#8

UF NUMBER 8 AMONG PUBLIC UNIVERSITIES
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2019

DEPARTMENT OF COMPUTER & INFORMATION SCIENCE & ENGINEERING

BYTES

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USING SOUND TO SAVE LIVES

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UF | UNIVERSITY of FLORIDA

Juan E. Gilbert, Ph.D.
The Banks Family Preeminence Endowed Professor & Department Chair

Dear colleagues and friends,

We are proud to share with you this summary of some of the news and events that have made the past year memorable. We have welcomed new faculty and celebrated many achievements.

With the addition of five tenure-track faculty (four assistant professors and one associate professor), our department is only growing. This year alone, one of our exceptional faculty was named an IEEE Fellow, another was named an ACM Fellow, and one received an NSF CAREER award. Our students are working harder than ever and have been honored with NCWIT awards and NSF Graduate Research Fellowships.

Our team is working to bring more diversity to computer science by elevating black women in computing through an inspiring broadcast called the Modern Figures Podcast. Our alumni are making an effort to bring more women to computer science and engineering through mentorship and shadowing programs. And our students are making computer science more accessible to the public by sharing their AR/VR projects and displaying interactive exhibits at the Florida Museum of Natural History.

I hope you enjoy this newsletter, and I look forward to hearing from you in the future.

Juan E. Gilbert, Ph.D.

BYTES 2019

Juan E. Gilbert, Ph.D.
THE BANKS FAMILY PREEMINENCE ENDOWED PROFESSOR & DEPARTMENT CHAIR

Tamer Kahveci, Ph.D.
CISE ASSOCIATE CHAIR OF ACADEMIC AFFAIRS

Patrick Traynor, Ph.D.
CISE ASSOCIATE CHAIR FOR RESEARCH

Allison Logan, MA
MARKETING & COMMUNICATION SPECIALIST
NEWSLETTER EDITOR

UF Herbert Wertheim College of Engineering
Department of Computer & Information Science & Engineering
UNIVERSITY *of* FLORIDA

BY THE NUMBERS

CISE'S FACULTY & STUDENTS ARE AMONG THE MOST DIVERSE IN COMPUTER SCIENCE PROGRAMS NATIONWIDE.

14 PATENTS GRANTED*

3 STARTUPS CREATED*

11 ACTIVE GRANTS MORE THAN $1 MILLION

**From 2012-2019*

22% OF THE 2,515 STUDENTS ENROLLED ARE WOMEN

14
NSF CAREER AWARD WINNERS

#1
AMONG COMPUTER SCIENCE DEPARTMENTS IN THE NUMBER OF BLACK STUDENTS ENROLLED IN THE PH.D. PROGRAM.
2018 ASEE DATA

IEEE
ACM
AAAS
10
FELLOWS

17% OF THE 66 BLACK WOMEN ENROLLED IN COMPUTER SCIENCE PH.D. PROGRAMS NATIONWIDE ARE AT CISE. *2018 CRA DATA*

39% OF STUDENTS ENROLLED IN THE CISE PH.D. PROGRAM ARE WOMEN; 1.8 TIMES THE NATIONAL AVERAGE. *2018 ASEE DATA*

3X CISE EMPLOYS THREE TIMES THE NATIONAL AVERAGE OF BLACK FACULTY MEMBERS AMONG COMPUTER SCIENCE PROGRAMS. *2018 ASEE DATA*

#3 CISE RANKS NO. 3 IN THE NUMBER OF WOMEN FACULTY AMONG COMPUTER SCIENCE DEPARTMENTS AT PUBLIC UNIVERSITIES. *2018 ASEE DATA*

48% DOMESTIC STUDENTS COMPRISE 48 PERCENT OF CISE'S PH.D. ENROLLMENT. *2018 DEPARTMENTAL DATA*

The Department Welcomes 5 NEW FACULTY

Vincent Bindschaedler, Ph.D., Assistant Professor

Bindschaedler's research focuses on information security. His most recent work focuses on privacy-preserving data sharing and side channels. He earned his Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign in 2018. He holds a BS.c. and an MS.c. in Computer Science from the Swiss Federal Institute of Technology Lausanne.

Sharon Lynn Chu, Ph.D., Assistant Professor

Chu's research focuses on human-centered computing (HCC). She directs the Embodied Learning & Experience (ELX) Lab, which conducts research in human-computer interaction (HCI). She has a Ph.D. from Texas A&M University, and an MS in Computer Science & Applications as well as a graduate certificate in HCI from Virginia Tech.

Kejun Huang, Ph.D., Assistant Professor

Huang's research focuses on machine learning. His other research interests include algorithms; computer vision and medical image computing; database, data science and informatics; and image and signal analysis. He received his Ph.D. in Electrical Engineering from the University of Minnesota.

Eric Ragan, Ph.D., Assistant Professor

Ragan's research focuses on graphics and visualization. He is director of the Indie (Interactive Data and Immersive Environments) lab, which conducts research in areas including HCI, HCC, information visualization, virtual reality, 3D interaction and visual analytics. He received his Ph.D in Computer Science from Virginia Tech.

Byron Williams, Ph.D., Associate Professor

Williams' research focuses on information security, but his interests include investigating approaches to secure software development; vulnerability assessment using static and dynamic analysis; and security modeling applying statistical and machine learning techniques. Williams received his Ph.D. from Mississippi State University.

WORKING TO PREVENT SMARTPHONE HACKING

Millions of smartphones likely have vulnerabilities that could allow hackers to easily take control of phones and extract private information without users ever knowing, new research shows.

What's more, the hack can happen when a user does something as simple as plug a phone into an airport charging station.

