



**UNIVERSITY OF
SOUTH FLORIDA**
A PREEMINENT RESEARCH UNIVERSITY



**COLLEGE OF ENGINEERING
COMPUTER SCIENCE AND ENGINEERING
ANNUAL REPORT: 2018-2019**

According to the US Bureau of Labor Statistics, “seven out of the ten largest STEM occupations were computer-related. With the employment of nearly 750,000, applications software developers were the largest STEM occupation. Computer user support specialists and computer systems analysts each accounted for over a half a million job.” We at USF CSE prepare students for these professions at undergraduate and graduate levels. Our faculty members and students conduct high-impact research and innovation that ensure the sustained growth of these computing jobs in the future.

USF CSE is in the top sixth (rank 29) of Computer Science departments in US public universities. This ranking is according to most recent Academic Analytics data based on Scholarly Research Index using default weights for grants, articles, conferences, awards, and citations. The latest US News & World Report ranked our Computer Engineering program in the top-50 (rank 48) among public universities. And, the graduate Master of Science in Information Technology program was ranked 20th for online IT programs by the 2019 US News & World Report.



Among the new significant activities this year is the launch of the new USF Institute for Artificial Intelligence + X, the Computing Partners Program, and the start of Broadening Participation in Computing activities. However, the single, most important piece of news that we are proud to share at this time is the announcement of our new President. Dr. Steven C. Currall is the 7th President of University of South Florida (USF), a Preeminent State Research University in Florida with more than \$568 million in annual expenditures, among the nation’s top 30 public universities for research, and America’s fifth-leading public university in generating new United States utility patents. We at USF CSE share his vision for the four main pillars of the “architecture” of academic excellence.

- The quality of undergraduate students and their educational experience
- Faculty, research and creative impact
- The quality of graduate students and their educational experience
- Strategic partnerships involving societal engagement and service, and fulfilling our catalytic role as an engine of regional economic development, health and prosperity.

Undergraduate Educational Experience:

At the undergraduate level, we offer four degrees programs - the Bachelor of Science in Computer Science, Computer Engineering, Information Technology, and Cybersecurity. The Florida Board of Governors recently approved the BS in Cybersecurity degree program. Total undergraduate enrollment, including pre-majors, is currently approximately 2000 students, or about 1/3 of the total population of undergraduate students in the College of Engineering. This fall semester, 44.8% of incoming students to the

College of Engineering declared an interest in one of the four-degree programs in the Department.

To address the potential rise in student to faculty ratio, we have plans to continue hiring new faculty members.

In Academic Year 2018-19, the Department awarded 339 BS degrees. Our graduates are in top companies in the Tampa-bay region and nationwide, such as CAE, Raymond James, JP Morgan, Johnson and Johnson, Reliaquest, Raytheon, GM, Google, IBM, Twitter, and Intel, to name a few.

To enrich the student educational experience facilitated by a diverse student body, we launched

the Broadening Participation in Computing (BPC) committee this year. While we are doing well in terms of Black and Hispanic student representation, our gap for women is significant. In Academic Year 2018-19, 8.0% of BS degrees awarded went to Black students, and 17.4% went to Hispanic students, this is more than double the national average for these two groups for computer science. In the same year, 16.2% of BS degrees awarded went to women students; this is below the national average of 21.2%. With support from the National Center for Women in Information Technology (NCWIT), we are engaged in a learning circle with University of Maryland, College Park, and Case-Western Reserve University to structure and implement a BPC plan.

We have an active Research Experiences for Undergraduates (REU) program, undergraduate teaching assistantships, many scholarships, connections for internship opportunities with companies in the Tampa Bay area, and the chance to do meaningful capstone design projects in conjunction with local companies. Our students have access to many active computing-related student organizations, state of the art computing facilities, including Mini-Circuits Design-for-X Lab, computer engineering, and cybersecurity labs.

Faculty Research:

Great faculty members make for great departments. USF CSE has 28 tenure-stream faculty and 12 full-time instructors, many of whom are IEEE, AAAS, IAPR, and AIMBE Fellows, NSF CAREER award recipients (12 of them!), and Distinguished University Professors (two). Our faculty members value research, teaching, and service. Multiple faculty members have been awarded Outstanding Undergraduate Teaching awards from the University. Our faculty members are very involved with service to professional societies (such as IEEE-CS and ACM) and the community.

Faculty members are currently executing \$9.7 million in active external research grants as PI, each spanning 1 to 3 years. Of the total amount, \$6.2 million are from NSF, \$2.6 million are from the Department of Defense, and the rest from NIH, NIST, industry, and state sources. The research clusters in the department include:

- AI and Cognitive Computing (Computer Vision and Pattern Recognition, Artificial Intelligence and Machine Learning, Robotics, Human-Computer Interfaces, and Affective Computing)
- Cybersecurity (Trustworthy Computing, Network Security, Smart Bio-devices, Hardware security, and Biometrics)
- Big-Data Science Algorithms (Biomedical Imaging, Machine Learning, Databases, Visualization, Social Networks, and Efficient Computing Platforms)
- Efficient Computing Platforms (VLSI, Ubiquitous Sensing Networks, Distributed Computing, Parallel Processing, and Biomedical Devices)

The Florida Board of Governors recently approved the creation of the Institute for AI+X at USF, a university-level institute

with participants from all different colleges. The goal is to build a world-class academic R&D center at the University of South Florida conducting externally-funded research in artificial intelligence (AI) and associated areas (X = healthcare, medicine, cybersecurity, finance, business, manufacturing, transportation, etc.). It will focus on convergence-based problem solving across a variety of sectors. The approach will fuse neuroscience, cognitive science, and computer science to conduct externally funded research in AI and associated areas. From these research initiatives, the institute will work with industry to transition research into products that benefit humanity ethically and responsibly. USF is currently seeking industrial partners for this initiative

Graduate Educational Experience:

Students have a variety of options at the graduate level. We have three Master’s programs: in Computer Science, Computer Engineering, and Information Technology, and the PhD in Computer Science and Engineering. In Academic Year 2017 - 2018 students graduated with 56 MS degrees and 11 PhD degrees. Currently, we have 148 Master’s students and 116 PhD students pursuing their dreams. Over 30% of our graduate students are women.

All our PhD students have research or teaching assistantships that include a stipend and tuition waiver. During their study, all students have access to many student organizations and state of the art computing facilities, including Mini-Circuits Design-for-X Lab, computer engineering and cybersecurity labs, and a more than 100 node GPU cluster for AI/deep learning/database in research the CSE data center. Top industrial research labs such as Google, Amazon, Intel, Microsoft, Jet Propulsion Labs employ our MS and PhD graduates. Many PhD graduates are excelling as faculty

members at top academic institutions.

