

# UNIVERSITY OF MEMPHIS RESEARCH & INNOVATION

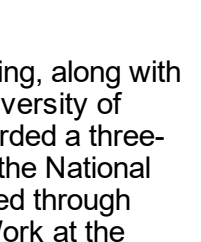


September 2018

## Greatness Through the Sum of Our Parts

Welcome back to campus! In case you missed the big announcement, the Office of the VP of Research and the FedEx Institute of Technology have combined into the **Division of Research and Innovation**. This is an exciting opportunity to amplify the research capabilities of the University, accelerate emerging innovations and build our reputation as a world-class research institution. We know it takes every part of the campus community to build a top ranked university, and it will take all of us working together to elevate Memphis as global leader in innovation. Here's to achieving our goals and to the start of a great academic year!

### RESEARCH



#### Rus and Fleming score \$759k grant to enhance skills and retention in Computer Science

Vasile Rus and Scott Fleming, along with their collaborator at the University of Pittsburgh, have been awarded a three-year, \$759,136 grant from the National NSF's Cyberlearning for Work at the Human-Technology Frontier Program, the project will infuse educational technology in early computer science courses to increase students' programming skills, self-efficacy and retention rates. This work is expected to have significant impact on recruitment, retention and graduation rates in computer science.

#### Psychology Faculty Designs An Intervention for Pregnant Women Experiencing Violence

Dr. Kathryn Howell, Associate Professor of Psychology, has created an intervention for pregnant women experiencing violence with their partner. The Pregnant Moms' Empowerment Program aims to reduce violence exposure, improve mental health, and enhance resilience. With support from the Urban Child Institute and the Help for Children Global Foundation, Dr. Howell and Dr. Laura Miller-Graff from the University of Notre Dame are conducting a study to evaluate the efficacy of the program in Memphis and South Bend, Indiana. In addition to examining the effects of the intervention on pregnant women, the research team is also assessing the women's children when they are 3 months and 1 year old to identify benefits across the family system. You can learn more about Dr. Howell's research by visiting her webpage at [sites.google.com/site/reachlabmemphis/](https://sites.google.com/site/reachlabmemphis/).

#### Communities of Research Scholars (CoRS) Program: Cultivating Interdisciplinary Collaborations and Funding Opportunities

The UofM Division of Research & Innovation is pleased to launch a new **Communities of Research Scholars (CoRS) Program** designed to cultivate interdisciplinary discourse and nurture the growth of research affinity groups across campus. By design, each "community" will include faculty representing multiple disciplinary perspectives and research approaches with shared interests in exploring a common research theme. In addition, each community is encouraged to involve research partners from area community organizations and other regional academic institutions, as appropriate.

To support development of new communities, we will be awarding up to ten (10) CoRS seed grants of \$2,500 each to support roundtable discussions and other activities leading to a focused plan to pursue and secure support for ongoing research, scholarship, and/or creative activity. Results will be evaluated, and selected Communities identified for further development support to become interdisciplinary research clusters or centers.

We will issue a formal call for proposals in the next few weeks with an October deadline.

For further information, please contact Mary Earheart-Brown, Sr. Associate Director for Research Development, at [mary.earheart.brown@memphis.edu](mailto:mary.earheart.brown@memphis.edu).

#### Engineering's Morshed participates in prestigious NIH mHealth Training Institute

Electrical & Computer Engineering faculty Dr. Bashir Morshed is one of 30 scholars selected from across the nation to participate in the 2018 mHealth Training Institute. Held at UCLA, this week-long immersion program connects scientists from differing technology, clinical, and industry research backgrounds to explore and apply collaborative solutions to major health problems. The ultimate goal is to forge new research collaborations that will ensure adoption of cutting edge mHealth technologies in clinical settings.

Morshed works to develop ultra low-power wearable sensor technologies for health monitoring. His group has developed patent-pending battery-less wireless sensors that can sense bioelectric and physiological signals. They are low cost, capable of high sampling rate, and do not require a battery. The sensors are produced using an inkjet printed technique to produce Band-Aid-like disposable sensors on paper. For more information on Dr. Morshed's research, visit [here](#).