"It's not just an unknown computer that's a problem, but anything that you plug your USB cable into: a charging station, a kiosk … For all we know there could be something malicious on the other side injecting these commands to your phone," said **Kevin R. B. Butler, Ph.D.**, an associate professor in the University of Florida Herbert Wertheim College of Engineering and a leader of the research team that uncovered the weaknesses.

Researchers hacked eight devices, including the Google Nexus 5, LG G4 and Samsung Galaxy S8 Plus. The device responses ranged from hidden menus popping up to phones being factory reset.

In a video demonstrating instructions, known as AT commands, being sent to an LG phone, Grant Hernandez, a UF computer engineering doctoral student, explains how the touchscreen can be manipulated without actually being touched. Also shown in the video, and possibly more worrisome, is the ability of AT commands to bypass the lock screen.

"It's essentially like having a ghost user on your phone," Butler said.

Butler and his team alerted the vendors and supplied the code used to exploit the vulnerabilities. LG and Samsung responded promptly to the findings by developing a security patch, released in July 2018, to address the lock and touchscreen issue, with acknowledgments going out to Butler.

KEVIN R. B. BUTLER, PH.D.

"IT'S NOT JUST AN UNKNOWN COMPUTER THAT'S A PROBLEM, BUT ANYTHING THAT YOU PLUG YOUR USB CABLE INTO."

But millions of other smartphones likely remain at risk, Butler said. He and his team plan to investigate more devices and manufacturers like Apple, whose devices are known to also respond to AT commands.

In their study, presented at the 2018 USENIX Security Symposium, the team sent the phones AT commands through a USB cable. Those commands, composed of the letters "A" and "T" followed by a short string of characters, were originally developed in the 1980s to control dial-up modems. Today, these commands are still used by smartphones whenever they make calls or send text messages.

Over time, manufacturers have created thousands of AT commands to tell phones to perform other tasks, like taking pictures. That could come in handy during development to test devices, Butler said, but due to the nature of corporate practice, the full capability and potential security risk posed by those commands has not been well-documented.

Butler urged users to update their phones with security patches as soon as they are available and be aware of where devices are being plugged in, as connecting to an unknown computer could expose the device to an attack.

5 Faculty Members Receive UF Term Professorships

Faculty members **Arunava Banerjee, Ph.D.**; **Kevin R. B. Butler, Ph.D.**; **Tamer Kahveci, Ph.D.**; **Meera Sitharam, Ph.D.**; **and Daisy Zhe Wang, Ph.D.**, were selected to receive the University of Florida Term Professorship award for 2018-2021.

The university offers 250 term professorships every year. The professorships recognize faculty who have established a distinguished record of research and scholarship that is expected to lead to continuing distinction in their field.

Arunava Banerjee, Ph.D.
Associate Professor
Research Areas: Computational Neuroscience, Machine Learning, Computer Vision, Operational Research

Kevin R.B. Butler, Ph.D.
Associate Professor
Research Areas: Embedded Systems, Information Security

Tamer Kahveci, Ph.D.
Professor
Research Areas: Bioinformatics, Database, Data Science and Informatics, Machine Learning

Meera Sitharam, Ph.D.
Professor
Research Areas: Algorithms, Bioinformatics, Computational Geometry, Machine Learning

Daisy Zhe Wang, Ph.D.
Associate Professor
Research Areas: Database, Data Science and Informatics

Helmy Named 2019 IEEE Fellow

Ahmed Helmy, Ph.D., a professor and the department's graduate coordinator, has been named a 2019 Fellow of the Institute of Electrical and Electronics Engineers (IEEE). Helmy was recognized for his contributions to routing protocol design and mobility modeling.

IEEE Fellow is a distinction reserved for select IEEE members whose extraordinary accomplishments in any of the IEEE fields of interest are deemed fitting of this elevation. Each year, the IEEE Fellow Committee recommends a group of recipients to become Fellows. Less than 0.1 percent of voting members are selected annually.

"This is the highest honor by the biggest professional community in my field. This means that the work done by my group has had a great impact, and hopefully, will continue to have an impact in the future," Helmy said. "I plan to increase my research activity to reach new heights and solve societal problems to improve people's lives."

Helmy has been instrumental in the design and implementation of the Internet standard for IP multicast routing, PIM-SM, and he was a key researcher on the widely used network simulator, NS-2.

Before joining UF in 2006, Helmy was a faculty member at the USC Viterbi Ming Hsieh Department of Electrical Engineering. In 2002, he received the National Science Foundation CAREER Award for his research on resource discovery and mobility modeling in large-scale wireless networks. He is a Distinguished Scientist of the Association for Computing Machinery. Helmy joins six other IEEE Fellows in the department.

Gilbert Named An ACM Fellow

Juan E. Gilbert, Ph.D., The Banks Family Preeminence Endowed Professor and department chair, has been named a Fellow of the Association for Computing Machinery (ACM). Gilbert was recognized for his individual contributions to advancing the field of computing. He was 1 of 56 members named as ACM Fellows for 2018.

ACM is the world's largest and most prestigious association of computing professionals. ACM Fellows comprise fewer than 1 percent of the association's global membership. Selection as an ACM Fellow is based on professional experience and achievements, as well as contributions to the broader computing community.

Gilbert came to CISE in 2014, where he leads the Human-Experience Research Lab. He is also a Fellow of the American Association of the Advancement of Science, and a Senior Member of the IEEE. Gilbert majored in systems analysis at Miami University in Ohio.

He also obtained computer science degrees at the University of Cincinnati, earning his master's degree in 1995 and his Ph.D. in 2000.

"Being an ACM Fellow is a significant honor for CISE and me, personally," Gilbert said. "This is an acknowledgment of excellence in the field by my peers. I am extremely honored to be named an ACM Fellow, and it reflects on our efforts to do research that impacts society."