Community Impact:

Nearly two-thirds of our graduates find jobs in the state of Florida and are actively contributing to its economic prosperity. An active advisory board composed of leaders in the industry, academia, and distinguished alumni help shape our curriculum to keep it current. One of the pain points we had heard from the industry is the difficulty in attracting top CSE students for internships and jobs. To address this, we recently launched an industry partners program called the Computing Partners Program to provide a structured engagement with students for internships and jobs. The Computing Partners Program enables companies to have a customized, deeper connection with our students and USF CSE. This program augments the mechanisms available through CSE UG Newsletter or USF CAREER center or participating in a resume matching system. To date, we are delighted to have CAE, Raymond-James, Johnson-and-Johnson, and JP Morgan as our partners. We hope to grow this program into a vibrant mechanism to showcase our best students to the best companies in the region and vice-versa.

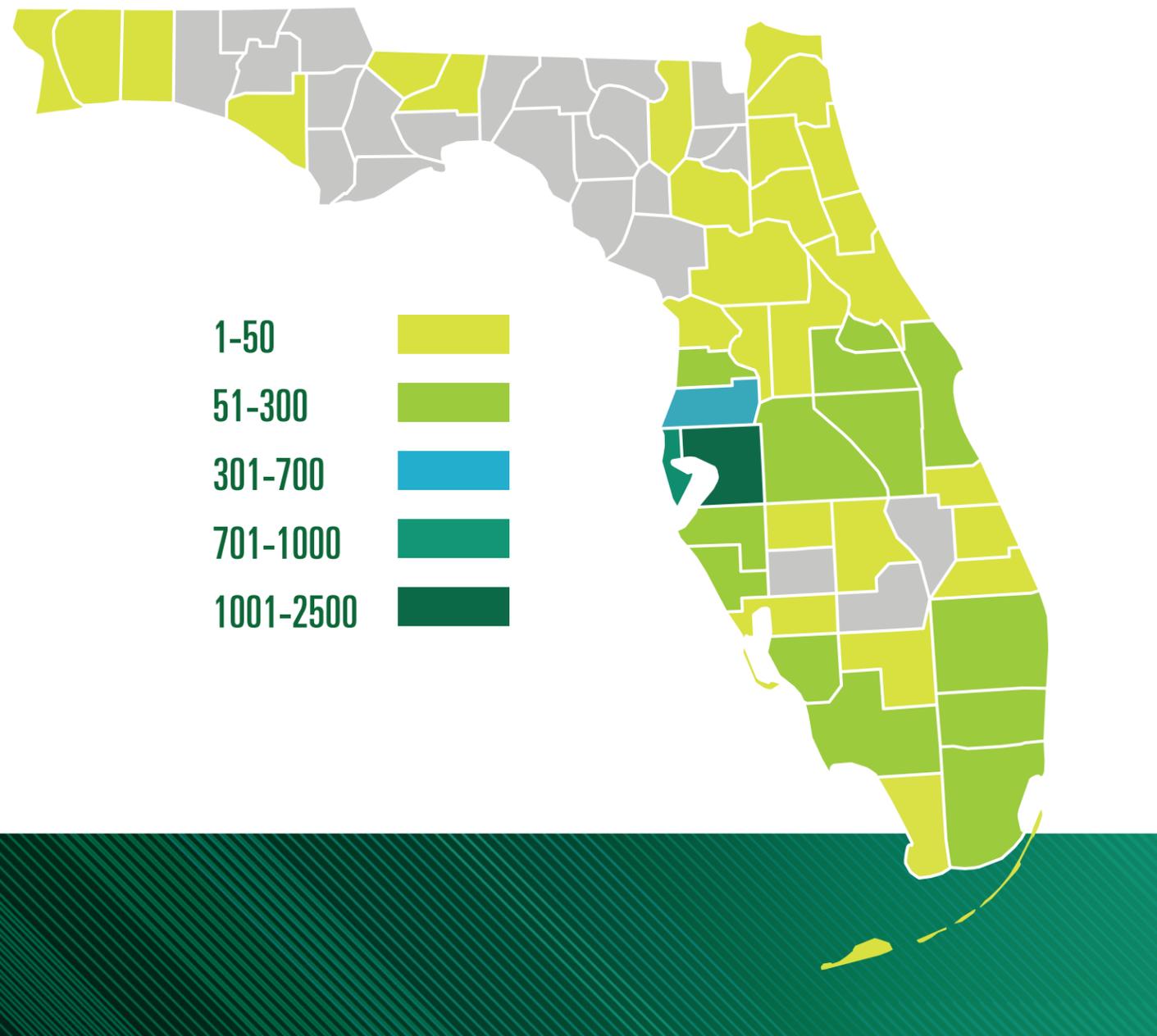
We are located in the beautiful Tampa Bay area, which has several of the top-ranked beaches in the world, a sunny climate, and many opportunities for recreation as well as cultural activities. We look forward to welcoming you on campus sometime soon. Be it as a student, faculty, as an alumnus who wants to connect back, as a distinguished speaker, or simply as a respected guest and friend. Sincerely,

Sudeep Sarkar

Professor and Department Chair

CSE STUDENT CONCENTRATION BY COUNTY

USF Computer Science and Engineering students by county from Fall 2015 to Spring 2019. This four-year representation shows CSE students come from 43 of Florida's 67 counties.



CSE TEXTBOOK SAVINGS



EBOOK SAVINGS: \$46,505

LIBRARY RESOURCES: 36% OF TOTAL SAVINGS

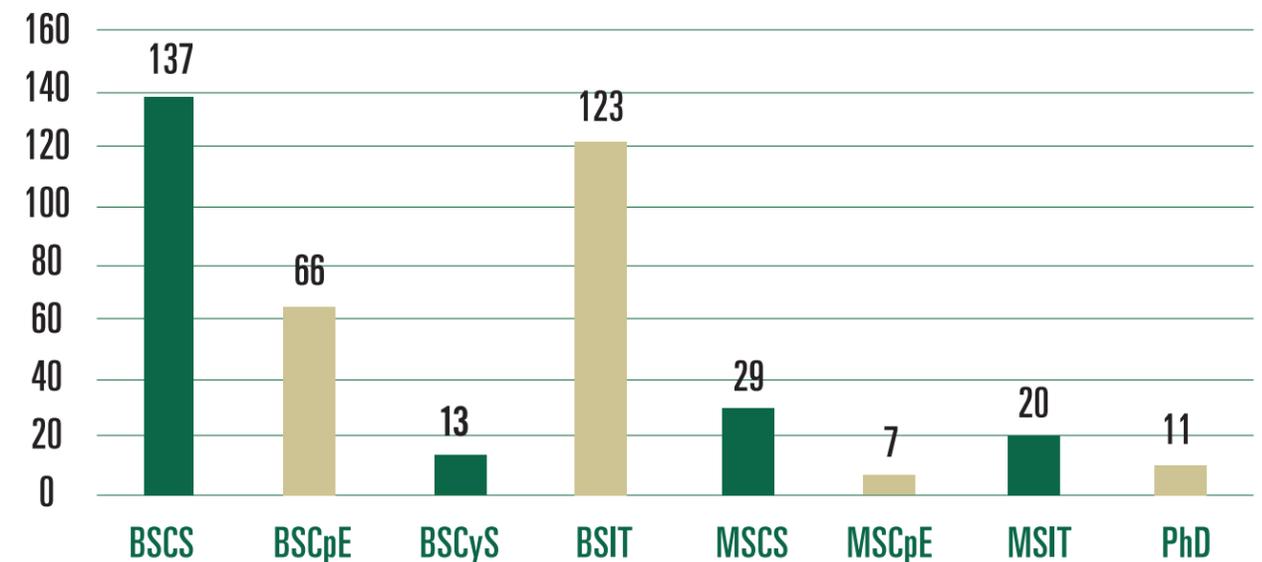
CSE RANKED 5TH HIGHEST IN DEPARTMENTAL SAVING

TOTAL DEPARTMENTAL SAVINGS: \$127,740

The department works with faculty, publishers, the USF Library and Bookstore to make sure faculty have the most cost effective textbook options. For spring 2019, textbook savings amounted to \$127,740 compared to spring 2018. Mayra Morfin, undergraduate specialist, spearheaded this initiative.

