CHAIR’S MESSAGE

Despite the challenges brought by the COVID-19 pandemic over the past year, the Department has continued to flourish. We smoothly transitioned our course offerings into an online format and welcomed three new research faculty, including our second chair of excellence. Our faculty has maintained recognition on the national and international stage with an impressive slew of new research grants. These projects represent not only our historical strengths in areas such as mobile health and cybersecurity, but also new steps into computer science education. I am proud of the resilience shown by our faculty, staff and students as we adapt to unprecedented circumstances.

Dr. Lan Wang
Professor and Chair

WELCOME NEW FACULTY

Christos Papadopoulos joined the Computer Science (CS) faculty in fall 2020 as the Sparks Family Chair of Excellence in Computer Science. Previously, he was an assistant professor at the University of Southern California and a professor at Colorado State University. His research interests include network and cyber-physical systems security, global internet measurements, information-centric networks and smart and autonomous systems.

From 2018-20, he was a program manager at the Department of Homeland Security Science and Technology Directorate, where he managed projects on cyber-physical systems security, including industrial control systems, law enforcement and automotive cybersecurity.

Dr. Weizi Li joined the CS faculty as a tenure-track assistant professor in fall 2020. Before joining, he was a Michael Hammer Postdoctoral Fellow at the Massachusetts Institute of Technology (MIT). He received his PhD from the University of North Carolina at Chapel Hill. Li is currently working on intelligent transportation systems, multi-agent simulation, virtual environments, machine learning and robotics.

Dr. Xiaolei Huang joined the CS faculty as a tenure-track assistant professor in spring 2021. He obtained his PhD in Information Science from the University of Colorado, Boulder. During his PhD, he was a visiting scholar at Johns Hopkins University. He obtained his MSc and BEng degrees from the Chinese Academy of Sciences and Central China Normal University, respectively. His research is in natural language processing and machine learning, with applications in public health.
Professor Dipankar Dasgupta, Hill Professor of Cybersecurity and director of the Center for Information Assurance, was honored by the Greater Memphis IT Council at its annual INNOVATE IT conference. The event, held virtually on Oct. 8, included a live poll that asked participants to select the top innovation in entrepreneurship. Dasgupta’s patent for adaptive multi-factor authentication was ranked No. 1.

Earlier in 2020, Dasgupta was awarded another U.S. patent, no. 10,671,747 for “Multi-user permission strategy to access sensitive information.” The patent was filed jointly with fellow researchers Arunava Roy and Debasis Ghosh.

Dasgupta gave a presentation at the IEEE World Congress on Computational Intelligence (WCCI) entitled “AI Is Not Magic—It Is Computational Logic” on July 21, 2020. He is also a taskforce member on secure learning with the IEEE Computational Intelligence Society.

Deep Venugopal (PI) and Dr. Vasile Rus (co-PI) were awarded a $413K grant from the National Science Foundation entitled "Investigating Techniques that Couple Markov Logic and Deep Learning with Applications to Discovering Strategies to Improve STEM Learning." This three-year project will combine the techniques of Deep Neural Networks (DNNs) with Markov Logic Networks (MLNs) to address individual shortcomings of those approaches when used by themselves.

The NIH awarded a $5.9 million grant for establishing the mHealth Center for Discovery, Optimization and Translation of Temporally-Precise Interventions (mDOT). mDOT will be headquartered at the MD2K Center of Excellence at the University of Memphis, under the direction of Kumar. The multidisciplinary mDOT team consists of leading researchers in artificial intelligence, mobile computing, wearable sensors, privacy, and precision medicine from the University of Memphis (lead), Harvard University, Georgia Institute of Technology, Ohio State University, University of Massachusetts-Amherst, University of California at Los Angeles and University of California at San Francisco.