Gilbert is the inventor of Prime III, an open-source, secure and accessible voting technology that has been used in New Hampshire since 2015 and recently in Ohio during the mid-term elections.

Mishra Receives Doctoral Dissertation Advisor/Mentoring Award

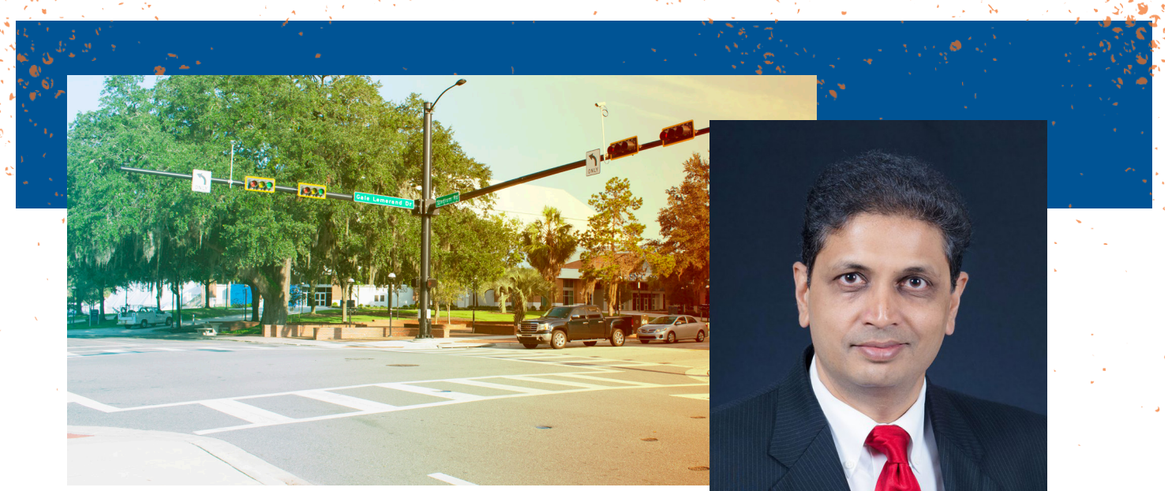
Prabhat Mishra, Ph.D., a professor, was selected as a 2019 Herbert Wertheim College of Engineering Doctoral Dissertation Advisor/Mentoring Awardee.

Mishra's primary area of research is design and verification of architectures and algorithms for secure and energy-efficient electronic systems. Over the last academic year, he has mentored eight Ph.D. students and seven undergraduate researchers.

Mishra said he guides students to choose a research topic based on their passion and educational background. He focuses on three core developmental aspects of each student: publication record, communication skills and research collaboration. According to Mishra, he sets the expectations upfront to solve only cutting-edge research problems and publish exclusively in top-tier international journals and conferences.

"The college has many outstanding doctoral mentors," Mishra said. "It is an honor to be selected as an awardee for 2019."

The Doctoral Dissertation Advisor/Mentoring Award recognizes excellence, innovation and effectiveness in doctoral student advising and mentoring. Mishra was formally acknowledged at the Spring Herbert Wertheim College of Engineering Awards Luncheon.



UF Leads Collaboration for Safer Roads

Sanjay Ranka, Ph.D., a professor, was recently awarded a $2 million grant from the National Science Foundation to develop technology that will monitor high-risk intersections in Gainesville, FL, to make roadways safer. The project, "Video Based Machine Learning for Smart Traffic Analysis and Management," is a collaboration with the City of Gainesville and the UF Transportation Institute and will last four years.

The goal of the project is to use video processing and machine learning to make traffic intersections safer and improve congestion for the city. Ranka will be working with **Anand Rangarajan, Ph.D.**, professor, CISE; **Lily Elefteriadou, Ph.D.**, Director of the UF Transportation Institute (UFTI); **Siva Srinivasan, Ph.D.**, associate professor, Engineering School of Sustainable Infrastructure & Environment; and **Dan Hoffman**, Gainesville Assistant City Manager.

"Gainesville, like other cities in Florida, has a number of pedestrian-related accidents," Ranka said. "Many of them result in fatalities. The goal of the project is to address this."

According to data collected by Alachua County, there were 57 traffic-related fatalities in 2017, a 33 percent increase from 2016. These fatalities include "not only vehicle drivers, but also bicyclists and pedestrians."

Ranka and his team hope to create an open-source analytics solution to enable new transportation applications that utilize data from low-cost video sensors. By creating open-source analytics and using low-cost sensors, the researchers hope to create a system that can be easily replicated in other cities. Data at intersections will be analyzed to monitor the behavior of pedestrians, drivers, and cyclists on the road. The project aligns with the city's Vision Zero plan, a traffic safety initiative that aims to eliminate all traffic fatalities and severe injuries.

By understanding the risk profile of an intersection through automated detection of near-miss events, communities will be able to proactively design and alter streets and intersections to be safer. Near-miss events are defined by the National Safety Council as unplanned events that did not result in injury, illness, or damage – but had the potential to do so.

"Our technology will lead to less congested and safer traffic systems in Gainesville and other cities," Ranka said.

Anthony Named an ACM Senior Member

Lisa Anthony, Ph.D., an associate professor, was named a Senior Member of the Association for Computing Machinery (ACM).

Anthony's research interests include understanding, designing, and developing natural user interactions, especially for children. Her work integrates and contributes to research in human-computer interaction, child-computer interaction, multimodal interaction, machine learning and artificial intelligence, cognitive science, and interaction design. She has received funding from industry and government sources, including the National Science Foundation CAREER award. Anthony joined CISE in 2013.

