



October | 2019

RESEARCH + INNOVATION

Computer Science Professor Receives \$2.58 Million
To begin Learner Data Institute

Led by **Dr. Vasile Rus**, William Dunavant Professor in Computer Science, this NSF-funded project will focus on the development of a future Learner Data Institute (LDI). Its mission will be to harness the data revolution to further our understanding of how people learn, how to improve adaptive instructional systems (AISs) and how to improve the learning ecosystem's effectiveness and cost-efficiency as well as the learners' and instructors' engagement and satisfaction while learning with technology. LDI will accomplish its mission to transform the education ecosystem by focusing on both on-campus and off-campus AISs and classroom environments in which AISs are blended in traditional classroom teaching and learning (blended learning). LDI will build on previous efforts and cyber-learning infrastructure such as the LearnSphere/DataShop project, Carnegie Learning's platforms and school workstation, and the Learning Infrastructure for Computing Education and a GIFT (Generalized Intelligent Framework for Tutoring).

The two-year conceptualization phase will focus on building a strong community of researchers, define research priorities and develop interdisciplinary prototype solutions that address critical student learning, cyber-learning and learning engineering challenges. The proposed data science methods and models are generally applicable to other instructional contexts as well as other science and engineering areas.

Carnegie Learning is a developer of commercial-grade adaptive systems and related curriculum products, currently serving over 400,000 students (primarily in Grades 6-12) in more than 2,000 school districts across the United States every year.

This project will involve 40 individuals, including six PhD students, and is set to begin Jan. 1. For more information on this initiative, contact Rus at vrus@memphis.edu.

Observing Markers for Reduced Lung Function Related to Asthma and COPD in Children and Adults
Interdisciplinary Collaboration for Healthcare Solutions

Dr. Wilfried Karmaus, professor in the division of Epidemiology, Biostatistics and Environmental Health in the School of Public Health, received continuation funding for his \$3.2 million (five-year) award from the National Institutes of Health (NIH). Karmaus' project "Effect of prenatal compounds on adult lung function via neonatal DNA methylation" addresses markers for reduced lung function that are related to asthma in children and adults, as well as chronic obstructive pulmonary disease in adults.

This study will help to predict at birth whether a child is at risk of reduced lung function and will provide parents with knowledge and resources to improve their child's health. In addition, information on DNA-methylation and metabolic markers at birth related to lung function later in life will provide novel opportunities to develop specific and individualized medical measures of prevention.

University of Memphis co-investigators are **Dr. Hongmei Zhang**, professor and director in the Division of Epidemiology, Biostatistics and Environmental Health in the School of Public Health, and **Dr. Su Chen**, assistant professor in the Department of Mathematical Sciences. Collaborating institutions include both national and international researchers from Michigan State University, University of Bristol, University of Southampton, The Asthma and Allergy Research Center on the Isle of Wight and Hokkaido University.

Associate Professor in Loewenberg College of Nursing Receives \$442,600 Grant
To fund Lactation Support Program

Dr. Genae Strong, associate professor in the Loewenberg College of Nursing, was awarded \$442,600 from the Tennessee Department of Health (TDH) for her project "Loewenberg College of Nursing - Lactation Support Program." The total award was \$442,600.00 to be distributed over three years (\$148,000.00 + \$146,300.00 + \$148,300.00) to fund the Lactation Support Program.

In a multi-faceted fashion, the funded project seeks to change the culture on campus by promoting a breastfeeding-friendly environment through policy practice, education and research. Key objectives are creating a lactation support policy, designating and equipping lactation rooms across UoM campuses, building a resource-rich website for lactating culturally and linguistically appropriate course curricula that prepares more lactation professionals and establishing an outpatient clinic for lactation support, education and training.

For more information on this project, contact Strong at gdstrong@memphis.edu.

Office of Technology Transfer to Award Technology Development and Innovation Grants
Issues a Call for Proposals

The FedEx Institute of Technology is committed to the commercialization of inventions developed by world-class faculty and researchers at the University of Memphis.

Purpose : To enable the development of the most commercially promising technologies (for example, applications, software, apps, inventions, etc.), the FedEx Institute of Technology is announcing that it will award up to five grants of \$20,000 each to faculty and researchers - to be expended by the end of May 2020.

Apply : Applicants are required to submit the **FDI Grant Form** and an **Invention Disclosure Form**, which can be found using the links provided.

