "Shelby County Schools Economic Impact Study."

**Dr. Debra Bartelli**, research assistant professor in the Division of Epidemiology, Biostatistics, and Environmental Health, was awarded \$69,000 from United Way of Greater Memphis for her project "Evaluation of United Way of Greater Memphis's Driving the Dream Initiative."

**Dr. Aram Dobalian**, professor and director in the Division of Health Systems Management and Policy, was awarded \$49,224 from the Shelby County Health Department for his project "Public Health Leadership Institute."

**Dr. Nikki Bray**, clinical assistant professor and director of Academic Innovation & Student Success, was awarded \$31,800 from the Association of Public and Land Grant Universities (APLU) for her project "APLU Adaptive Learning Mentorship."

**Dr. John Gnuschke**, professor and director of the Sparks Bureau of Business and Economic Research, was awarded \$23,000 from Inferno LLC for his project "Consumer Sentiment Survey."

**Dr. Vasile Rus**, William Dunavant Professor in the Department of Computer Science, was awarded \$22,993 from the Office of Naval Research (ONR) in collaboration with Aptima, Inc., for his project "Support for Persistent Ubiquitous Performance Information and Adaptive Learning: Learner Performance Measurements from Tutorial Dialogues."

**Dr. Thomas Sutter**, professor and Feinstein Chairman of Molecular Biology, was awarded \$14,724 from the National Institutes of Health (NIH) in collaboration with the University of Pennsylvania, for his project "Skin microbiome interactions with neonatal aryl hydrocarbon signaling: roles in cutaneous barrier function, inflammation, and tolerance."

**Dr. Stephanie Ivey**, associate dean for Research in the Herff College of Engineering and professor of Civil Engineering, was awarded \$19,835 from the Tennessee Department of Transportation (TDOT), in collaboration with Vanderbilt University, for her project "2018 TDOT Research Collaborative Forums to Boost Research-Based Solutions to Transportation Technology and Innovation."

**Dr. Jennifer Mandel**, assistant professor in the Department of Biological Sciences, was awarded \$14,724 from the Smithsonian Institution for her project "Morphological datasets for the Compositae."

**Dr. Matt Smeltzer**, assistant professor in the Division of Epidemiology, Biostatistics, and Environmental Health, was awarded \$14,000 from the International Association for the Study of Lung Cancer (IASLC) for this project "Global Survey on Molecular Testing in Lung Cancer."

**Dr. Seok Won Jin**, assistant professor in the School of Social Work, was awarded \$7,500 from the National Institutes of Health (NIH) in collaboration with Morehouse School of Medicine, for his project "Dissemination of Health Information for Promoting Breast Cancer Screening among Underserved Korean American Women."

**Dr. Steven Rizzo**, professor in the Department of Communication and Film, was awarded \$4,430 from the National Endowment of the Arts (NEA) in collaboration with the Tennessee Arts Commission, for his project "Ballet Memphis Documentary."

**Dr. Hironori Nishi**, assistant professor in the Department of World Languages and Literatures, was awarded \$3,500 from The Japan Foundation for his project "The 35th Annual Conference of the Southwestern Association of Teachers of Japanese (SEATJ)."

\* Data is reported on the 18th of each month. Any awards finalized after the 18th of each month will be reported in the following month's report.

## RESEARCH CLUSTERS



ADDITIVE MANUFACTURING

AGRICULTURE & FOOD TECHNOLOGIES

BIOLOGISTICS

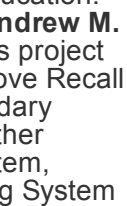
CAST

DATA SCIENCE

DRONES

SMART CITIES

## INNOVATION



### UofM's Institute for Intelligent Systems (IIS) Faculty Receives \$1.2 Million Grant

Pavlik Lead PI for Project

**Dr. Philip Pavlik**, associate professor in the Department of Psychology and faculty affiliate in the Institute for Intelligent Systems (IIS), has been awarded a three-year \$1,240,151 grant (in collaboration with Southwest Tennessee Community College), from the Institute of Education Sciences, U.S. Department of Education. Pavlik and co-investigators **Dr. Andrew M. Olney** and **Dr. Amanda Banker**'s project "Using Adaptive Practice to Improve Recall and Understanding in Postsecondary Anatomy and Physiology" will further develop and refine an online system, Mobile Fact and Concept Training System (MoFACTS), to help students in community college introductory anatomy and physiology courses better understand and remember course content. Introductory anatomy and physiology courses prevent many students from advancing in certificate or degree programs because they struggle to comprehend course texts or connect concepts to a broader understanding of course content. MoFACTS will help increase students' comprehension and retention of material through sequenced formative practice exercises. These exercises help students learn vocabulary and form mental representations of text content through testing-based practice with supported learning. Other project team members include Andrew Tackett and J. Grayson Cupit in IIS.