"Being named an ACM Senior Member is an acknowledgment of my research contributions to the ACM community over the last 15 years," Anthony said. "I'm honored to have been recognized and to have reached this milestone in my career."

Anthony received her Ph.D. from the Human-Computer Interaction Institute (HCII) in the School of Computer Science (SCS) at Carnegie Mellon University in Pittsburgh, Pa. In addition to a master's degree in HCI from Carnegie Mellon, she has a bachelor's and a master's degree in computer science with concentrations in artificial intelligence, human-computer interaction, and software engineering from Drexel University in Philadelphia.

The ACM Senior Member program, initiated in 2006, includes members with at least 10 years of professional experience who have demonstrated performance through technical leadership, and technical or professional contributions.

ACM Senior Member status recognizes the top 25 percent of ACM Professional Members for their demonstrated excellence in the computing field.

Thai Named as Institute's Associate Director

My T. Thai, Ph.D., a UF Research Foundation Professor, has been selected as the Associate Director of the Warren B. Nelms Institute for the Connected World. Thai received her Ph.D. from the University of Minnesota, Twin Cities in 2005. She has been on the faculty of the Herbert Wertheim College of Engineering since 2006, receiving $6 million in grants over that time.

Thai received an early career award from the National Science Foundation for 2010-2015 and a young investigator award from the Defense Threat Reduction Agency for 2009-2014. She has authored or co-authored more than 250 research papers. Her research interests include blockchain, scalable machine learning, security and privacy, big graph mining, complex network analysis, approximation algorithms and optimization.

"This is a tremendous opportunity, and there are so many great things we can do at the Institute," Thai said. "I'm looking forward to working with my colleagues to smartly connect everything in a meaningful way – to improve quality of life and to generate the best workforce in the IoT-related areas."

In her role as associate director, Thai will coordinate institute strategy, research, education and training as she helps to raise the visibility of the Institute nationally.

Inspiring the Next Generation Of Black Women in Computing

Kyla McMullen, Ph.D., an assistant professor, and Jeremy A. Magruder Waisome, Ph.D., a postdoctoral associate, who are members of the Institute for African-American Mentoring in Computing Sciences (iAAMCS), host the Modern Figures Podcast, which is sponsored by the National Center for Women & Information Technology (NCWIT).

WHAT IS THE MODERN FIGURES PODCAST?

Modern Figures Podcast is a platform highlighting the stories of Black Women in Computing (BWIC) to inspire the next generation of the advanced technology workforce.

WHAT LED YOU TO START THE PROJECT?

We were approached by representatives from our sister organization, NCWIT, about the opportunity to develop something to support young women and girls who identify as black. We had several conversations about the type of endeavor we'd like to pursue, our audience, and our capabilities. Ultimately, because of the resources at the UF College of Journalism and Communications, we could easily produce a podcast.

WHAT ARE THE REQUIREMENTS FOR BEING A GUEST ON THE PODCAST?

Our guests are members of the BWIC community and allies to that community. Beyond that, there are no specific requirements.

HOW DO YOU FIND POTENTIAL GUESTS?

We leverage our connections within the BWIC space, because of our existing networks. But we have also solicited recommendations from our listeners, some of whom have come and interviewed. We also meet people at conferences and events and invite anyone we feel would be a great guest and is willing to share.

WHAT DO YOU HOPE TO ACCOMPLISH WITH THIS PODCAST?

Our hope is twofold. First, to elevate the inspirational stories of incredible Black women in computing-related disciplines and their allies. And second, to inspire our listeners through these stories of courage, resilience, ingenuity, persistence and strength. Overall, it's to show everyone that there is no single story that defines someone in computing. Everyone's story and contributions to this discipline are valid and valued.

HOW OFTEN DO YOU BROADCAST?

We release episodes weekly during "seasons." Our first season strategically aired in February for Black History Month and lasted through March, Women's History Month. We're hoping to launch our second season in October.

HOW CAN PEOPLE TUNE IN?

You can find episodes of Modern Figures Podcast on Spotify, Google Podcasts, Apple Podcasts, and more. To find out more information, visit our website, modernfigurespodcast.com, where you can listen, subscribe, and learn more about who we are and what we're doing.

WHAT TARGET AUDIENCE ARE YOU HOPING TO REACH?

Though our target audience is young women and girls, we hope that we are also inspiring the young at heart.

WHO FUNDS THE PODCAST?

The podcast is currently funded by NCWIT, but we welcome additional sponsors to help improve the quality of the show.

WHAT KIND OF TOPICS DO YOU DISCUSS?

Guests are invited to share their stories and perspectives on topics such as technical areas (affective computing, augmented and virtual reality, robotics, social media analytics, cybersecurity, and non-traditional computing careers), broader issues (gender diversity in gaming, intersectionality, algorithm bias, inclusive design, computing and social justice), and personal challenges (work/life balance, surviving the culture of higher education, and isolation in computing fields).

WHAT HAS BEEN YOUR FAVORITE EPISODE SO FAR?

Kyla: That's a hard question. Definitely the episode with Dr. Angelique Johnson because we did a LOT of laughing that day. She's a lady boss who started her own tech company with just a dollar and a dream.

Jeremy: My favorite episode is Jamika Burge's episode entitled, "Computer Science is for Everyone," because she's an incredible storyteller. So much of her story resonated with me as a Southern girl with big city aspirations.

IS THERE ANYTHING ELSE YOU WOULD LIKE PEOPLE TO KNOW ABOUT THE PODCAST?

Kyla: Engagement! We love to hear from listeners and engage in conversation about topics for the future, new guests, and just the overall opinion about the show. Without listeners, we're just two weird people in a room talking to each other.

Jeremy: My primary message to people who ask about the podcast is that it truly is for everyone. We try to use language that anyone can understand, because we want to invite everyone to learn more about computing and the opportunities it can provide. I also warn people to expect lots of laughs. We like to have fun, and I think it shows.