Timeline : Submissions are due by Tuesday, Oct. 15, 2019.

For more information about applying, email Vaik Giri vgiri@memphis.edu.

Marketing Doctoral Students Leverage Faculty Resources for Valuable Student Engagement
Developed video teaching notes for McGraw-Hill Education

When **Dr. George Deitz**, George Johnson Associate Professor of Marketing at the Fogelman College of Business and Economics, was approached by McGraw-Hill Education to develop a series of video teaching notes, he took the opportunity for his doctoral students to broaden their practical applications skills and make some extra money.

Marketing Ph.D. students **Michael Houston**, **Jennifer Tatar** and **Subhash Jha** worked to develop teaching notes for more than 125 videos from various sources covering a broad range of substantive topic areas in marketing. From a Bryan Buckley interview (director of 63 Super Bowl ads) to why Starbucks originally failed in Australia to the category introduction of the pasture-raised egg, the work provides a comprehensive teaching tool that keeps students engaged and thinking about what they see every day. The videos and teaching notes will be used by McGraw-Hill faculty at hundreds of colleges and universities across the country.

"Adding the teaching notes gives faculty the road map for content and adds value to the depth of learning in the college student," McGraw-Hill Education's senior portfolio manager, Meredith Fossel said. "The videos certainly pique the interest of students, and coupled with questions and answers, the engagement becomes more valuable."

Associate professor of marketing **Dr. Jeff Thieme** with the Fogelman College of Business & Economics used the videos and questions for every chapter in the book of his online class. "I found that questions where students were asked to apply concepts from the video to other contexts generated higher quality interaction with students," he said.

Deitz and his team will continue to add videos and update teaching notes. For more information on this work, contact him at gdeitz@memphis.edu.

UoM Welcomed Presentation from APLU
Fostering Economic Development

The Division of Research and Innovation welcomed **Shalin Jyotishi**, Assistant Director of Economic and Community Engagement, to discuss the Innovation and Economic Project. The project is a program and share opportunities for the University to engage further with this organization. APLU is open to R1 and R2 institutions and fosters interdisciplinary collaboration and advocates for policies in higher education.

New Research Awards
September 2019

Dr. Abby Parrill-Baker, dean of the College of Arts & Sciences and professor of chemistry was awarded \$1,575,000 from the Memphis Area Science Center Commission (MSCC) for continuation of her project "Public Safety Institute."

Dr. Wilfried Karmaus, professor in the division of Epidemiology, Biostatistics and Environmental Health was awarded \$14,648 from the National Institutes of Health for continuation of his project "Effect of prenatal compounds on adult lung function via neonatal DNA methylation."

Dr. Susan Nealey-Barnes, chair and professor in the Department of Health Resources and Services Agency (HRSA) for continuation of her project "Mid-south Integrated Behavioral Health Training Initiative."

Dr. Lavonne Perry Claydon, assistant professor and director of the Mid-South Access Center for Technology in the Center for Rehabilitation and Employment Research was awarded \$249,500 from the U.S. Department of Health and Human Services in collaboration with the Tennessee Department of Human Services, for continuation of her ongoing project "Mid-South Access Center Technology." She was also awarded \$37,426 from the U.S. Department of Health and Human Services in collaboration with the Tennessee Department of Human Services, for continuation of her project "Tennessee Technology Access Program."

Dr. Matthew Smeltzer, assistant professor in the Division of Epidemiology, Biostatistics and Environmental Health was awarded \$187,630 from the National Institutes of Health (NIH) in collaboration with St. Jude Children's Research Hospital for continuation of his project "Modeling the impact of flavor bans among young adult tobacco users using discrete choice experiments and agent-based modeling."

Dr. Amanda Rockinson-Szapkiw, associate professor in the Department of Instructional Design and Technology was awarded \$128,830 from the National Science Foundation (NSF) in collaboration with the University of the District of Washington for her project "NSF HBCU-UP Broadening Participation Research Project: Virtual STEM Peer Mentorship Program."

Dr. Mitchell Withers, associate research professor in the Center for Earthquake Research and Information (CERI) was awarded \$118,974 in supplemental funding from the U.S. Geological Survey for his ongoing project "Operation of the Mid-America Integrated Seismic Network 2015-2019-CERI."

