



Computer Science Newsletter

FALL/WINTER 2022

Chair's Message

Our MS program has grown drastically this year, with enrollment increasing from 41 in Fall 2021 to 225 in Fall 2022. Despite the challenges imposed by this nearly five-fold increase, we have remained committed to excellence in teaching, research, and service. The CS faculty have been extensively recognized for their achievements, leading large research grants and receiving both university and external awards. Our students and alumni continue to reflect well on the department, earning various distinctions and finding employment with major companies.

Community and industry outreach is also one of our priorities. This year CS faculty members organized the 12th annual Mid-South Cybersecurity Summit to bring together key professionals in academia, industry, and government. Moreover, we were happy to resume our Creative Game Design Camp introducing high-school students to computer science, after a COVID-induced hiatus. The camp was supported by a generous gift from Intel. We also welcomed three new members to our advisory board, who were introduced during our fall board meeting.

Lan Wang
Professor and Chair

\$2M IES Award for iCode Project

The Institute for Education Sciences (U.S. Department of Education) awarded a 3-year, \$2M grant for the iCODE project with PI **Prof. Vasile Rus**. The project combines design-based research with randomized controlled trials supporting CS majors, non-CS majors, and students from underrepresented groups (women, students of color, first generation students) to engage in code comprehension activities. iCODE will integrate reading strategies training, Animated Pedagogical Agents, inclusive and culturally responsive instructional design, and the Open ProSocial Learner Model to improve code comprehension, learning, engagement, self-efficacy, CS identity, and retention in CS programs.



Dasgupta Selected as 2022 NAI Fellow



Prof. Dipankar Dasgupta, Hill Professor of Cybersecurity, was selected as a prestigious National Academy of Inventors Fellow for the Class of 2022. Dasgupta is the third UofM faculty to be selected a NAI Fellow, joining Dr. Hai Trieu in 2019 and Dr. Gary Bowlin in 2015. The NAI Fellows Program was established to highlight academic inventors who have demonstrated a prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development, and the welfare of society. Election to NAI Fellow status is the highest professional distinction accorded solely to academic inventors.

Center for Information Assurance News

Prof. Dipankar Dasgupta, director of the Center for Information Assurance (CfIA), attended the DoD University Consortium for Cybersecurity (UC2) Research Workshop hosted by National Defense University at Fort McNair, Washington, D.C. In response to the DoD-UC2 Request for Information (RFI), Dasgupta formed a team of faculty experts from 15 universities (including Purdue, MIT, and Penn State) and submitted a whitepaper on implementing zero trust at the tactical warfighting edge. This research paper was ranked first by reviewers among all submissions from the national academic community. As the team lead, Dasgupta was invited to present and was well-received by attendees from different federal agencies. "This engagement and collaboration on cybersecurity will open the door for furthering our research and education," said Dasgupta.

As part of its education efforts, CfIA has developed a web-based course on Remote Home-Office (RHO) security that is currently undergoing pilot testing prior to official release by the Federal Emergency Management Agency (FEMA) as a cybersecurity training course. This six-hour web-based course covers topics and issues directly impacting remote workers including social engineering, video-conferencing platforms, organizational remote work policies, work-from-home cyber hygiene, and much more. The course is funded by the Department of Homeland Security/FEMA and developed under the National Cybersecurity Preparedness Consortium.

The UofM has been designated as a National Center of Academic Excellence in Cyber Defense (CAE-CD) through the 2027 academic year. **Prof. Dipankar Dasgupta** led this effort for recertification, along with **Profs. James McGinnis** (Engineering Technology), **Kan Yang**, and **Myounggyu Won**. Here, Dasgupta is pictured alongside officials from the NSA, FBI, and NIST.