FEATURED RESEARCH

USING 3D AUDIO TO AID SEARCH AND RESCUE

KYLA MCMULLEN, PH.D., EARNS AN EARLY CAREER AWARD FROM THE NATIONAL SCIENCE FOUNDATION TO ENHANCE FIRST RESPONDER EFFECTIVENESS

First responders typically work in hazardous conditions caused by hurricanes, tsunamis, earthquakes, fires and terrorism events. Natural and man-made disasters are becoming more frequent, making the role of first responders more important than ever. In the case of firefighters, the smoke and darkness that often inhibit vision have left responders plagued by disorientation, miscommunications, getting lost, and failing to identify appropriate paths to reach victims and move them to safety.

Kyla McMullen, Ph.D., an assistant professor, believes the use of 3D sounds can help firefighters find their way when visual conditions are impeded. With a system developed by McMullen, the responder would hear unique 3D audio cues representing the locations of targets of interest, such as victims, exits, fire panels and water sources.

While 3D audio has been studied before, none of the research has addressed the challenges in designing 3D sound for use in real-world conditions. All existing research results were derived in quiet, highly contrived and tightly controlled experiments. McMullen and her team will be working closely with Gainesville Fire Rescue to develop a local, open-source testbed. The team will evaluate firefighters' performance in search-and-rescue scenarios and will use the results to establish 3D sound design guidelines. The information they garner will address three areas:

- Realistic 3D sound rendering
- Rapid detection of changes in 3D sound
- Effects of competing sounds on accurately distinguishing the sound of interest

The work will significantly contribute to the current understanding of the usability of 3D display systems and human factors associated with using 3D audio to convey spatial information in real-world contexts. McMullen's research program aims to unobtrusively help first responders perceive the world around them and maintain awareness of their surroundings. This work hopes to decrease the number of casualties experienced each year in emergency environments.

McMullen has integrated an educational component into her research to offer undergraduates the opportunity to work in this intriguing area of research. Students in her 3D audio course will develop supplemental augmented-reality (AR) modules for firefighter emergency medical service (EMS) training. The AR training will allow firefighters to practice EMS skills in a realistic environment outside of the classroom. All students interested in human-centered computing will be recruited to take part in the projects, including students from the Distributed Research Experiences for Undergraduates (DREU) program and the Institute for African-American Mentoring in Computing Sciences (IAAMCS), as well as UF undergraduate students in the Emerging Scholars Program.

A CAREER award is the NSF's most prestigious award for junior faculty and is designed to help provide a foundation for a lifetime of scientific leadership.

NSF GRANT WILL AID LOWER-INCOME PH.D. STUDENTS IN THE FIELD OF COMPUTING

McMullen has also received an NSF grant to provide support to Ph.D. students and study the effects on degree-completion and career outlook. This five-year project will address the need for highly qualified computer/information professionals by supporting 30 high-achieving, low-income students with demonstrated financial need who are pursuing doctorate degrees in computing fields.

By providing up to five years of scholarship support, as well as mentoring and professional development support, the program aims to overcome barriers faced by low-socioeconomic status students in Ph.D. programs.

The objectives of the project are to 1) improve the retention and graduation rates of low-income students in CISE Ph.D. programs, 2) equip Scholars to obtain STEM employment within 12 months of graduation, and 3) improve the culture and climate for diversity and inclusion for CISE Ph.D. students.

Three Ph.D. Students Receive NCWIT Award

Jasmine Bowers, Tiffanie Smith and **Sanethia Thomas**, all CISE Ph.D. students, received the National Center for Women and Information Technology (NCWIT) North Florida & Southeast Georgia Affiliate Award for Aspirations in Computing. The NCWIT Aspirations in Computing (AiC) Collegiate Award was designed to honor technical accomplishments of women in college.

Bowers' research focuses on digital finance privacy and security. She is currently working on a project called, "Characterizing Security and Privacy Practices in Emerging Digital Credit Applications."

"This experience inspired me to not only continue working on impactful research but also encourage young girls to explore their own passions in computing," Bowers said. "Ultimately, I hope to help expose K-12 girls to computer science and technology. More importantly, I hope to serve in capacities that allow me to encourage young girls to be all that they dream of being and do all that they dream of doing."

Smith's research focuses on culturally relevant educational technologies. She is currently working on her dissertation, "Makin' Math Move: A Full Body Interactive Learning Environment for Pre-Algebraic Practice."

"As I transition into academia, I hope that I can utilize any connections made from networking with other winners to apply for other awards that will allow me to create opportunities for my students," Smith said.

Thomas' research focuses on human-centered computing and athlete development. She is currently working on a project called "Athlete Development Technologies."

"I am humbled to be selected as an awardee from such a prestigious organization," Thomas said. "This sets me apart and validates my research as noteworthy."

Students Receive Outstanding International Student Awards

Four CISE students received Outstanding International Student Awards for their exemplary academic achievements and involvement at UF. The winners, **Guangyu Zhu, Shikha Mehta, Mimonah Al Qathrady** and **Aishat Aloba**, were among 15 students from the Herbert Wertheim College of Engineering to receive the award.

The International Student Achievement Awards Ceremony highlights the accomplishments of international students at UF. The awards are designed to recognize students who not only meet exemplary academic achievement but also a wide range of accomplishments and contributions.

Zhu is an undergraduate student and president of Women in Computer Science & Engineering (WiCSE), a student group. She helps with all the WiCSE sub-programs, mentorship program, shadowing program, and USAB (Undergraduate Student Advisory Board) in operation.

Mehta is pursuing her master's degree and focuses on backend software development. She is also a member of WiCSE, and she has previously worked for Microsoft, UF and Udacity.