## PATENTS&PRODUCTS

DEEP SCIENCE ENTREPRENEUR POST-DOC FELLOWSHIPS

## CAESER

CENTER FOR APPLIED EARTH SCIENCE AND ENGINEERING RESEARCH

### UofM Researchers Use Science to Help Residents and Also Holds Wolf River-Memphis Aquifer Research Day

Educates and enlists the community to better understand and prepare for future events

**Dr. Claudio Meier**, associate professor of Civil Engineering, and **Dr. Brian Waldron**, associate professor in Civil Engineering and director for the Center for Applied Earth Science and Engineering Research (CAESER), recently made the news for helping assess the cause of excessive flooding that occurred on June 7 in Germantown. Meier assisted by gathering data from local weather stations and analyzing the amount of rainfall versus the time it rained. He was able to determine that a flood of this magnitude statistically has a one in a 1000 chance of occurring each year. Waldron was able to illustrate the heavily affected areas on a heat map and identify elevation as a key factor in the flooding. Both researchers suggested residents take future precautions following these unprecedented weather conditions. To read more about their findings, access the [article](#) in the Daily Memphian. To learn more about the research center, visit the [CAESER website](#).

In other efforts to address water issues in Memphis, CAESER has enlisted the help of the general public and Wolf River Conservancy (WRC) to assist with finding threats to the drinking water supply. As part of the \$1 million a year study from Memphis Light, Gas and Water (MLGW), the study addresses water quality and the impact on drinking water due to natural breaches in the protective clay above the Memphis aquifer. All media were invited to the shore of the Wolf River at Germantown Parkway on Friday, July 26, to learn more about the project and see *Your Water, Your Research* in action. Read full press release [here](#).

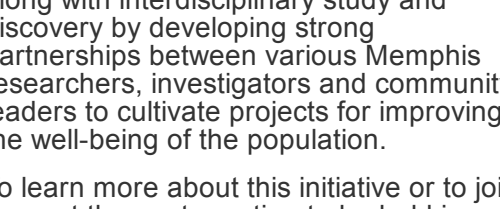
### UofM Drone Research Shines Light on Mississippi River

Using 3-D models to show pit progression

**Dr. Ron Van Arsdale**, Department of Earth Sciences, and his research team were recently featured in *Drone* for his aerial drone photography and survey work as part of the FedEx Institute of Technology Drones Research Cluster. Their work, "Drone Geologic Mapping of an Active Sand and Gravel Quarry, Desoto County, Mississippi," used an active pit within a sand and gravel quarry in Desoto County to better understand the Upsand Complex – the primary source for gravel and sand in Memphis and surrounding areas. The study also demonstrated a cost-effective way of surveying a poorly accessible open pit and it assisted in understanding the geology of the Mississippi River valley. Read the full [article here](#).

### Healthy Memphis Initiative

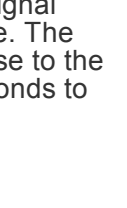
Serving the community



The Healthy Memphis Initiative (HMI) was developed as a result of an initial affiliation between the University of Memphis and Church Health, to keep with the shared mission of both organizations to improve the quality of life within the community and benefit underserved populations. The areas of focus of the HMI include collaborative research, programming and educational ventures. This provides a platform to develop opportunities for research in health and wellness, offer programming to provide a deeper educational experience and provide access and expansion to include various University departments, schools and community partners in innovative ways. The goal is to pursue new knowledge through integrated collaborative research along with interdisciplinary study and discovery by developing strong partnerships between various Memphis researchers, investigators and community leaders to cultivate projects for improving the well-being of the population.

To learn more about this initiative or to join them at the next meeting to be held in September, contact Dr. Fedoria Rugless [frugless@memphis.edu](mailto:frugless@memphis.edu). For more information on the HMI, visit their [website](#).