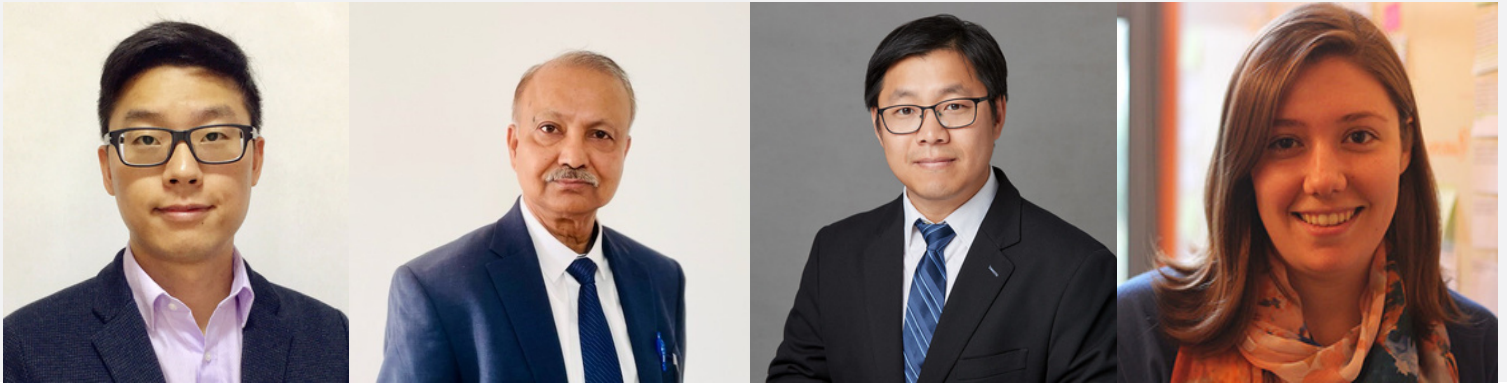


Mid-South Cybersecurity Summit

On November 4, the UofM hosted the 12th Annual Mid-South Cybersecurity Summit at the FedEx Institute of Technology. The keynote speakers, **Augustine Boateng** (City of Memphis), **Thomas Davis** (Rentokil-Initial / Terminix), and **Prof. Dipankar Dasgupta** (UofM), gave excellent talks. There was also a panel discussion with a guest speaker from the FBI and the UofM faculty on cybersecurity challenges and opportunities in the age of AI.

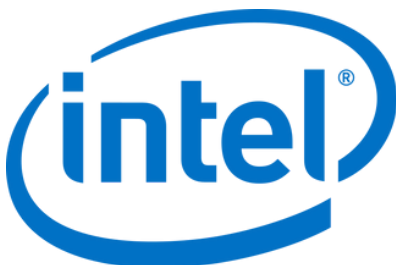
CyberCorps Scholarship for Service

Supported by a \$3.8 million grant from the National Science Foundation, the CyberCorps Scholarship for Service offers full scholarships plus a generous annual stipend (\$25K/year for undergraduate students, \$34K/year for graduate students), in exchange for committing to post-graduate government employment in cybersecurity matching the number of years of support received. Priority is given to underrepresented students such as women, minorities, and veterans. Interested candidates should apply via the Tiger Scholarship Manager. Principal investigator **Prof. Kan Yang** (below left) leads the project, with **Profs. Dipankar Dasgupta, Myounggyu Won, and Amy Cook** as co-PIs.



Creative Game Design Camp

In July 2022, the department held our one-week Creative Game Design Camp for high-school students for the first time since COVID. Over 100 students applied for the camp, with 34 ultimately selected. Participants were introduced to computer science via the Ren'Py visual novel framework for Python. The camp was generously supported by a gift from Intel.



Faculty and Staff Accolades



Prof. Vinhthuy Phan (left) received the Best Paper Award at the 15th International Conference on Educational Data Mining (EDM 2022) in July 2022. Phan's paper, "Addressing Competing Objectives in Allocating Funds to Scholarships and Need-based Financial Aid," is joint work with UofM staff **Laura Wright** (Sponsored Programs Proposal Administrator, Division of Research and Innovation) and **Bridgette Decent** (Associate Vice Provost for Strategic Analytics and Director, Office of Institutional Research). Prof. Phan also received a Dean's Award for Teaching Excellence from the UofM College of Arts and Sciences.