Qathrady is a Ph.D. student whose research focuses on mobile networks. She has been involved in N2Women, which is a community of researchers.

Aloba is a Ph.D. student and is currently working on the Wacom Project and the Kids Pose Project as part of the INIT Lab. Her interests include human-computer interaction, machine learning, technologies for children, and app development.

STUDENTS RECEIVE NSF GRADUATE RESEARCH FELLOWSHIPS

The National Science Foundation's Graduate Research Fellowship Program recognizes outstanding graduate students in STEM fields. Fellows benefit from a three-year annual stipend of $34,000 along with a $12,000 cost of education allowance for tuition and fees, opportunities for international research and professional development, and the freedom to conduct their own research.

The NSF GRFP has announced 2,051 Fellows for 2019. Of the 22 students selected at the University of Florida, two are from CISE.

JEAN LOUIS

Louis is a first-generation college student who recently graduated with a bachelor's in computer engineering.

"One of the most exciting things that I did as an undergrad was participating in the research team that created the world's first Brain-Drone Race," Louis said. "I was later able to lead a team of nine undergraduate students to put on the second race the following year."

This fall, Louis will be starting his Ph.D. studies in computer science at the University of Florida. He will be working in the Human-Experience Research Lab under Juan E. Gilbert, Ph.D., The Banks Family Preeminence Endowed Professor and department chair.

"I would like to study the Internet of Things and human-computer interaction," Louis said.

JULIA WOODWARD

Woodward is a second year Ph.D. student in Human-Centered Computing (HCC) under the guidance of Jaime Ruiz, Ph.D. She graduated cum laude from UF with a B.S. in Digital Arts and Sciences, and then joined the HCC Ph.D. program in fall 2017. During her undergraduate research career, Woodward was a finalist for the Computing Research Association (CRA) Outstanding Undergraduate Researcher Award and was highlighted in the CRA-Education Undergraduate Research Series.

Her research area focuses on augmented-reality (AR) headsets, which allow a user to see and interact with virtual objects projected onto a view of the real world. The aim of Woodward's research is to examine how visual information in AR headsets should be presented for different populations (e.g., adults and children), and how it can aid in situational awareness.

ALUMNI SPOTLIGHT: SANETHIA THOMAS, PH.D.

Sanethia Thomas earned a Ph.D. in human-centered computing from CISE and was advised by **Juan E. Gilbert, Ph.D.**, The Banks Family Preeminence Endowed Professor and department chair. She spoke during the Herbert Wertheim College of Engineering's Spring 2019 graduation recognition ceremony for Ph.D.'s, Master's and Specialist's degrees.

As a black woman doctoral graduate, Thomas represents less than a fraction of a percent of computer science doctoral graduates nationwide and strives to serve as a role model to younger generations.

"I stand here as a statistic who made a difference. I stand as a minority in race and gender – and that did not stop me from getting an engineering degree," she said. "I am compelled to invest my total self to impact and help minority students who want to go to college, specifically those who want to major in STEM fields."

Thomas worked hard throughout her academic career to achieve her dreams. In her own words:

"When I told my mother that I wanted to go to college her reply was, 'I don't know honey; I don't have the money for that.' I now realize her response came from a place that reflected her reality. As a survivor of domestic abuse, her newest battle as a single parent was fighting for survival by ensuring she had enough money for food and shelter.

She could not see having money beyond a week, nevertheless having money for college. That was not practical. When I heard those words, I did not hear her reality; I heard that I had to do all that I could to get a scholarship."

As a result of her academic achievements, Thomas was awarded scholarships starting from seventh grade until college. She received academic and athletic scholarships to the University of Texas El Paso, where she majored in Computer Information Systems. She also holds a Master's degree in Youth Development Leadership from Clemson University, where she graduated in the Top 10 percent of her class.

Thomas has received numerous accolades for her research and work. She is a National Science Foundation Graduate Research Fellow and a fellow of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM).

She was inducted into the Phi Kappa Phi Honor Society, the Edward Bouchet Honor Society at Yale University, and the first African-American Honor Society, Beta Eta Sigma. Thomas was also recognized by the National Academy of Inventors (NAI) and honored by the National Center for Women in Technology (NCWIT).

In addition to her academic honors, Thomas is adept in athletics. She is a former professional basketball player, representing the U.S. as she played basketball in Amsterdam, Belgium and Paris. Her basketball experiences have fueled her research in developing technologies that will assist athletes in transitional skills and mental health.

Thomas' research is interdisciplinary, as it includes the fields of human-computer interaction (HCI), athlete development, natural-language interfaces and educational technologies. Specifically, she explores the concept using natural-language interfaces and intelligent embodied conversational agents to help athletes.

"I STAND HERE AS A STATISTIC WHO MADE A DIFFERENCE. I STAND AS A MINORITY IN RACE AND GENDER – AND THAT DID NOT STOP ME FROM GETTING AN ENGINEERING DEGREE," - SANETHIA THOMAS

She is pursuing entrepreneurship through the commercialization of her dissertation research and has started a company called Second-Shot that is dedicated to developing personal development tools for athletes.

Beyond academia and entrepreneurship, Thomas enjoys spending her time traveling, playing sports and reading.

Alumni Honored at Gator100

The Gator100 recognizes and celebrates the 100 fastest-growing Gator-owned or Gator-led businesses in the world each year.

David Friedland
1985 B.S. Computer & Information Sciences, 1988 J.D. Law

Friedland is co-founder of Friedland Vining, a top intellectual property law firm in South Florida that advises, negotiates and executes transactions involving patents, trademarks, copyrights, trade secrets and domain names and guide clients on how to obtain, protect, commercialize and transfer intellectual property rights. Friedland is actively involved in key industry associations, including the American Bar Association, American Intellectual Property Law Association, and the International Trademark Association, where he is a member of the Panel of Trademark Mediators and the Alternative Dispute Resolution Committee.