Source: USF Textbook Affordability Project (TAP), June 14, 2019

2018-2019 DEGREES AWARDED BY ACADEMIC PROGRAM



The Department of Computer Science and Engineering awarded 406 degrees for the 2018-2019 academic year. The above graph shows the distribution by academic program. The data was retrieved from USF InfoCenter, 2019.

- **Yu Sun**, in collaboration with Stanford University, was awarded a grant of \$173,338 from the National Science Foundation (NSF) in support of a project titled “CHS: Small: Collaborative Research: Wearable Fingertip Haptic Devices for Virtual and Augmented Reality: Design, Control, and Predictive Tracking.”
- **Xinming Ou** and **Jay Ligatti**, along with USF Anthropology Professor Daniel Lende were awarded \$500K National Science Foundation (NSF) grant to carry on fundamental research for the project titled “SaTC: CORE: Medium: Collaborative: Understanding Security in the Software Development Lifecycle: A Holistic, Mixed-Methods Approach.”
- **Mehran Mozaffari Kermani** was awarded a \$300K National Science Foundation (NSF) grant to carry on fundamental research for the project titled “SaTC: CORE: Medium: Collaborative: Countermeasures Against Side-Channel Attacks Targeting Hardware and Embedded System Implementations of Post-Quantum Cryptographic Algorithms”.
- **Miguel A. Labrador** was awarded a \$225K National Institute of Nursing Research grant to further the HeartMapp Project led by USF College of Nursing Associate Professor Ponrathi Athilingam.
- **Dmitry Goldgof** and **Lawrence Hall**, and Moffitt researcher Dr. Robert Gillies granted United States Patent 9,940,709 for “Systems and methods for diagnosing tumors in a subject by performing a quantitative analysis of texture-based features of a tumor object in a radiological image.” The invention is part of long-term, ongoing collaboration between USF CSE Department and Moffitt Cancer Center and Research Institute on advanced computational approaches to cancer screening and diagnosis.
- **Sudeep Sarkar** was granted the United States Patent 9,877,668 for “Orientation invariant gait matching.”
- Distinguished University Professor **Lawrence Hall** was quoted in Florida High Tech Corridor’s annual magazine. Hall concludes that the human element brings bias to datasets when it comes to machine learning and artificial intelligence.
- **Sudeep Sarkar** was the Panel Moderator for TiE Tampa Bay Artificial Intelligence - Reshaping Businesses event in October 2018.
- In February 2019, the Department of Computer Science and Engineering committed to partnering with The National Center for Women & Information Technology (NCWIT) to address the significant gender gap in computer science and engineering.
- **Giovanni Ciampaglia** was invited as a guest panelist for a live episode of 1A on the topic of journalism and fact-checking.
- **Yu Sun** received the Excellence in Innovation Award from USF Research & Innovation. Sun had five inventions granted U.S. patents in the year 2017, all as the lead inventor.
- **Sudeep Sarkar**, Federal University of Bahia Professor Mauricio Pamplona Segundo and 2018 doctoral graduate Earnest Hansley were awarded second place in the Unconstrained Ear Recognition Challenge (UERC 2019) at the International Conference on Biometrics (ICB 2019).
- **Attila Yavuz** received the Cisco Research Center Award for his project titled “Lightweight and Quantum –Safe Authentication for the Internet of Things.”
- **Dmitry Goldgof** was awarded a \$13,100 University of South Florida Nexus Initiative (UNI) grant to conduct collaborative research for the project titled “Automated assessment of pain in neonates.” Mehran Mozaffari Kermani was awarded an \$11,800 University of South Florida Nexus Initiative (UNI) grant to conduct collaborative research for the project titled “Active Side-Channel Attacks and Countermeasures for Lightweight Cryptography.”
- **Hao Zheng** is part of a multi-university project awarded a \$1M National Science Foundation grant. The project is titled “FET: Medium: Collaborative Research: An Efficient Framework for the Stochastic Verification of Computation and Communication Systems Using Emerging Technologies.”
- **Sudeep Sarkar**, **Miguel Labrador** and **Ravichandran Subramanian** received a new patent, Orientation Invariant Gait Matching, issued June 18, 2019.



John Murray-Bruce - Assistant Professor

John Murray-Bruce, Ph.D. joins the dept. in December 2019 as an assistant professor following his tenure as a post-doctoral associate at Boston University. He received a Ph.D. degree from Imperial College London, 2016.

An outstanding researcher in the emerging transdisciplinary field of computational imaging, the convergence of computer science, optics, electrical engineering and mathematics, Murray-Bruce builds new kinds of cameras for surveillance, sensors

for transportation and microscopes for medicine and biology. His Ph.D. work made significant theoretical and algorithmic contributions toward analyzing and predicting a diverse set of natural phenomena described by partial differential equations, from monitoring of environmental pollutants using sensor networks, to understanding absorption and diffusion of drugs across tissue membranes.



Marbin Pazos-Revilla – Instructor

Marbin Pazos-Revilla received his Ph.D. in engineering from Tennessee Technological University with a focus on areas in cybersecurity, secure authentication in electric vehicles, and internet of things security. Marbin has published and presented works in areas of internet of things, cybersecurity and engineering education. He was the recipient of the Best Paper Award at the 2016 Annual Conference of the North American Fuzzy Information Processing Society (NAFIPS) and co-authored grants such as Tennessee Tech’s U.S. Mission to Cuba Grant funded by the U.S. Department

of State. Marbin has contributed to advancing engineering education with the use of virtualization and other technologies like MoLE-SI (Mobile Learning Environment and Systems Infrastructure). He received the Tennessee Tech’s Engineering Award for Innovation and Creativity in 2012 and was the recipient of the 2019 Tennessee Tech Outstanding Professional Award.



Jim Anderson - Visiting Instructor

Jim Anderson received his Ph.D. in computer science from Florida Atlantic University and an MBA from The University of Texas, Dallas. Jim’s research areas focus on securing networks and detecting when intruders have gained access. He has published over 125 books including CRC Press’s “Software Defined Networking.” Jim has worked for numerous companies including Boeing, Siemens, Alcatel, Verizon, AAA and Amgen. He has taught at Florida Atlantic University, the University of South Florida and Florida Polytechnic University.