#### ISSRE 2018

INTERNATIONAL SYMPOSIUM ON SOFTWARE RELIABILITY ENGINEERING  
MEMPHIS, TENNESSEE OCTOBER 15-18

#### IIS Welcomes Leader in AI Education Applications

Dr. Xiangen Hu and the Institute for Intelligent Systems (IIS) welcomed Will Ma, Chief Data Scientist and Co-Founder of Learnta, a leading Chinese education artificial intelligence company, to the Institute last month.

Founded in Shanghai and New York City in 2016, Learnta has developed China's first adaptive learning system with advanced algorithms. Dr. Hu and the IIS team invited Ma to Memphis to speak on the company's research driven applications of AI in K-12 classrooms.

See the list of upcoming talks scheduled at the IIS [here](#).

#### FY18 Award Amounts

##### Top Five Sponsors



■	National Institutes of Health (NIH)
■	US Department of Education (US DoEd)
■	Intelligence Advanced Research Projects Agency (IARPA)
■	National Science Foundation (NSF)
■	Tennessee Department of Education (TDoEd)
■	Others

### RESEARCH CLUSTERS



BIOLOGISTICS

CAST

DRONES

SMART Cities

#### Meet the 2018-2019 CAST Research Cluster

##### CAST 2018-2019 Fellows:

**Dr. Nirmalee Raddatz, School of Accounting.** "Exploration of the Impact of Malware Warning Messages"

**Drs. Mohd Hasan Ali & Dipankar Dasgupta, Department of Electrical and Computer Engineering & Department of Computer Science.** "Exploring Cyber Security Issues and Solutions for Photovoltaic (PV) System Connected to DC Microgrid"

**Drs. Mohd Hasan Ali & Dipankar Dasgupta, Department of Electrical and Computer Engineering & Department of Computer Science.** "Exploring Cyber Security Issue and Solution for Energy Storage at Smart Microgrid System"

**Drs. Kan Yang & Lan Wang, Department of Computer Science.** "Decentralized Public-Key Management System based on Blockchain Technology"

**Dr. Lih-Yuan Deng & Dale Bowman, Department of Mathematical Sciences .** "Design of Secure Random Number Generators for Cyber Security Applications"

**Dr. George Deitz, Department of Marketing and Supply Chain Management.** "Moral Intuition and Consumer Response to Privacy Norm Violations: An N400 ERP Study"

**Drs. Sajjan Shiva, Deepak Venugopal & Naveen Kumar, Department of Computer Science & Business Information Technology.** "Machine Learning Approaches to Secure Virtual Machine Migration in the Cloud"

**Dr. Soumitra Bhuyan, School of Public Health.** "Case Studies on Health Information Security and Privacy Breach in the United States"

**Drs. Deepak Venugopal & Naveen Kumar, Department of Computer Science & Business Information Technology.** "Content-based detection of Fake Reviews using Deep Learning"

#### THEC Task Force On UofM Campus

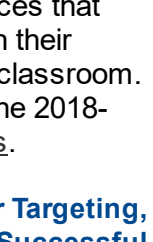
The Tennessee Higher Education Commission (THEC) Research, Service, and Sponsored Programs (RSSP) Task Force visited the University of Memphis in August for their quarterly meeting. During the visit, the task force heard presentations from researchers including Dr. Art Graesser, pictured above.

#### UMRF Ventures Provides Free Development to Students

The R Immersion Program at the FedEx Institute of Technology is a three-day intensive training in R programming, taught by faculty from the University of Memphis. For the August offering of the class, student employees of UMRF Ventures were provided seats at no cost as part of the company's commitment to grow professional development opportunities for their staff.

Student participants engaged in the course alongside professionals from corporations across the MidSouth, growing the technology workforce pipeline opportunities at the University of Memphis. Register for the R Immersion and other training opportunities at [fedex.memphis.edu/training/](https://fedex.memphis.edu/training/).

### INNOVATION



#### Faculty Workshop Series

The Division of Research and Innovation is working hard to build resources that help our faculty find success in their research, in the lab and in the classroom. We are pleased to announce the 2018-2019 *Faculty Workshop Series*.