Alumni Named in UF's 40 Under 40 Awards

The annual 40 Under 40 awards program was established to recognize alumni under the age of 40 whose achievements positively reflect The Gator Nation.

Sarvenaz Myslicki
2013 B.S. Computer Science

Myslicki was hired as engineering director at American Express in September 2018. Her job was to lead the digital transformation of a team of 60 engineers and modernize the company's technology applications. Within 90 days, she delivered the first phase of a re-platforming strategy that is bringing significant incremental revenue to the company annually.

"The University of Florida provided me with so much more than a degree," she said. "It taught me how to tackle complex problems, collaborate on cross-functional teams, lead without authority, and so much more. On top of a strong computer science foundation, it presented me with countless opportunities to gain the skills that are essential, yet often overlooked in the workforce. UF Engineering prepared me for success in more ways than I ever could have imagined, and truly helped me jump-start my career."

ALUMNI SPOTLIGHT

ALUMNI SPOTLIGHT: USHA SURYADEVARA

Usha Suryadevara (Computer Engineering, MS '01) is the Director of Development at Info Tech in Gainesville, Fla. Suryadevara has made mentoring women in computer science and engineering an important part of her life.

WHY WERE YOU INTERESTED IN THE COMPUTER ENGINEERING/ SCIENCE FIELD?

Honestly, I had to decide between dissecting frogs or learning about computers. I've always been interested in using logic to analyze problems and solve them. Computer engineering just hit the spot and wasn't nearly as messy as dissecting a frog.

WHAT ARE YOU WORKING ON IN YOUR CURRENT POSITION WITH INFO TECH?

My position focuses on guiding the professional and technical advancement of the development department and to strategize and execute on the technical vision for the Info Tech Products department.

This means I get to study and play with new techniques and architectures to maximize the return on the company's investment into technology, and mentor people in the implementation and usage of that technology.

WHAT HAS MOTIVATED YOU TO MAKE CHANGES IN THE INDUSTRY?

As my career in computer science advanced over the years, I realized some of the shortcomings and inequalities within the industry. This motivated me to start my journey as a mentor with UF's WECE (Women in Electrical and Computer Engineering) program. A year into the mentoring program, I attended the Grace Hopper Celebration. After listening to the keynote speakers and others in just a few speeches, I realized how much more I could — and should — be doing.

WHY DO YOU FEEL THE TOPIC OF WOMEN IN COMPUTER SCIENCE IS SO IMPORTANT?

The Tech community is about solving problems, and we're only as good as the perspectives you have when solving these problems. If we're not able to ensure an inclusive environment where all genders can flourish, then what chance do we have of building technology that actually does good and works for all involved?

The data reflects that there has been a declining number of women over the years in this field. This is not advancement. We're working to change that.

WHY IS MENTORING WOMEN IN COMPUTER SCIENCE/ENGINEERING IMPORTANT TO YOU, AND WHAT DO YOU HOPE THOSE WOMEN WILL LEARN FROM YOU?

During my first time mentoring I realized that there are a lot of students taking the same journey as me and running into the same obstacles. Even after 15 years, I could still relate to my mentee's concerns, issues and successes. A huge difference now is that students in the mentee program have someone at their backs.

We have literature that talks about the obstacles faced by women who start in this track. Instead of overcoming them, women choose a different track, which often moves them out of the coding field. If they have someone who overcame these obstacles, someone to inspire them and someone they can relate to, I think they would make a different decision. I hope to be that role model.

DO YOU FEEL THE INDUSTRY HAS GOTTEN BETTER FOR WOMEN AND MINORITIES IN RECENT YEARS?

There has definitely been an improvement, where we see problems there is awareness. There are a lot of organizations educating everyone on the "how" behind empowering women and promoting diversity, especially gender diversity.

All that said, only 20% of tech jobs are held by women. We have a ways to go.

WHAT KIND OF CHANGES DO YOU HOPE TO SEE IN THE INDUSTRY IN THE NEXT SEVERAL YEARS?

I would like to see the number of women in the industry go up, especially women in leadership positions. I think the key to empowering more women is to be an inspiration for others and be a role model for younger generations.

CAN YOU TELL ME ABOUT THE INFO TECH SHADOWING PROGRAM?

This program gives students real-world experience in their chosen field. Each student is paired with an Info Tech expert based on the student's chosen field, interests, and goals. The student shadows the expert over several sessions and is involved in various aspects of the job such as problem-solving, planning and collaboration with others.

HOW DID THE IDEA FOR THE PROGRAM START?

I got the idea during one of my mentorship meetings. My mentee at the time was interested in a management track. Being a computer science major, that track seemed a little odd, so I asked her what she thought a manager did. Upon further discussion, we realized her interests aligned with being a User Experience designer. Only she did not know such a track existed. That's where I got the idea to introduce students to the wide range of work available in this field.

WHO IS ELIGIBLE FOR THIS PROGRAM?

Students that are part of WiCSE (Women in Computer Science and Engineering) group are eligible for this program. We try to select applicants who are interested, motivated and take initiative.

WHAT ADVICE WOULD YOU HAVE FOR ANY YOUNG WOMEN AND/OR MINORITIES WHO WANT A CAREER IN COMPUTER SCIENCE?

There is an unspoken bias in the industry that "it is a man's world." I'm here to tell you it's not! Don't let this belief stop you from pursuing this career. In most companies, people have been actively working to address discrimination and bias. Besides, these problems exist in the first place because of the lack of women in the industry.