RESEARCHERS

Sudeep Sarkar, Miguel Labrador, Ravichandran Subramanian

PATENT NO. & TITLE

10,321,855
Orientation Invariant Gait Matching

Peter Randolph Mouton, Dmitry B. Goldgof, Lawrence O. Hall, Baishali Chaudhury

10,096,110
System and Method for Automated Stereology of Cancer

Swaroop Ghosh, Cheng-Wei Lin

10,036,773
Aging-Sensitive Recycling Sensors for Chip Authentication

Swaroop Ghosh, Kenneth Ramclam

10,014,864
Wide Operating Level Shifters

Robert J. Gillies, Lawrence O. Hall, Dmitry B. Goldgof

9,940,709
Systems and methods for diagnosing tumors in a subject by performing a quantitative analysis of texture-based features of a tumor object in a radiological image

2018-2019 ACTIVE RESEARCH GRANTS

Andujar, Marvin Workshop: Student Travel to CHI Mentoring (CHIME) 2018, NSF \$25,825 5/1/2018-4/30/2019

Athilingam, Ponrathi (PI); **Labrador, Miguel**, HeartMapp: A Closed-Loop Assessment and Treatment Mobile Application for Heart Failure, NIH- National Institute of Nursing Research \$225,000 09/03/2018-08/31/2019

Barbeau, Sean (PI); **Ligatti, Jarred** Enhancing Cybersecurity in Public Transportation FDOT \$292,995 12/18/2017-06/30/2019

Canavan, Shaun Amazon Machine Learning Research Award: Analysis of Human Emotions using Multimodal Data, Amazon \$150,000 6/1/2018-6/1/2019

Chellappan, Sriram CAREER: Human Behavior Assessment from Internet Usage: Foundations, Applications and Algorithms, NSF \$303,799 08/17/2015-01/31/2019

Chellappan, Sriram (PI); Fisk, Nathan, SaTC: CORE: Small: A Privacy Preserving Meta-Data Analysis Framework For Cyber Abuse Research Foundations, Tools and Algorithms, NSF \$514,333 9/1/2017-8/31/2020

Chellappan, Sriram Doolittle /Sofwerx Research Program, Doolittle Institute \$565,338 7/10/2017-7/31/2018

Chellappan, Sriram, EAGER: PPER: Collaborative: Cellphone-Enabled Water Citizen Science for Data and Knowledge Generation and Sharing: WatCitSci, NSF \$28,000 11/1/2017-10/31/2018

Christensen, Kenneth (PI); **Rafael Perez**, Collaborative Research: Florida IT Pathways to Success (Flit-Path), NSF \$1,527,307 10/1/2016-9/30/2021

Ciampaglia, Giovanni Luca (PI), EAGER: SaTC: Early-Stage Interdisciplinary Collaboration: Collaborative: Advances in Socio-Algorithmic Information Diversity, NSF \$150,000 05/09/2019 - 05/31/2021

Dubey, Rajiv (PI); Quillen, William; Reed, Kyle; Diamond, David; **Sarkar, Sudeep**, MRI: Acquisition of a CAREN Virtual Reality System for Collaborative Research in Assistive and Rehabilitation Technologies, NSF \$537,245 09/01/2012- 08/31/2019

Dubey, Rajiv (PI); **Sarkar, Sudeep**; Reed, Kyle; Alqasemi, Redwan, Achieving Autonomy by Learning from Sensor-Assisted Control in a Wheelchair-Based Human-Robot Collaborative System, NSF \$496,383 09/01/2018-08/31/2021

Fawcett, Timothy (PI); Walton, Joseph; Krischer, Jeffrey; Eddins, Ann; **Christensen, Kenneth**, CC*DNI Networking Infrastructure: Campus Research Network - High Bandwidth Private Network Path for Research Data from Experiment to Analysis and Back Again at USF. NSF \$495,645 01/01/2016-12/31/2018

Feifei Li (PI); **Rosen, Paul**; Phillips, Jeff; Horel, John, CIF21 DIBBs: STORM: Spatio-Temporal Online Reasoning and Management of Large Data, NSF \$1,173,975 11/01/2014-10/31/2019

Gaspar, Alessio, Collaborative Research: Scalable Scaffolding of Novice Programmers Learning and Automated Analysis of Their Online Activities, NSF \$94,580 09/15/2015-8/31/2019

Ghosh, Swaroop (PI); **Katkoori, Srinivas**, Threshold- Defined Logic Engines for Camouflaging, DOTI \$625,000 9/15/2015-9/14/2019

Gillies, Robert (Moffitt PI); **Hall, Lawrence**; Goldgof, Dmitry, Radiomics of Non-Small Lung Cancer, NCI/NIH \$220,522 7/1/2016-6/31/2021

Goldgof, Dmitry (PI); **Hall, Lawrence**, Microscope-based Technology for Automatic Brain Call Counts Using Unbiased Methods, Stereology Resource Center, Inc. \$101,000.00 1/1/2018-12/31/2018

Goldgof, Dmitry (PI); **Sarkar, Sudeep**; **Sun, Yu**, An Automated Pressure Ulcer Monitoring System to Improve Pressure Ulcer Outcomes for Veterans with SCI, Tampa Veterans Administration \$127,838 9/30/2016-9/29/2019

Goldgof, Dmitry, Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & Discovery, NIH, Moffitt Cancer Center, \$135,996 9/1/2014 – 8/31/2019

Iamnitchi, Adriana (PI); **Hall, Lawrence**; Skvoretz Jr., John, Modeling Information Diffusion Processes with Deep Learning Algorithms, DARPA \$1,704,461, 10/12/2017-10/11/2021

Iamnitchi, Adriana (PI); Skvoretz Jr., John, BIGDATA:IA:F: Structural Anonymization Techniques for large, Labeled and Dynamic Social Graphs, DARPA \$661,289 3/1/16-2/28/19

Karam, Robert, Conscious Ambulatory Bladder Monitoring to Understand Neural Control of Lower Urinary Tract Function, NIH (subaward from CCF) \$68,484 02/01/2018-11/30/2019

Srinivas Katkoori (PI); I-Corps: A Smart Technology for Child Safety, NSF \$50,000 03/15/2019- 08/30/2019

Labrador, Miguel (PI); **Sun, Yu**, REU Site: REU Site on Ubiquitous Sensing, NSF \$439,215 08/01/2016-07/31/2020

Licato, John, Active Formalization in Artificial and Human Reasoners, AFOSR \$450,000 1/1/2018-12/31/2020

Licato, John, Great Computational Intelligence: Mature and Further Applied, Rensselaer Polytechnic Institute \$164,209 3/15/2017-3/14/2022

Ligatti, Jay (PI); Daniela Oliveira, Collaborative Authentication for the Internet of Things Cyber Florida \$50,000 7/1/17-6/30/19

Lin, Pei-Sung (PI); **Katkoori, Srinivas**; Wang, Zhenyu; Kourtellis, Achilleas, Integration of a Robust Automated Pedestrian Detection System for Signalized Intersections, FDOT \$249,467 10/2/2017-6/30/2019

Liu, Yao, CAREER: A Pathway to Virtual Channel Camouflage Wireless Security, NSF \$297,053 3/1/16-2/28/21