**NSF Funding: Tips for Targeting, Writing and Packaging a Successful Proposal**  
Sept 14 | FIT 227

**NIH Funding: Tips for Targeting, Writing and Packaging a Successful Proposal**  
Sept 28 | FIT 227

**Introduction to the Division of Research & Innovation**  
Oct 19 | FIT 227

**Innovation and Communication: Agile Methodology for Teams**  
Nov 9 | Fishbowl 203/205

**Finding Funding in Arts, Humanities & Social Sciences**  
Nov 16 | Fishbowl 203/205

**Research Resources Lightning Talks**  
Dec 6 | FIT 225, 226 & 227

**Finding Funding for STEM**  
Mar 15 | Fishbowl 203/205

**Introduction to Commercialization and Tech Transfer Information Session**  
Apr 12 | Fishbowl 203/205

All workshops will be 12:45-1:45 PM, will be provided in person and recorded. RSVP [here](#).

#### UofM Faculty Receives U.S. Issued Patent

Drs. Warren Haggard, Scott Noel and Joel Bumgardner received U.S. Issued Patent # 10,052,388 titled, "Compositions and methods for delivering an agent to a wound." The patent was issued August 27, 2018.

The invention provides compositions featuring chitosan and methods for using such compositions for the local delivery of biologically active agents to an open fracture, complex wound or other site of infection. Advantageously, the degradation and drug elution profiles of the chitosan compositions can be tailored to the needs of particular patients at the point of care (e.g., in a surgical suite, clinic, physician's office or other clinical setting).

#### 2018 Tech Week at the Institute

Sept 4-6

Welcome back to campus! As you gear up for a new semester, the FedEx Institute of Technology is gearing up to bring you all the latest research and opportunities in the world of cutting-edge technology. Join us as we celebrate the return of the academic year with free events highlighting the technology resources on campus and in the community. Check out the calendar of events below—we look forward to seeing you there!

##### Tuesday, Sept 4

- Welcome to the FedEx Institute | Meet our researchers, centers of excellence and experiment with an interactive virtual reality booth

##### Wednesday, Sept 5

- DRONES Race: Experience Memphis' best drone pilots race around the Innovation Parking Garage

##### Thursday, Sept 6

- Tech RSO Meet & Greet: Get involved with tech-focused student organizations, meet fellow students and learn how to become involved in similar projects

#### What's Next: Turning Citizens into Mobile Sensor Big Data Scientists

Sept 19 | 5:30 PM

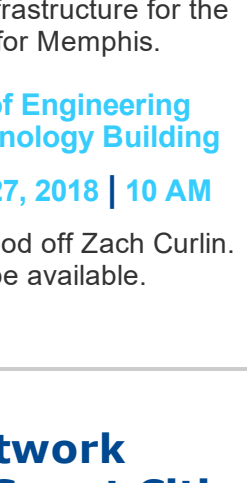


Mobile sensor big data has been used by hundreds of scientists across the country to discover new biomarkers and to get new insights into daily behaviors. Now, individuals — citizen scientists — will be able to engage in the same kind of discovery using their own data. The software platforms, developed by the Center of Excellence for Mobile Sensor Data-to-Knowledge (MD2K), will allow anyone with an Android smartphone to collect, analyze and visualize their own mobile sensor big data while retaining their privacy since the data never leaves their own devices. Using the personal edition of mCerebrum (for Android smartphones) and Cerebral Cortex (for personal computers) gives them access to a wide variety of novel biomarkers (such as stress, mobility and workplace behaviors).

Dr. Timothy Hnat, Chief Software Architect for MD2K, will speak about the MD2K software platforms and the potential impacts of this technology on our daily lives. RSVP [here](#).

#### SPRAY-ON FUTURE:

Innovations in aerosol manufacturing and coating technology



#### Spray-On Future

Sept 20 | 8 AM-4 PM

In the future, spray-on materials will reshape the way we think about how we engage with the materials that constitute our world. We are pleased to offer a one day workshop with Dr. Ranga Gopalakrishnan on the process of aerosol manufacturing and what this technology means for the future of industry. \$50.00 registration includes lunch, lab tour and parking. [Sign up now.](#)

#### GRAND OPENING

Metal Additive Manufacturing Lab

The University of Memphis invites you to join us to celebrate the opening of the Metal Additive Manufacturing Lab. This cutting-edge lab represents a new chapter in the innovation infrastructure for the University and for Memphis.