Dr. Robin Lennon-Dearing, associate professor in the School of Social Work, was awarded \$98,757 from the National Institutes of Health in collaboration with the University of Memphis for her project "Engaging Community Health Workers to Improve Viral Suppression and Self-Management among PLWH in Shelby County, TN."

Dr. Daniel Larsen, chair and professor in the Department of Earth Sciences, was awarded \$63,062 from the Tennessee Department of Environment and the West Tennessee River Basin Authority for continuation of his project "Post-construction Hydrologic Monitoring of the Sandy Creek Restoration Project."

Dr. Brian Waldron, director, Center for Applied Earth Science and Engineering (CEASAR) and associate professor in the Department of Civil Engineering, was awarded \$45,000 from the City of Germantown for his project "Germantown GW Support."

Dr. Kerl Brondino, chair and professor in the Department of Anthropology, was awarded \$31,800 from the National Geographic Society (NGS) for her project "Our Voices: Bridging Ancient and Modern Conservation and Cultural Heritage on Utilla, Honduras."

Dr. Robert Smalley, research professor in the Center for Earthquake Research and Information (CERI), was awarded \$25,594 in supplemental funding from the U.S. Geological Survey for his ongoing project GPS Array for Mid-America - Monitoring Deformation in the New Madrid Seismic Zone."

Dr. Jill Dapremont, associate professor in the Loewenberg College of Nursing, was awarded \$24,275 from the Tennessee Board of Regents for her project "Creating a learning community for minority nursing students to support graduation, licensure, and transition (GLTT) to the baccalaureate."

Dr. Jessica Jennings, assistant professor in the Department of Biomedical Engineering, was awarded \$12,155 from Abbott Laboratories, Inc. for continuation of her project "Antimicrobial Susceptibility Evaluation."

Dr. Brandt Pence, associate professor in the School of Health Sciences, was awarded \$10,000 from the American College of Sports Medicine (ACSM) for continuation of his project "Aging, Menopause, and Metabolic Function in Exercise."

Dr. Lily Afshar, professor in the School of Music, was awarded \$1,125 from the Tennessee Arts Commission for her project "Arts Build Communities Grant."

* 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

QUICKGUIDE

TO RESEARCH AND SPONSORED PROGRAMS

Reviewing, Submitting and Accepting Funded Research
Resource for faculty and staff

Research Development and Sponsored Programs are the central office that support teams responsible for the review and submission of proposals (grants, contracts, cooperative agreements, non-monetary to external sponsors) and for the review and acceptance of any sponsored project funds. The team includes Pre-Award Services, Contract and Award Services, Electronic Grant System Administration and Research Development. They are located in 315 Administration Building.

Quick Guide available [here](#).

NEWS TO FEATURE IN THE RESEARCH + INNOVATION NEWSLETTER?

We welcome the opportunity to highlight the research in infrastructure and innovation capabilities at the University of Memphis. Email major award notifications, conferences to be held at the UoM, press releases, 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.

CONTACT US

Engaging Community Health Workers to Improve Viral Suppression and Self-Management
Focus among people living with HIV in Memphis and rural surrounding areas

Dr. Robin Lennon Dearing, associate professor in the School of Social Work, working in partnership with the Shelby County Health Department and Boston University obtained an NIH grant totaling \$98,757. Their research engages consumers and community leaders in HIV care and treatment in an effort to identify the barriers and facilitators to care, as well as strategies for the adoption of a community health worker intervention to enhance linkage and viral load suppression among people living with HIV from rural health settings. **Dr. Melissa Hirsch**, assistant professor in the School of Social Work, is co-investigator.

For more information on this project, contact Dearing at rlennon@memphis.edu.

Fumio Okano Best 3D Paper Award
UoM Assistant Professor Doblas Selected

Dr. Ana Doblas, research assistant professor in Department of Electrical and Computer Engineering, has received notification her paper has been selected as a Fumio Okano Best Paper Awards winner.

The award, Fumio Okano, is given to the best 3D paper presented in the annual SPIE conference on Three-Dimensional Imaging, Visualization and Display. Okano, a well-known pioneer and innovator of three-dimensional (3D) displays, passed away on Nov. 26, 2013 in Kanagawa, Japan, at the age of 61. Okano joined Japan Broadcasting Corporation (NHK) in Tokyo in 1978. In 1981, he began researching high-definition television (HDTV) cameras, HDTV systems, ultrahigh-definition television systems, and 3D televisions at NHK Science and Technology Research Laboratories. His publications have been frequently cited by other researchers. Okano served eight years as chair of the annual SPIE conference on Three-Dimensional Imaging, Visualization and Display and another four years as co-chair. Okano's leadership in this field will be greatly missed and he will be remembered for his enduring contributions and innovations in the field of 3D displays. This paper is a summary of the career of Fumio Okano, as well as a tribute to that career and its lasting legacy.