Liu, Yao, Towards Wireless Physical Layer Security Leveraging Massive and Distributed MIMO Radios, ARO \$200,078 4/15/2017-4/14/2019

Menczer, Filippo (PI); **Ciampaglia, Giovanni Luca**, FactCheckGraph: Matching fact-checks, claims, sources, and entities, Craig Newmark Philanthropies \$70,699 11/02/2018-11/01/2019

Mouton, Peter (SRC PI); **Goldgof, Dmitry** (USF PI); **Hall, Lawrence**, STTR Phase I: Microscope-based Technology for Automatic Brain Cell Counts Using Unbiased Methods, NSF/IIP \$224,526, Florida High Tech Corridor Matching Grant Program \$101,000 1/1/2018 - 12/31/2019

Mozaffari Kermani, Mehran, Design for Fault Attack Resiliency of Lightweight Cryptographic Architectures for Deeply-Embedded Systems, NIST \$378,260 09/1/2016-10/30/2019

Mozaffari Kermani, Mehran, Efficient Algorithms and Architectures for Post-Quantum Cryptography, NIST/FAU \$194,825 10/1/2016-9/14/2020

Mozaffari Kermani, Mehran, Emerging Side-Channel Resistant and Resource-Friendly Elliptic Curve Algorithms and Architectures, ARO/FAU \$150,000 5/1/2016-7/27/2020

Mozaffari Kermani, Mehran, SaTC: CORE: Medium: Collaborative: Countermeasures Against Side-Channels Attacks Targeting Hardware and Embedded System Implementations of Post-Quantum Cryptographic Algorithms, NSF \$300,000 10/1/2018-9/30/2022

Ou, Xinming (PI), Masaaki Mizuno, Mitchell Nielsen, John Hatcliff, S. Raj Rajagopalan, Modeling Security/Safety Interactions in Buildings for Com positional Security/ Safety Control, DHS \$914,353 10/1/2015-4/15/2019

Ou, Xinming (PI); Lende, Daniel; Ligatti, Jay, SaTC: CORE: Medium: Collaborative: Understanding Security in the Software Development Lifecycle: A Holistic, Mixed-Methods Approach, NSF \$500,000 09/01/2018-08/31/2021

Ou, Xinming, SaTC: CORE: Small: Collaborative: Data-driven Approaches for Large-scale Security Analysis of Mobile Applications, NSF \$200,000 8/15/2017-7/31/2020

Phillips, Bei (PI); **Rosen, Paul**, III: Medium: Collaborative Research: Topological Data Analysis for Large Network Visualization, NSF \$793,089 09/01/2015-08/31/2019

Rosen, Paul, CAREER: Discovering Structure in Uncertainty: Using Topology for Interactive Visualization of Uncertainty, NSF \$ 526,784 08/15/2019-08/14/2024

Sanberg, Paul (PI); McDevitt, Valerie; Fountain, Michael; **Sarkar, Sudeep**, I-Corps Sites: University of South Florida: Catalyzing Research Translation, NSF \$299,708 04/01/2015-03/31/2019

Sanberg, Paul (PI); Zayas-Castro, Jose; **Sarkar, Sudeep**; McDevitt, Valerie, I-Corps Sites: Type II - I-Corps Site at University of South Florida Tampa, NSF \$160,000 10/01/2018-09/30/2020

Sarkar, Sudeep + PIs at Florida Universities, 2017-18 Capacity Building Program, Cyber Florida, \$733,862 7/1/2018-12/31/2019

Sarkar, Sudeep + PIs at Florida Universities, 2017-18 Collaborative Cybersecurity Research at Florida SUS Institutions, Cyber Florida, \$720,734 7/1/2018-12/31/2019

Skvoretz, John (PI); **Iamnitchi, Adriana**, Exploring Majority Illusion and Pluralistic Ignorance within the Context of Eastern European Social Media, ONR, \$197,622, 02/01/2018—01/31/2020.

Sun, Yu, CHS: Small: Collaborative Research: Wearable Fingertip Haptic Devices for Virtual and Augmented Reality: Design, Control, and Predictive Tracking, NSF \$173,338 08/01/2018-07/31/2021

Sun, Yu, EAGER: Characterizing Physical Interaction in Instrument Manipulations, NSF \$299,887 03/01/2016- 02/28/2019

Sun, Yu, RI: Small: Functional Object-Oriented Network for Manipulation Learning, NSF \$398,529 08/15/2014- 07/31/2019

Sun, Yu, Robotic Logistic Research, Alibaba Group Cainiao Smart Logistics Network, \$55,000

Tu, Yicheng (PI); Pandit, Sagar; **Ligatti, Jay**; **Sarkar, Sudeep**; Ghosh, Swaroop, II-New: A Research Platform for Heterogeneous, Massively Parallel Computing, NSF \$679,798 07/01/2015- 06/30/2019

Tu, Yicheng, CAREER: Enabling high-throughput data management in scientific domains, NSF \$499,882 06/01/2013-05/31/2019

Wang, Hsiao-Lan (PI); **Katkoori, Srinivas**, I-Corps: Use of eHealth to Personalize Exergame Prescriptions, NSF \$50,000 04/01/2018- 09/30/2019

Wang, Zhenyu (PI); Lin, Pei-Sung; **Katkoori, Srinivas**: Development of Automated Roadway Lighting Diagnosis Tools for Nighttime Traffic Safety Improvement, CTEDD, UT-Arlington, \$73,148 06/24/19 - 05/31/20

Weitzenfeld, Alfredo, CRCNS US-French Research Proposal: Collaborative Research: A replay-driven model of spatial sequence learning in the Hippocampus-PFC network using reservoir computing, NSF \$391,576 10/01/2014- 09/30/2019

Weitzenfeld, Alfredo, RI: Medium: Collaborative Research: Experimental and Robotics Investigations of Multi-Scale Spatial Memory consolidation of Complex Environments, NSF \$494,420 9/1/2017-8/31/2021

Wisniewski, Pamela (PI); **Chellappan, Sriram**; De Choudhury, Munmun; MacMillan, Karl, PFI-RP: A Multi-Disciplinary Approach to Detecting Adolescent Online Risks, NSF \$750,000 09/15/2018-08/31/2021

Xiuwen Liu (PI); **Ou, Xinming**, A Reinforcement Learning Approach to Detecting Persistent Threats, Cyber Florida \$75,000, 7/1/2018-6/30/2019

Yavuz, Attila, CAREER: Lightweight and Fast Authentication for Internet of Things, NSF \$500,000, 03/2017 - 02/2022

Yavuz, Attila, Lightweight and Quantum-Safe Authentication for Internet of Things, Cisco Research Award, \$60,306, 06/2019 - 09/2020

Yavuz, Attila, Low-cost, Scalable and Practical Post Quantum Key Distribution (sub-award), Department of Energy - Cyber Resilient Energy Delivery Consortium \$75,000, 03/2019 - 09/2020

Yavuz, Attila, Cloud Security Technologies and Oblivious Random Access Machine, Robert Bosch, \$50,000, 12/2018 - present

Zhang, Qiong (PI); Wells, Eric; **Ou, Xinming**; Lu, Qing; Mohebbi, Shima, CRISP Type 2: Integrative Decision Making Framework to Enhance the Resiliency of Interdependent Critical Infrastructures, NSF \$1,963,542 09/01/2016-08/31/2020

Zheng, Hao, Mining System Flow Specifications for SoC Debug, Intel \$40,000 7/1/2018 - 12/31/2019

Zheng, Hao, System Flow Guided Trace Analysis for SoC post-Silicon Debug, Intel \$30,000 12/1/2017 - 7/1/2019

Engineering Alum Honors his Father with a Scholarship Fund

Dennis Blankenship, '87 believes in the power of giving and he's paying it forward by establishing the Norman N. Blankenship Family Scholarship for Engineering.