Prof. Max Garzon, Deepak Venugopal, and Nirman Kumar are editors of the new Springer text *Dimensionality Reduction in Data Science*. Wolfram Research selected one of Prof. Garzon's papers for a featured highlight.

Prof. Amy Cook received an Early Career Research Award from the UofM College of Arts and Sciences.

Prof. Dipankar Dasgupta was selected as the 2023 recipient of the UofM's Arthur G. Graesser Presidential Award for Lifetime Achievement in Research. As an IEEE Distinguished Lecturer, he gave several talks and tutorials in Singapore, Malaysia, and India.

Prof. Lan Wang received the Willard R. Sparks Eminent Faculty Award, the highest award conferred to a UofM faculty member.



Prof. Scott Fleming (left) received the VL/HCC 2022 Most Influential Paper Award for his paper "Modeling Programmer Navigation: A head-to-head empirical evaluation of predictive models" from VL/HCC 2011.

This award is given each year by the IEEE Symposium on Visual Languages and Human-Centric Computing to one paper that was published roughly 10 years ago and that has had the most influence on VL/HCC research or commerce.

Prof. Sajjan Shiva (right) received a First Horizon Foundation Distinguished Professorship, and a UofM Alumni Association Distinguished Research Award in Science, Engineering, and Mathematics.



Welcome New Staff



Michelle Peterson (left) joined us as an Administrative Associate I.



Emily Jones (right) joined us as an Academic Advisor, working with both undergraduate and graduate students.

Student and Alumni News



Computer Science senior **Matiwos Birbo** received 2nd place at the National Society of Black Engineers (NSBE) Hackathon, held at the NSBE Region III Fall Regional Conference in Atlanta. Matiwas' entry was an application that aims to increase the number of voters being registered and maintains the volume of voters each election cycle.

"This was a really fun event and I was able to exercise what I learned from the University of Memphis towards real-life experiences and issues facing human beings," said Matiwas. Matiwas (on the right in photo) worked with teammate Kent Phipps from the University of Florida.

PhD student **Sayma Akther** was selected as one of 18 students nationwide to present her doctoral research at the NSF-NIH Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science Workshop.

Alumni Spotlight: Sajib Sen

Sajib Sen (MS 2020) started working for Intel Corporation as a software engineer from Fall 2022. Sajib has a strong interest in software engineering and data-driven cybersecurity, and he contributed to the scientific community with his research while at the UofM.

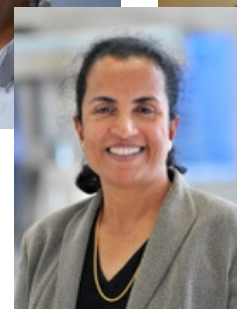
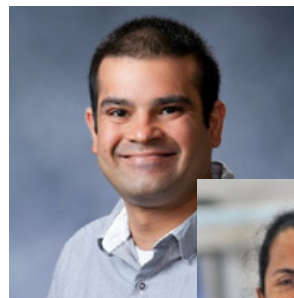
Sajib completed his Electrical and Electronic Engineering (EEE) undergraduate degree at Khulna University of Engineering and Technology (KUET), Bangladesh. He joined the UofM in Fall 2017 for his graduate degree with a research assistantship position at the Center for Information Assurance (CfIA). Sajib completed his Master's in Spring 2020 at the UofM, with Dr. Dipankar Dasgupta being his academic and research supervisor. As a part of his studies, he had an internship with UMR Ventures as a System Analyst and with ReTrans as a Software Engineering Intern. After graduating, Sajib started working for ReTrans as a full-time Software Engineer from Summer 2020.



As a research assistant at CfIA, Sajib was involved in several federally funded (FEMA/DHS) cybersecurity projects. He was also involved in research from his first semester and collaborated with Dr. Dasgupta and his peers in multiple research publications and findings. In his last semester, he started the 'Algorithm Bias' project as a part of his master's project. He collaborated with Dr. Dasgupta to publish an IEEE conference paper and a book chapter on this work.