A joint effort of Engineering Technology and Computer Science was awarded a $318K grant from the Department of Defense to enhance the ROTC curriculum, with the goal of developing students capable of effectively conducting cybersecurity research. The project will be led by PI Dr. James McGinnis (Engineering Technology), and co-PI Dr. Dipankar Dasgupta, Hill Professor in Cybersecurity, both of whom are directors of the Center for Information Assurance. This grant is a part of the center’s mission on education and outreach in cybersecurity.
Dr. Thomas Watson received a two-year UMRF Ventures Professorship for his recent research successes, particularly his NSF CAREER award.

**STUDENT AND ALUMNI NEWS**

PhD student **Subash Poudyal** presented research at two events:

PhD student **Kishor Datta Gupta** presented research at two events:

PhD student **Soujanya Chatterjee** received first place in the math and computer science category at the UofM’s 2020 Student Research Forum, which was held online. Soujanya’s project, entitled “SmokingOpp: Detecting the Smoking ‘Opportunity’ Context Using Mobile Sensor,” was also accepted for presentation at the ACM UbiComp 2020 conference.

MS student **Shima Azzizadeh-Roodpish**’s research with Dr. Max Garzon led to a manuscript, “Classifying Single Nucleotide Polymorphisms in Humans,” under review with Springer-Verlag’s Molecular Genomics and Genetics Journal.

**Nazir Saleheen**, who completed his PhD in Spring 2020 under Dr. Santosh Kumar, has joined Google.

**Dr. Sarah Lee** (PhD ’11) was named director of the School of Computing Sciences and Computer Engineering at the University of Southern Mississippi starting fall 2020. Lee completed her doctoral work in Computer Science with Dr. Sajjan Shiva.

**Mahbub Rahman** (PhD ’16) received the Industry Track Best Paper Award at the IEEE PerCom 2020 conference. He completed his doctoral work with Dr. Santosh Kumar and is currently working as a researcher at Samsung Research America’s Digital Health Lab. The awarded paper is based on the lab’s lung health project, where the team is developing innovative technologies to help patients with chronic respiratory diseases such as chronic obstructive pulmonary disease (COPD) or asthma.

Researchers at the MD2K Center of Excellence, headquartered at the UofM and under the direction of Computer Science Dr. Santosh Kumar, announced the launch of a free mobile app called mContain in April 2020 to help track social distancing during the COVID-19 outbreak to reduce community transmission. mContain uses location and Bluetooth technologies in smartphones to detect proximity encounters (within six feet for several minutes) with other app users. Similar to a step count, the app counts and displays the number of daily proximity encounters with other app users. To reduce the chances of entering crowded places, the app displays the level of crowding at busy places on a map. If a user and their COVID-19 test provider both agree to share the results of their test, the app can notify other users about possible exposures to COVID-19.

**DATA SCIENCE IN PYTHON WORKSHOPS**

Since 2016, the Department has held a regular series of workshops on using Python in data science, aimed at professional clients. These workshops are typically offered in sets of two: an introductory session on Python programming and data analytics and a follow-up advanced session on data science and machine learning.

The tentative spring 2021 workshop dates are Friday-Saturday, May 7-8 for the intro session and Friday-Saturday, May 14-15 for the advanced session. Like the fall 2020 workshops, these will be held virtually. Special student rates are available. For details and to register, please visit [memphis.edu/cs/outreach/ds_workshops.php](http://memphis.edu/cs/outreach/ds_workshops.php)
2020 COMPUTER SCIENCE GRADUATES

Doctor of Philosophy
Faisal Alsubaei (Advisor: Dr. Sajjan Shiva)
Thesis: “Security Assessment Framework for the Internet of Medical Things Solutions”

MdMaminur Islam (Advisor: Dr. Deepak Venugopal)
Thesis: “Advances in Improving Scalability and Accuracy of MLNS using Symmetries”

Nazir Saleheen (Advisor: Dr. Santosh Kumar)

Quang M Tran (Advisor: Dr. Vinhthuy Phan)
Thesis: “Algorithmic Methods for Large-scale Genomic and Metagenomic Data Analysis”