**Herff College of Engineering Engineering Technology Building**  
**Thursday, Sept 27, 2018 | 10 AM**

Enter at Norriswood off Zach Curlin. Parking will be available.

#### Metrolab Network Recognizes Smart Cities Cluster

Metrolab Network is a national organization that fosters innovation in smart cities technologies through collaborations between city governments and universities. In August, the organization recognized the work of the UofM and the Memphis CIO's office in facilitating autonomous vehicle integration in the city. Read the interview with the CIO and Dr. Mishra and to learn about Metrolab Network [here](#).

#### UNIVERSITY OF MEMPHIS LAB TOURS

Dr. Sanjay Mishra has all the power. Join us in Manning Hall, Room 116, 117A and 228, where his research has been focused on exploring the next chapter in energy storage. Supercapacitor electrode batteries, high performance oxides and high temperature magnets are just a few of the areas defining a research portfolio that is changing the way we think of batteries.

Emerging technologies are defined by their use of clean and renewable power sources. Dr. Mishra's lab is home to cutting edge tools and techniques that will power the future.

**JOIN US SEPT. 28 | 12-2 PM**  
**MANNING HALL, ROOM 117A 116 AND 228**

RSVP now as space is limited. Lab tour is free and snacks are provided.

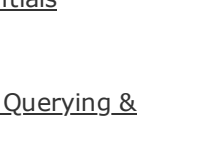
**CLICK TO RSVP NOW »**

#### HackMemphis

Sept 28-30

For the third year in a row, the FedEx Institute of Technology is pleased to welcome HackMemphis to campus. If you have never been to a hackathon, this is the one to attend. Regardless of skill level, background, or interest, this three-day event will get you hooked on the hackathon idea. [Register soon](#), as spots are limited.

#### CALENDAR



**TechWeek: Welcome to the Institute**  
Sept 4 | 4-6 PM | Fishbowl 203/205

**MemTech Meetup: DevMemphis**  
Sept 4 | 6-9 PM | FIT 225

**Machine Learning/Data Science/R Meetup**  
Sept 4 | 7-9 PM | FIT 226

**TechWeek: Tech RSO Meet & Greet**  
Sept 6 | 4-6 PM | Fishbowl 203/205

**MemTech Meetup: Memphis WebWorkers**  
Sept 11 | 6-8 PM | VCC (313)

**Memphis Game Developers Meetup**  
Sept 12 | 6-8 PM | Fishbowl 203/205

**MemDevOps**  
Sept 12 | 2-4 PM | Fishbowl 203/205

**Faculty Workshop Series: NSF Funding**  
Sept 14 | 12-2 PM | FIT 227

**MemTech Meetup: Python**  
Sept 17 | 6:30-8:30 PM | FIT 225

**What's Next Series: Featuring Timoth Hnat**  
Sept 19 | 5:30-7:30 PM | MPT 103

**DAMA Meetup**  
Sept 20 | 3:45-6 PM | MPT 103

**MemTech Meetup: PHP**  
Sept 25 | 6-8 PM | FIT 225

**SQUGS Meetup**  
Sept 27 | 4:30-6:30 PM | Expedient Data Ctr 3180 Players Club Pwky

**Faculty Workshop Series: NIH Funding**  
Sept 28 | 12-2 PM | FIT 227

**Lab Tour: Sanjay Mishra**  
Sept 28 | 12-2 PM | Manning Hall 116, 117A & 228

**HackMemphis Hackathon**  
Sept 28-30 | All Day | FIT

### TRAINING



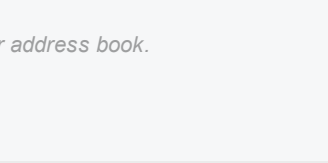
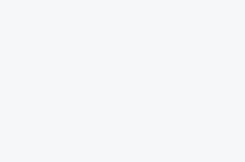
**DevSecOps**  
Sept 10-11

**SAS Macro Language I: Essentials**  
Sept 11-12

**SAS SQL 1: Essentials**  
Sept 13-14

**SAS Enterprise Guide 1: Querying & Reporting**  
Sept 18-19

**Emerging Innovation: Aerosol Disbursement Workshop**  
Sept 20



**Division of Research and Innovation**  
Reimagining What's Next

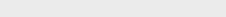
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