## PATENT SPOTLIGHT



### Tech Transfer:

**U.S. Patent No.** 20150289763

**Issued:** 2019

**Title:** Wireless Analog Passive Sensors

**Inventors:** Dr. Bashir Morshed, Dr. Sergi Consul Pacareu

**Abstract:** In one embodiment, a method is disclosed in which an analog sensor receives an electromagnetic (EM) wave (e.g., a radio frequency signal) from an interrogation device. The sensor converts a biological measurement of a subject into an electrical resistance and modulates a response to reflect the incident signal based on the electrical resistance. The sensor then provides the response to the interrogation device that corresponds to the biological measurement.

For more information on UofM technologies available for commercialization, visit the tech transfer website or contact Dr. Hai Trieu [hhtrieu@memphis.edu](mailto:hhtrieu@memphis.edu).

## CALENDAR



[WordPress Meetup](#)

Aug 1 | 6-9 PM | FIT 225

[T-STEM Teaching Training](#)

Aug 5 | 7:30 AM-NOON | FIT 103 (MPT)

[DevMemphis Meetup](#)

Aug 6 | 6-7:30 PM | FIT 225

[Machine Learning / Data Sciences / R Meetup](#)

Aug 6 | 7-8 PM | FIT 226

[MemPASS / Power BI Meetup](#)

Aug 8 | 5:30-8:30 PM | FIT 226

[Memphis Tableau User Group Meetup](#)

Aug 8 | 3-5 PM | FIT 203/205 (Fishbowl)

[Memphis Web Workers User Group Meetup](#)

Aug 13 | 6-8 PM | FIT 226

[Memphis Game Developers Meetup](#)

Aug 14 | 6-8 PM | FIT 225

[Memphis Python User Group Meetup](#)

Aug 19 | 6:30-8:30 PM | FIT 226

[MGD GAME JAM](#)

Aug 23-25 | 7 AM-11 PM | FIT 225

[Memphis PHP User Group Meetup](#)

Aug 27 | 6:30-8 PM | FIT 225

## TRAINING



### Public Health Summer Institute 2019

Focus on Data Analytics

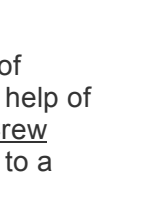
The School of Public Health, in partnership with the FedEx Institute of Technology, is conducting a Public Health Summer Institute from August 6-16th.

Workshops, taught by faculty in the School of Public Health, pertain to Data Analytics and Population Health. Limited space remains - see below for details:

- Aug. 8-9: R for Beginner
- Aug. 12-13: SAS for Beginners
- Aug. 14: Advanced SAS
- Aug. 15: Data Mining
- Aug. 16: GIS for Population Health

CPH Continuing Education credits are provided. Register here. For more information on the training, contact Dr. Marian Levy [mlevy@memphis.edu](mailto:mlevy@memphis.edu).

### INTRODUCTION TO INTERMODAL FREIGHT



The FedEx Institute of Technology is excited to announce a 3-day workshop on August 22-24 where students and faculty will be studying the latest in intermodal freight logistics hubs for freight, railroad, etc. will provide the hands-on experience many need to develop their skill set.

To inquire further about this workshop, please visit [bit.ly/intermodal-freight](http://bit.ly/intermodal-freight)

Aug 22-24 | 9 AM - 5 PM  
Free workshop • No experience needed

### ICEM 2019 Conference

The ICEM 2019 Conference is the premier event for the intermodal freight industry. The event will be held at the University of Memphis on September 18-20, 2019. The conference will feature a variety of sessions, including keynote addresses, panel discussions, and networking opportunities. The event is free of charge for all attendees.

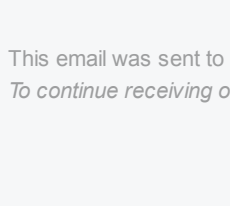
September 18-20, 2019

### NEWS TO FEATURE IN THE RESEARCH + INNOVATION NEWSLETTER?

We welcome the opportunity to highlight the research infrastructure and innovation capabilities at the University of Memphis. Email major award notifications, conferences to be held at the UofM, honors, publications, research impact stories, initiatives, etc., for inclusion in an upcoming issue of the newsletter. We look forward to sharing the world-class accomplishments taking place at the University of Memphis.

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