After receiving a much needed scholarship at a critical time in his academic career that enabled him to complete his degree in engineering technology, his philanthropic mission ever since has been to support the next generation of engineers. He and his wife, Sherri, recently established the Norman N. Blankenship Family Scholarship For Engineering.

"I received the Edgar W. Kopp Memorial Scholarship going into my last semester with a new baby on the way," said Dennis. "It was a godsend at a critical time of financial need that ignited my philanthropic spark. I was not sure at the time exactly how or when I'd be able to pay that gift forward but I knew I would one day."

He had always envisioned a scholarship in honor of his father, Norman N. Blankenship, who instilled in him the importance of hard work and the vision Norman had for what an engineering education would do for his son.

The scholarship, initially funded by a \$100,000 donation from the Blankenship family, will exist in perpetuity to help support military veterans and diverse engineering students with financial needs in the fields of computer science, computer engineering, cybersecurity, and information technology, and as a testament to Norman's simple dream from a factory floor to a better life for his son through an engineering education.



Norman Blankenship

If you would like to donate to the Norman N. Blankenship Family Scholarship For Engineering (fund #226042), please visit:

<https://giving.usf.edu/where/usf-tampa/engineering>

Praxsys Tech Supports Cybersecurity Program with Undergraduate Scholarship

By Brad Stager

Praxsys Tech is one business helping organizations modernize or migrate from legacy systems so they can be up-to-date and secure. Praxsys also provides new software development and staffing support. Founder and Chairman William Volmuth, who earned bachelor's ('86) and master's ('89) degrees in electrical engineering at USF, summarized the mission of the company owned and operated by him and wife Gina.

"Praxsys wants to solve interesting problems and wants to make the challenges of bringing all these disparate technologies together as seamless as possible," William said, adding that the growth of cloud data solutions and the need for different systems to be able to communicate are creating a demand for the services his company provides.

According to Chief Executive Officer Gina Volmuth, ensuring the security of their clients' digital resources is a top priority, which creates a staffing opportunity for Praxsys Tech.

"We focus on software management within the security space, and we are faced daily with the tremendous need for developers who understand security implications."

Praxsys is committed to ensuring there are cybersecurity professionals available to perform the needed work. The Volmuths have initially pledged \$25,000 over the next five years to sponsor the Praxsys Tech Scholarship Fund, which will be awarded to students enrolled in USF's new Bachelor of Science in Cybersecurity (BSCyS) major.

The undergraduate program prepares students to deal with cyber threats that range from data-based attacks to behaviorally driven events. According to USF Computer Science and Engineering Professor and Associate Chair of Undergraduate Affairs Ken Christensen, the kind of support provided by Praxsys Tech can have a substantial impact on a student's ability to successfully finish the program and pursue a career in cybersecurity.

"The Praxsys Tech Cybersecurity Scholarship will make it possible for selected academically talented and financially needy students to pursue and complete a BSCyS," he said. "Completing this major will be a life-changing opportunity for the students who are awarded the scholarship. The department is very thankful for this donation that will help its students to be successful."

Sensing the Future of Technology

By Brad Stager

When Tempestt Neal landed her first job after earning her computer engineering doctorate at the University of Florida, she was happy to begin her faculty career in the Sunshine State.

“Florida is awesome,” says Neal, who received her Ph.D. in August 2018 and began teaching and researching as an assistant professor within the same week in the USF Department of Computer Science and Engineering (CSE).

While living in Florida has its good points, what most attracted Neal to USF was the reception of her work in biometrics which leverages smartphone sensors from the department’s faculty.

“It came down to collaboration, to be able to collaborate with different people with similar research interests,” says Neal. “I felt USF supported my desire to be surrounded by mentors with similar research interests, allowing me to get a lot more detailed advice about the work I want to do.”

Applications based on ubiquitous sensing of data, such as classifying activity and behavior, characterizes much of Neal’s work. One of those

expressing an interest in working with her is CSE Assistant Professor Shaun Canavan, who researches in the areas of facial feature and emotion recognition, as well as the interaction between people and computers.

“Dr. Neal and I are working on a project for continuous authentication from a mobile device,” says Canavan. “She is interested in the mobile sensor data, while I am interested in analyzing human characteristics such as face, eye gaze, etcetera.”

It is the kind of research that can lead to a useful option for users of ever-present mobile and IoT (Internet of Things) devices, says Neal.

“Imagine a time we never have to use a password or fingerprint ID because the device somehow knows who you are. While you’re interacting with your smartphone, the device knows, ‘this is my rightful owner.’”

Much of the research conducted in the College of Engineering involves collaboration beyond academic departments and disciplines. Neal is also working on a transdisciplinary proposal for mental health applications.

“It’s kind of like biometrics for mental health,” says Neal.

Working with Neal on the proposal is assistant professor Kristin Kosyluk, Ph.D., of the Department of Mental Health Law and Policy. Kosyluk says ubiquitous sensing can be a useful tool for corroborating events and locations with behavior as well as validating self-report data. It can also be a means to provide tailored mental health interventions “via smartphone to be delivered at specific times when they would be most helpful to the individual.”

According to Neal, the process is straightforward.

“We’ll collect smartphone sensing data in the background; users will periodically tell us if they are feeling stressed or if they’re feeling relieved or if they’re in a social setting. Our goal is to correlate the sensing data with these self-reports.”

She adds that researching at the intersection of technology and human behavior opens many possibilities for adding value to the mobile device experience, especially among the most prolific users of the devices.



“In terms of research I think my research area is attractive to a younger generation because of their heavy use of smartphones,” says Neal.

Neal’s work is produced through her Cyber Identity and Behavior Research (CiBeR) Lab. Besides her mobile device interests, other projects underway involve natural language processing and early detection of cyberbullying research. You can learn more about the lab by visiting online at csee.usf.edu/~tjneal/ciber.

Teaching and advising graduate students are also a part of Neal’s job now, and she says her perspective as a recent graduate is useful in the classroom.

“I try to teach based on my experiences,” says Neal. “I like for my classes to be interactive because I learned when teachers were interacting with me so I try to do that in my classrooms.”

Neal, who teaches Biometric Authentication on Mobile Devices and Object-Oriented Software Design, adds that her own education continues with the teaching experience.

“I’m learning just as much from them as they’re learning from me; it is teaching me to think about things holistically.” Earning a technology-oriented Ph.D. was not Neal’s original plan when she began her college education. She started out studying music as her major at South Carolina State University in Orangeburg, but says

she found the music curriculum did not resonate with her creative interests. However, computers did.