To learn more, visit cise.ufl.edu/alumni-spotlight-usha-suryadevara

UF CISE RECEIVES $1 MILLION GIFT TO FUND TWO RISING STAR PROFESSORSHIPS

Arnold and Lisa Goldberg want to play their part in educating the New Engineer. They know that by investing in CISE, students will have the tools, leadership skills and confidence to succeed in computer science. The Goldberg's $1 million gift establishes the Arnold and Lisa Goldberg Rising Star Professorship in Computer Science, which funds two professorships for an appointment of five years.

"Endowed professorships carry a level of prestige that positively reflects on the department, our faculty and their research. We are thankful for the Goldberg's support," said **Juan E. Gilbert, Ph.D.**, The Banks Family Preeminence Endowed Professor and department chair.

Arnold Goldberg, the vice president of Merchant Product and Technology at PayPal, holds a bachelor's degree in computer science from UF. Goldberg joined PayPal from Box, where he spent three years as vice president of engineering. Prior to working at Box, Goldberg was vice president of platform engineering at LinkedIn. He also spent six years at eBay as senior director of systems development. At PayPal, he focuses on developing new products for consumers and merchants.

"I love the direction that Dr. Gilbert is taking the department in conjunction with all of the support that Dean Abernathy has given," said Arnold Goldberg as he explained his vision of how the department will benefit from the professorships. "I have personally witnessed the opportunity that a degree in computer science will afford an individual. I wanted to accelerate the awareness and stature of UF's CISE department as a preeminent destination to get that degree."

MAKING THE WORLD A MORE SECURE PLACE

Gilbert and **Cammy R. Abernathy, Ph.D.**, dean of the Herbert Wertheim College of Engineering, named associate professors **Kevin R. B. Butler, Ph.D.**, and **Daisy Zhe Wang, Ph.D.**, as holders of the professorships for their contributions to the field of computer science.

Butler, the associate director of the Florida Institute for Cybersecurity Research at UF, recently led a research team that uncovered smartphone vulnerabilities. The weakness could allow hackers to easily take control of phones and extract private information without users ever knowing. Butler's research focuses on the security of computers, from embedded and mobile devices to cloud computing systems, and the data that they generate.

"My research objectives can be broadly characterized as assuring the trustworthiness of data," Butler said.

As machine learning and artificial intelligence become increasingly prevalent in society, the ways machines make decisions become extremely important to understand.

"Support from this professorship will help us to examine how machine learning is being used in the context of securing systems; to determine what vulnerabilities exist in the models used for these decisions; how to explain the decision-making process; and how to make it more secure against attackers looking to exploit these systems," Butler said.

Wang is currently collaborating with researchers at USC's Information Systems Institute (ISI), Rensselaer Polytechnic Institute and Columbia University to shorten the time it takes intelligence analysts to collect and interpret data about national and international events. With a $1.17 million grant from the Defense Advanced Research Projects Agency (DARPA), Wang will develop computer algorithms that can answer a query by reasoning over an event-driven knowledge base and generating disparate hypotheses about the links between causes and effects for the event in question.

"This professorship will help me to continue developing technology that can assist in data-driven learning and decision-making, where the data is noisy, incomplete, conflicting and biased," Wang said. "For the next five years, I hope to develop more robust question answering systems over knowledge graphs that supports lineage, confidence, contradictions and explanation."

The Goldberg professorships were created to recognize researchers that are rising stars early in their careers.

"Wang and Butler are both breaking the frontiers in their respective research areas," Gilbert said. "Their performance, thus far, in their careers has been outstanding as they have obtained significant research funding, published top research articles and advised many Ph.D. students."

The Goldberg Rising Star Professorships in Computer Science are the first rising star professorships for the department, and this is the first time an individual has gifted a faculty endowment to the department.

UF Online Bachelor's Degree Program Ranked No. 5

UF Online, the University of Florida's online bachelor's degree program, is tied for the No. 5 spot in the country in the 2019 U.S. News & World Report list of best online programs. The online program offers a bachelor's degree in computer science that "encourages students to explore the theoretical foundations of information and computation with considerable freedom through the liberal arts."

"The UF Online Computer Science program provides critical access to best-in-class education in order to meet the ever-growing demand for nimble computing practitioners," said **Juan E. Gilbert, Ph.D.**, The Banks Family Preeminence Endowed Professor and CISE department chair. "IT and computing skills are in high demand. The online computer science degree provides greater access to those that may not be able to pursue a traditional campus degree."

"The growth in the online computer science degree program represents the demand for these skills nationwide," Gilbert said. "I am proud to see so many students pursuing and completing the online degree that may not have had other options. It's an honor to see the U.S. News and World Report recognize the excellence in our UF Online program."

CISE CAREER FAIR

The CISE Career Fair is a biannual job and internship fair held by the department. Students with a computer engineering, computer science or digital arts and sciences background spend the afternoon talking with company representatives about potential job or internship opportunities. The event sees an average attendance of 800 students and 30 companies. Corporate attendees have included Google, Microsoft, Facebook, Bloomberg, Ultimate Software, American Express, and many more.












2019 Department Awards Ceremony

Congratulations to the more than 25 recipients of the 2019 CISE undergraduate and graduate scholarships. Certificates were presented at a luncheon to celebrate the students' accomplishments.

AR/VR Demo Day

Students from CISE and the UF College of Journalism and Communications presented their VR/AR projects to the public during a demo day at the Florida Museum of Natural History (FMNH).





TIDESS at the Museum

Faculty and students deployed a research prototype at the FMNH for the "Touch Interaction for Data Engagement with Science on Spheres (TIDESS)" project. TIDESS focuses on designing more effective and natural technology-enabled learning experiences for informal settings like science museums and other public spaces.

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