Doblas will receive the award in April during the SPIE Defense + Commercial Sensing 2020 Conference.

Virtual STEM Mentorship Program
UoM collaborates with two HBCUs to enhance mentorship efforts for underrepresented women

Dr. Amanda Rockinson-Szapkiw, associate professor in the Department of the District of Columbia and Bethune-Cookman University. The project extends a currently funded NSF pilot project and expands the development, implementation and evaluation of a virtual STEM (science, technology, engineering and math) peer mentorship program for underrepresented minority women (UMW) undergraduate students. The goal is to examine the efficacy of a Virtual Peer Mentoring Program to assist UMW students in developing mentorship and leadership skills that are culturally responsive; STEM self-efficacy; science identities; and ultimately to promote their STEM degree and career persistence.

For more information on this project, contact Rockinson-Szapkiw at rockinsnz@memphis.edu.

THE ART & SCIENCE OF DIGITAL MEDICINE
WITH DR. ASHISH ATREJA

Join Dr. Ashish Atreja with Mount Sinai Hospital for a Discussion on the Digital Age of Medicine
Oct. 8 | 9-11 AM | FIT MPT (103)

Join us as **Dr. Ashish Atreja**, Chief Innovation Officer (Medicine) at the Icahn School of Medicine at Mount Sinai, gives a talk on The Art and Science of Digital Medicine.

Learn how value-based care is making a business case for a new wave of digital health technologies, how to assess real-world successful case studies of digital medicine adoption by patients and providers and how to identify ways in which digital transformation can become sustainable and scalable through a platform approach. The talk will take place in the FedEx Institute of Technology (FIT), in the Methodist Presentation Theatre (103). Register for this free talk [here](#).

Materials Day
Oct. 4 | 8 AM - 5 PM
FedEx Institute of Technology
Methodist Presentation Theatre & The Zone

FedEx Institute of Technology Hosts Materials Day 2019
Friday, Oct. 4 | 8 AM - 5 PM | MPT & Zone

Attend the 3rd annual Materials Day to explore the materials that impact our world. Everything around us - clothing to computers to vehicles - is made of material stuff. Materials Science and Engineering (MSE) combines physics, chemistry and biology principles to solve real-world problems associated with nanotechnology, biotechnology, or classical technology, energy, manufacturing and other major engineering disciplines.

Materials scientists and engineers make daily life better by developing materials for health and medicine, improving energy efficiency and advancing manufacturing, among other areas.

Oral presentations from both academic and industrial researchers will showcase ongoing research in the region and promote collaboration and knowledge exchange between institutions and industry. Abstracts are being solicited for undergraduate and graduate talks and a poster session that will provide a venue for student research presentations and networking.

This will feature breakout sessions on Physics and Chemistry of Materials and Biomaterials, UoM faculty and student presentations, a keynote reception and interactive poster session with faculty/student presenters. To learn more or to register, visit the [website](#). Deadline to register has been extended to Oct. 1.

FedEx Institute of Technology Biologics Research Cluster 2019 Accomplishments

Research at the FedEx Institute of Technology provides proactive responses to the challenges facing this emerging specialized field of logistics. The cluster funds research for 12 faculty and 12 graduate students and has achieved the following in 2019: 18 conference presentations; held six community outreach initiatives; 11 presentations at various talks; and one invited presentation. The cluster also pushed out 15 grant submissions; secured nine external grants, totaling \$900,000; produced six manuscripts; four industry collaborations; four peer reviewed publications; and had one patent application filed.

The cluster is led by **Dr. Frouzeh Sabri**, department of Physics and Materials Sciences, and **Dr. Mihalis Gollas**, department of Civil Engineering. To learn more about the research cluster, visit the [website](#).