“You can use a computer like a crayon,” says Neal. “A lot of students consider computers or programming as barriers to getting things done but they’re really enablers. You can use a computer to do whatever you want, like make music. The opportunities are endless if you switch your thinking and don’t be afraid to try something new.”



▲ Tempestt Neal, Ph.D.



Using Big Data to Accomplish Great Things

By Brad Stager

Artificial Intelligence may seem to have burst onto the tech scene in the last few years, but it has in some ways been a subject of consideration since the days of classical antiquity, as with the winged automaton Talos of Greek mythology, a precursor to the drones of today that provide security, herd livestock and deliver goods.

As a modern research topic AI has been around since about the middle of the 20th Century, with a defining moment arriving in 1997 when IBM's Deep Blue became the first computer to beat a chess champion, defeating Russian grandmaster Garry Kasparov.

By the time Distinguished University Professor of Computer Science and Engineering Larry Hall received his Bachelor of Science in Applied Mathematics from Florida Institute of Technology in 1980, considerable progress had been made in basic AI theory and robots were starting to show up for work in some factories.

For Hall, his introduction to the field started during his undergraduate studies, as he enjoyed working with computers and decided to pursue learning more about them.

“While I was doing math I took some computing classes like Assembly



▲ Larry Hall, Ph.D.

language and these kinds of things, which I thought were interesting so I decided to go on for a graduate degree in computer science,” says

Hall, who earned his Master of Science in Mathematics with a computer science option from Florida State University in 1982, followed by his Ph.D. in computer science, also from FSU in 1986.

When Hall arrived at USF as an assistant professor in 1986 he was working and publishing in the area of fuzzy logic, an approach to computing based on partial or degrees of truth, instead of the binary Boolean logic of true or false, yes or no. It is a field of study that Hall says appeals to his interests.

“I like to solve problems that are a little bit difficult, and in writing programs you have to be very specific in the solutions to the problems.”

The term “fuzzy” logic may suggest imprecision, but Hall says most of his work has “mathematical underpinnings” to quantify nuanced states of equipment, systems or

even human behavior, and that mathematics is an important tool to explain the world.

“Different kinds of mathematics tend to explain to some degree what people do. There’s logic that you can explain reasoning with, there’s the mathematics behind neural networks which are a very loose approximation of the brain’s circuitry, so in that sense you can explain some of what goes on with people through mathematics.”

Among the areas of interest Hall draws upon in his work are extreme data mining and thusly, distributed machine learning, an approach to handling large amounts of data that incorporates a variety of computer science applications. The ability to process large amounts of data makes it possible to conduct research related to bioinformatics, pattern recognition and integrating AI into image processing.

One of Hall’s recent presentations is titled, “Leveraging Big Data in Medical Image Analysis,” which was delivered at the 2016 International Conference on Intelligence Science and Big Data Engineering, in Guangzhou, China, and reflects what much of his professional work has been dedicated to.

Among the grant-funded research he has worked on at USF are National Institutes of Health studies such as MRI Segmentation for Tumor Volume Measurements, while Development of Automated Image Analysis Software for Suspended Marine Classification is an example of his work for the Department of Defense. National Science Foundation research includes Microscope-based Technology for Automatic Brain Cell Counts Using Unbiased Methods. Hall has also published nearly 100 journal papers in his areas of interest.

Collaboration is essential to successful research and Distinguished University Professor Dmitry Goldgof has often worked with Hall on grants and publications in their shared fields of interest.

“Dr. Hall is a world expert and pioneer in the AI, data mining and related areas and as such is invaluable in my work on biomedical image analysis,” says Goldgof, who is the vice chair of the Department of Computer Science and Engineering. “His expertise seems to provide an ideal fit to help me advance my research.”

Besides research, Hall has advised dozens of graduate students, including 45 Ph.D. graduates. He says he has found that at that level, grades and test scores are not the only indicators of success.

“What I look for is somebody who is a hard worker,” says Hall, who was chair of CSE from 2008 to 2015. “If you work hard you are going to go far.” Hall adds that self-criticism of one’s work, clarity in communicating about it so people outside of the research group can understand it and staying up-to-date on scientific advances are all essential to success.

Looking ahead, Hall says there is ongoing interest in the CSE department and with collaborators throughout USF in conducting big-data research, especially in medical imaging, that can support non-invasive medical decision making. One of his major projects uses imaging to effectively monitor lung nodules for cancer development.

Hall credits the collaborative environment that has developed over the last three decades for advancing his work and helping to keep it interesting as well.

“I think that the reputation of the College of Engineering brings people for example, from Moffitt Cancer Center or the Medical School looking to collaborate, which is really a good thing because unless you are doing very theoretical computer science you need some ability to apply it, and certainly in AI you need to apply it to some domains.”

Engineering Inspirations

By Russell Nay

Alumni who are the second and third African-American students to achieve a Ph.D. in computer science at USF talk about their engineering backgrounds and share their perspectives on the importance of diversity in engineering.

What do an Intel Technical Lead and a former Deputy Director for Operations at the U.S. Pentagon have in common? Both completed a Ph.D. in computer science and engineering at USF.

Earnest “Earnie” Hansley, Ph.D., who served in the U.S. Army for 33 years before retiring, began his doctoral program at USF in 2000 focused on biometric recognition under USF Department of Computer Science and Engineering Chair Sudeep Sarkar, Ph.D., as well as current University of Notre Dame professor Kevin Bowyer, Ph.D. Hansley was one of a handful of applicants who had applied for a doctoral program through an Army education program. In 2004, he moved to Washington D.C. to continue his military career. For three years, he served as a branch chief in the Command Systems Operations Division within the Joint Chiefs of Staff in the Pentagon.



▲ Earnest “Earnie” Hansley, Ph.D.

Here, Hansley was responsible for classified military systems — and their staff — containing secret and top secret information that the appointed Joint Chiefs of Staff used for military operations.

“The tools I learned from taking courses on operating systems and algorithms and, of course, the programming I had to do, all positively impacted my ability to carry out my jobs (as branch chief),” he said.

Hansley also spent four years as Deputy Director for Operations at the Pentagon, where he served as Military Assistant for the Deputy Assistant Secretary of Defense for Research. As a Colonel, Hansley was responsible for prioritizing, assigning and overseeing the development of solutions for STEM-related issues that Pentagon subject experts were tasked with solving.

This included aviation safety, space operations, electronic warfare, cybersecurity, medical research and any problems involving active military fighting overseas in Afghanistan and Iraq like unmanned drones or avoiding

improvised explosive devices.

“We’re talking about critical tasks that impact the Department of Defense and our nation’s defense,” Hansley said. “We would pull in some of the best and brightest — not just within the military but from industry and academia also — to come up with solutions.”

Ransford Hyman, Jr., Ph.D., began his doctoral program in 2006 focused on the reliability and optimization of microprocessors under the late Distinguished University Professor Nagarajan Ranganathan, Ph.D.