Department Advisory Board

Three alumni of our doctoral program joined the Department Advisory Board: **Sidney D'Mello** (PhD 2009) from the University of Colorado Boulder, **Sarah Lee** (PhD 2011) from the University of Southern Mississippi, and **Uma Ramamurthy** (PhD 2004) from Baylor College of Medicine. The board met with CS faculty on November 18 to share department news and updates from board members.



2022 Computer Science Graduates

Master of Science

Jibran Abbasi

Advisor: Prof. Myounggyu Won

Jerica Chambers

Advisor: Prof. Scott Fleming

Lokesh Chandra Das

Advisor: Prof. Myounggyu Won

Jun Huang

Advisor: Prof. Xiaofei Zhang

Navid Mohammad Imran

Advisor: Prof. Myounggyu Won

Bhavika Khare

Advisor: Prof. Nirman Kumar

Thesis: Separated Red Blue Center Clustering

Sharat Chandra Kolipaka

Advisor: Prof. Myounggyu Won

Ramita Maharjan

Advisor: Prof. Tom Watson

Murshida Mouree

Advisor: Prof. Amy Cook

Lakshmi Saranya Peddi

Advisor: Prof. Myounggyu Won

Thi Phan

Advisor: Prof. Xiaofei Zhang

Anup Shakya

Advisor: Prof. Deepak Venugopal

Sushma Reddy Yadavalli

Advisor: Prof. Myounggyu Won



2022 Computer Science Graduates

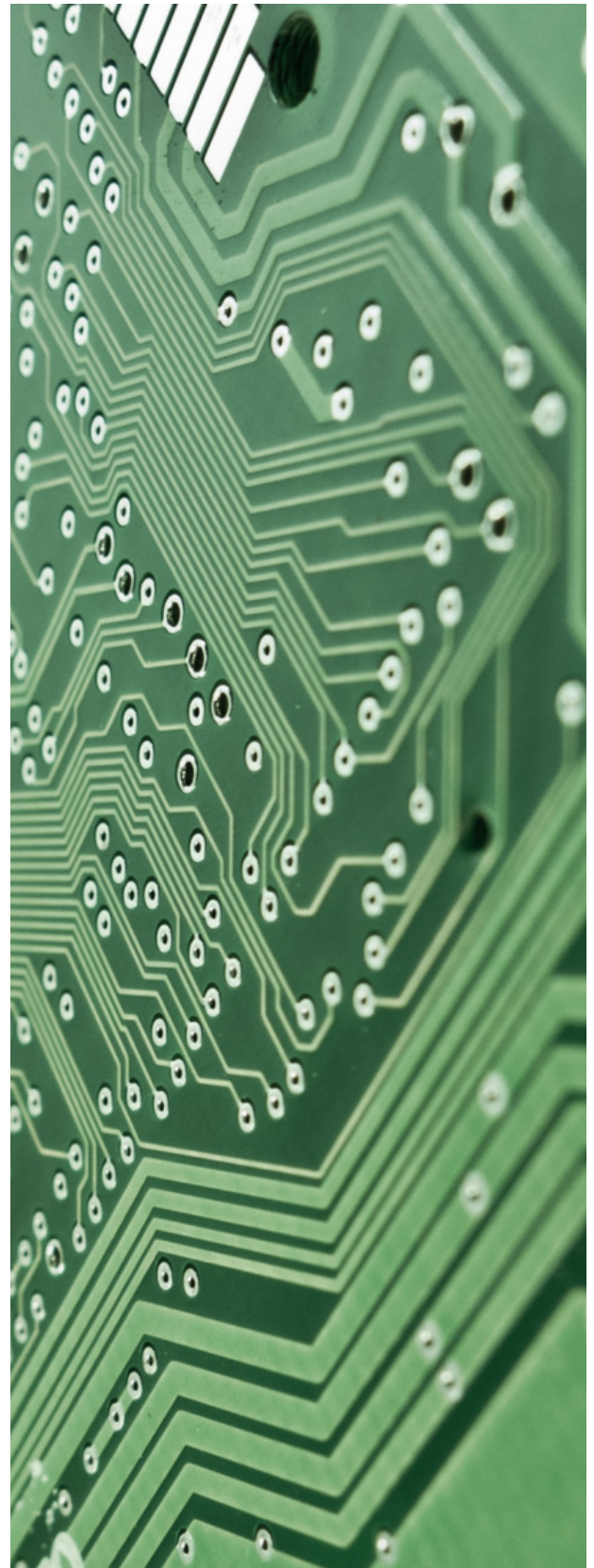
Bachelor of Science

Laith Alabdalla
Jeremy Albin
Kamal Allouzi
Mario Augustus
James Baucum
Alexandria Bennett
Raven Bess
James Brady
Prentice Britton
Stephano Casuso
Camille Cipriano
Chad Cothran
Jose Cupido
Serena Dean
Joshua Deason
Matthew Douglas
Hayden Durham
Adam El Kharsa
Cameron Futrell
Moises Garcia
Dylan Giddens
Joshua Glaser
Kamren Grady
Maximilian Hagemann
Zachary Hanson
Michael Harrison
Ethan Hawkins
Charles Hayden
Jacob Hayes
Dylan Helton
David Hernandez
Caroline Hightower
Brandon Hopper
Cheyenne Houston
Tzu Hung Hsu

Kelmarthony Jenkins
Aiyana Johnson
Matthew Leathers
Nicole Lee
Stephen Lester
Cody Lightfoot
Jonathan Miller