PATENT SPOTLIGHT

New Patent Received:
U.S. Patent No. 20190130124
Allored; May 2, 2019

Title : Wireless Analog Passive Sensors
Inventors : Dr. Dipankar Dasgupta, Dr. Arunava Roy, Dr. Debasis Ghosh

Abstract : A system and related methods for providing greater security and control over access to classified files and documents and other forms of sensitive information based upon a multi-user, multi-modality permission strategy centered on an organizational structure, thereby making authentication strategy unpredictable so to significantly reduce the risk of exploitation. Based on the sensitivity or the classification of information being requested by a user, approvers are selected dynamically based on the work environment, for example, mobility, use of the computing device, and seeking access authentication factors under applicable environmental settings and access policy.

For more information on UoM technologies available for commercialization, visit the tech transfer website or contact Dr. Hai Tieu htieu@memphis.edu.

CALENDAR

Dev/Memphis Meetup
Oct. 11 | 1-3 PM | FIT 225

Machine Learning/Data Sciences/Meetup
Oct. 1 | 7-8 PM | FIT 226

WordPress Memphis
Oct. 3 | 6-9 PM | FIT 225

The Humanities and Technology Camp (THAT Camp) Memphis 2019
Oct. 4 | 12-5 PM | UC 350

SQL Saturday Training
Oct. 4-5 | 8:30 AM-4:30 PM | FIT Lobby

The Art & Science of Digital Medicine
Presentation with Dr. Ashish Atreja
Oct. 8 | 9-11 AM | MPT (103)

Memphis Web Workers User Group
Oct. 8 | 6-8 PM | FIT 225

Agile Coaching 3-Day Workshop
Oct. 9-11 | 8 AM-5 PM | FIT 225

Memphis Game Developers Meetup
Oct. 10 | 6-8 PM | FIT 225

Academic Book Publishing Faculty Workshop
Oct. 11 | 12:30 - 2 PM | UC Senate Chamber

Code Together
Oct. 13 | 1-3 PM | FIT 225

Memphis Tableau Users DataRobot
Oct. 17 | 3-5 PM | FIT 227

Memphis Python User Group
Oct. 21 | 6:30-8:30 PM | FIT 225

Memphis PHP User Group
Oct. 22 | 6:30-8 PM | FIT 225

Training from the Back of the Room
Oct. 22-23 | 8 AM-5 PM | FIT 225

MemDevOps Meetup
Oct. 23 | 2-4 PM | FIT 225

Memphis Agile Meetup - Open Space
Oct. 24 | 6-7:30 PM | FIT 225

NetSquared: Fundraising Platforms for Nonprofits
Oct. 24 | 5:30-7:30 | FIT 225

TRAINING

SQL Saturday 870 Training
Oct. 4-5 | 8 AM-5 PM | FIT 225, 226, 227

PASS SQLSaturday is a free training event for professionals who use the Microsoft data platform. These community events offer content across data management, cloud and hybrid architecture, analytics, business intelligence, AI, and more. Register [here](#).

AGILE COACHING
Oct. 9-11 | 8 AM - 5 PM
FedEx Institute of Technology
Methodist Presentation Theatre & The Zone

Research Exchange Consulting Exchange
Statistical Consulting Services for Faculty

Thursday, Oct. 24 | 3:30 PM | FIT MPT (103)

The Division of Research and Innovation is introducing a new service to help faculty seeking statistical consulting services connect with others on campus who can provide such expertise. The **Research Statistical Consulting Exchange** will meet once a semester and is meant to serve as a forum and information session on the statistical resources on campus. Each meeting will highlight a selection of statistical consulting services and a networking opportunity to help faculty build collaborations that will facilitate increased research expenditures and interdisciplinary engagement on campus.

RSVP to researchdev@memphis.edu.

MUSCULOSKELETAL NEW VENTURES CONFERENCE
Join us as surgeons, venture capitalists, industry leaders, and researchers discuss the latest research and clinical applications of musculoskeletal research, genomics, dynamic and regenerative fields of musculoskeletal research.

Oct. 28-30 | 8 AM - 5 PM
FedEx Institute of Technology
Lobby, Methodist Presentation Theatre, & The Zone

Society of Research Administrators International (SRAI)
2-Day Training | Nov. 14-15

The University of Memphis will host the Society of Research Administrators International (SRAI) for a two-day training session Nov. 14-15. The training will cover topics related to grants and research administration.

For more information regarding the training or to register, contact Laticia Jones at ljones10@memphis.edu by Oct. 10.

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ENTREPRENEURIAL DEEP SCIENCE POST DOCS WANTED

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.

» Salary and benefits for two years
» Funds for initial startup costs
» And more...

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