Master of Science
Shima Azizzadeh Roodpish (Advisor: Dr. Max Garzon)

Kranthi Battu (Advisor: Dr. Xiaofei Zhang)

Felipe De Oliveira (Advisor: Dr. Vinhthuy Phan)

Senjuti Dutta (Advisor: Dr. Kan Yang)
Thesis: “Enabling Efficient and Privacy-Preserving Task Matching For Cloud-Based Crowdsourcing”

Laqin Fan (Advisor: Dr. Lan Wang)
Thesis: “Secure Sharing of Spatio-Temporal Data through Name-based Access Control”

Namita Fnu (Advisor: Dr. Sajjan Shiva)

Anik Khan (Advisor: Dr. Nirman Kumar)

Ashok Kumar Gadde (Advisor: Dr. Xiaofei Zhang)

Naeem Khoshnevis (Advisor: Dr. Deepak Venugopal)

Varun S Negandhi (Advisor: Dr. Deepak Venugopal)

David C Rosenberg (Advisor: Dr. Amy Cook)

Sajib Sen (Advisor: Dr. Dipankar Dasgupta)

Utsav Shrestha (Advisor: Dr. Nirman Kumar)
Thesis: “Quantitative Analysis and Monte Carlo Modeling of Fat-Mediated MRI Relaxation”

Neha Sinha (Advisor: Dr. Xiaofei Zhang)

William A Smith (Advisor: Dr. Amy Cook)

Yu Sun (Advisor: Dr. Xiaofei Zhang)

Bachelor of Science
Robert W Aquadro

Michel D Arias Ayala
James P Barry
Benjamin M Borstad
Hunter C Briceken
Isaiah C Bryant
Daniel L Chamberlin
John M Cortes Perez
Madeline P Cychowski
Neil R Damaraju
Phuong K Do
Henry M Fyfe
William T Hagan
Taylor S Hendrickson
Destinee A Higgs
Mykaila K Johnson
Ryan E Johnson
Soahil Khalid
Grace N Kigaita
Alexander W Lane
Adam T Losher
Travis O Malmquist
Mark A Mills
Christopher S Moore
Kevin E Murphy
Carl M Myers
Liathe H Najdawi
Logan W Newman
Minh Thi Thanh Ngo
Jie Ni
Tyrone L Parker
Smit K Patel
Christopher D Peete
Nicolas E Pizarro
Michael A Porter
Jacob K Poyner
Nicholas J Roberts
Stephen P Rogers
John M Salajka
Brandon D Smith
John B Stevenson
John R Suleiman
Jared S Thomas
Vinh J Tran
Eriel L Traywick
Timothy S Wallin
Brian E Watkins
Joshua White
Ryan P Wickman
James S Willson
Hunter B Woodward
Benjamin Young

2020 Computer Science Internships
Kranthi Battu
FedEx Services

Jeremy Clark
FedEx Services

Catherine Coleman
Lokion Interactive

Namita Fnu
FedEx Services

Taylor Hendrickson
UMRF Ventures, Inc.

Mark Mills
Docazoo LLC

Christopher Nguyen
Edesia

Sahil Nokhwal
Intel

Tyrone Parker
Baptist Memorial Healthcare

Rabie Mohamed Rabie
Intel

Nicholas Roberts
FedEx

Jonathan Snider
FedEx Services

Utsav Shrestha
UMRF Ventures, Inc.

SUPPORTING THE DEPARTMENT
The department has been fortunate to receive several generous gifts from donors. Gifts can endow professorships, scholarships, fellowships, classrooms, and labs for our students. They can also be used to help defray travel expenses for conferences to present research papers, as well as many other activities that are extremely meaningful to our students and the Memphis community.

If you are interested in making a tax-deductible donation, please visit the University of Memphis Giving site. Select “All CAS Funds” at the top, then “Computer Science Discretionary Fund” (for general support) or “Diversity in Computer Science Scholarship” (to support that specific award).