Myson Moore
Arielle Morris
Truc Nguyen
Yunhuo Ni
Gerald Nyberg
James Pakis
Dianne Pham
Spencer Pursley
William Richards
Ledarrius Robinson
Dylan Schwab
William Scott
Mohamad Shami
Thomas Shelton
Hong Shi
Alexandre Signorel
Brandun Spearman
Cayla Taylor
Huy Tran
Randy Tran
Julianna Troncone
Thomas Tubbs
Warren Wang
Adrian Williams
Alec Williams
Isaiah Williams
Walter Williams

2022 Computer Science Internships

Daron Adams - Lowe's
Kamal Allouzi - UMRF
Tareq Alyousef - Amazon Web Services
Rabin Banjade - Philips
Treveon Banks - Kellogg's
Matiwos Birbo - Concert Genetics
James Brady - UMRF
Andre Brumfield - UMRF
Zachary Burgess - UMRF
Thomas Cazort - International Paper
Priyanka Chilakalapudi - FedEx Services
Sha'nya Conaway - UMRF
Jose Cupido - Southern Bride
Josh Glaser - Motivating Systems
Cheyenne Houston - FedEx Employees Credit Association
Navid Imran - UMRF
Kelmarthony Jenkins - UMRF
Adam Jones - UMRF
Shahzeb Kazmi - Just City
Sharat Kolipaka - FedEx Express
Vamshidhar Komatireddy - FedEx Services
Vu Le - UMRF
Marshall Lussier - UMRF
Folusho Morafa - The Conrad Pearson Clinic
Kathy Nguyen - Just City
Yunhuo Ni - MCR Safety
Yamika Pendly - FedEx Services
Thomas Phan - Plough Foundation
Josh Santos - UMRF
Jonathan Taylor - UMRF
Adrian Williams - UMRF
Alec Williams - ThoughtWorks
Isaiah Williams - Tennessee Valley Authority



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. These workshops continued to be held virtually throughout the COVID pandemic. For upcoming workshop dates and to register, see memphis.edu/cs/outreach/ds_workshops.php.

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 at <http://bit.ly/2wFQwim>. 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). Past donors are recognized on our website at memphis.edu/cs/giving.



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