Hyman’s father was an engineer who often said Hyman would become a mechanical engineer while his sister would become an electrical engineer. However, Hyman’s early interests in MS-DOS computer games and in his family’s Macintosh computer led him down the path of computer engineering, starting with computer processes and microprocessors in elementary school.

Hyman carried this interest through middle and high school, as well as an undergraduate degree in mathematics at Bethune-Cookman University (BCU) in Daytona Beach. After spending

a summer in Computer Science and Engineering Professor Miguel Labrador’s National Science Foundation (NSF) Research Experiences for Undergraduates (REU) program in computer science, he made the decision to pursue graduate studies at USF with support from the NSF Florida-Georgia Louis Stokes for Minority Participation Bridge to the Doctorate project.

In 2011, Hyman began working for Intel as a senior software engineer where he coded, provided data analysis solutions and modeled Intel hardware for new features and capabilities.

Currently, Hyman works as an Intel AI Technical Lead and Deep Learning Software Engineering Manager. He mentors a team of four senior engineers in becoming proficient with deep learning technology and efficient computation and optimization of neural networks. As a doctoral student, Hyman served as president of the IEEE-Computer Science Society at USF and as a mentor to several minority

undergraduates in the computer engineering program at both BCU and USF.

“There’s a small population of people who have a lot of knowledge within AI,” Hyman said. “There’s a responsibility as a mentor, as a manager and as a tech lead to make sure that engineers I mentor are aware of what deep learning is as a field and how they’ll be able to be successful at their job.”

Both Hyman and Hansley agree that diversity in engineering and in STEM professions is vital to the national security and economic well-being of the United States on a broader scale.

Hansley said the final position he held at the Pentagon prior to retirement involved the Department of Defense’s STEM portfolio, and one major concern was that too few students of color were taking courses that built strong STEM foundations.

“What we determined was that given the anticipated demographic population shifts — in order for the U.S. to remain the strongest country in the world — we need to ensure that everyone is represented in STEM,” he said. “To address diverse challenges of this century and beyond, we need to have diverse solutions and diverse populations working on them.”

Due to the broad impact of technologies that become widely used by society, Hyman said that a lack of representation in future tech advances — like those that could help decide legal cases or determine credit loan eligibility — could cause them to benefit only certain sets of people and disadvantage others.

“If you have those technologies and they’re not evaluated and don’t have an understanding of the people they serve, it can become very dangerous,” Hyman said. “We’re on the cusp of some technologies that can have very long-term implications if they’re not done right.” Hyman said he would like to see more

computer science and engineering programs around the country outline tangible steps that are transparent and monitored for colleges to reach their diversity goals. These include increased outreach to schools serving a significant number of students



▲ Ransford Hyman

from underrepresented and financially-disadvantaged backgrounds, as well as hiring diverse faculty.

He said that some elite colleges and Silicon Valley companies tend to field graduates from narrow pipelines of students. He contrasted this with current partnerships between USF and historically black colleges and universities like BCU and the University of the Virgin Islands.

“If (diversity and inclusion) is something you care about, then you should also back it up both not only by hiring but also investing in those communities,” he said. “It’s also important as far as inspiring the younger generation to pursue a career in engineering and computer science. If they see role models who they can identify with pursuing those careers and making change, it gives them the inspiration to also aim higher.”

Hansley said he would generally like to see more underrepresented students and more underrepresented graduate-level professors in computer science and engineering programs.

Both Hansley and Hyman said their best advice to students pursuing engineering careers is for them to start building their professional networks as early as possible. They’re two of 43 doctoral students from the College of Engineering that have received McKnight five-year fellowship or dissertation awards between 2007 and 2018.

“Start as soon as you can build a meaningful relationship with people and you’re able to follow up and build mentorships by attending conferences like the National Society of Black Engineers, Black Engineer of the Year, Society of Hispanic Professional Engineers, Hispanic Engineer of the Year and Richard Tapia Celebration of Diversity in Computing.”

Along with the guidance he received from College of Engineering Diversity Director Bernard Batson, Hansley said that a one-year dissertation fellowship he received from the Florida Education Fund’s McKnight Doctoral Fellowship program gave him access to seminars and professional contacts crucial to achieving his Ph.D.

“The McKnight Program could help me with my tuition, but more important is that they have leadership along with a caring community willing to mentor me, provide networking opportunities and other available resources that could help me make it across the finish line for my Ph.D.,” Hansley said.



Computing Partners Program

By Jessica Pruitt

The Department of Computer Science and Engineering (CSE) Computing Partners Program (CPP) had a successful first year welcoming CAE, Johnson & Johnson, JPMorgan Chase & Co. and Raymond James as charter members.

Computing Partners Program funds support educational initiatives and activities of CSE students and costs associated with administering the CPP. The program supports expenses such as scholarships, travel, academic conferences, competitions, educational events, relevant seminar series, tutoring, student program ambassadors, summer programs and student recruiting.

Last year, students from the Society of Competitive Programmers (SCP) attended the Cal Hacks 5.0 hackathon hosted at University of California, Berkeley on November 2-4, 2018. Almost \$2,000 of CPP funds were used to help pay for airfare for six students to attend the event. Mohamed Yassin, one of the participants, ended up moving to the west coast after graduation because of his experience at Cal Hacks 5.0. "I had a phenomenal time visiting San Francisco and Berkeley. The west coast is something I've always wanted to explore. I spent

the majority of the time mentoring and meeting new people, as well as supporting my team with my more senior knowledge on our project," Yassin said.

Jamshidbek Mirzakhlov also attended Cal Hacks 5.0 and was part of the team who won the "Best Payment Project" award for their project involving the use of Authorize.Net. Their platform would allow customers to connect with other shoppers in their area to community shop, in order to receive lower shipping costs and promotions. Maddie Collins, Muntaser Syed and Goldwater Scholar Willie McClinton were also part of the winning team. "We were able to interact with the companies at the event, learn about their technologies and get programming support from the same people who actually built the tools we (were) using. A lot of students learned about some companies at Berkeley, applied and received interviews/internships later," Mirzakhlov said.

Curtis Goodwin, a first-time hackathon participant, said he learned a lot about the planning and execution of coding projects. "Cal Hacks was magical. UC Berkley is such a great university and there were so many cool events at the

hackathon. The founder of Twitch.tv gave a speech about the different paths of computer science careers and that really changed my perspective of the field," Goodwin said. Mirzakhlov, Goodwin and Yassin all said that without the support from the CPP funds, they doubted they would have been able to attend the event.

Funds from CPP were also used to pay \$2,800 in registration fees for six students to attend the 2018 ACM Richard Tapia Celebration of Diversity in Computing Conference held in Orlando, Florida on September 19-22, 2018. Two of the students who attended the conference were Teleah Boggle and Jamalia Taylor, both Women in Computer Science and Engineering (WiCSE) officers during the 2018-2019 academic year.

Boggle wrote a letter of thanks, expressing her appreciation for the funding that allowed her to attend the conference. In this letter she states, "WiCSE members had the wonderful opportunity this year to partake in a valuable experience at the Tapia Conference. This conference, which celebrates diversity in computing, brought together people from across the country with diverse backgrounds... students

were offered the opportunity to speak with companies like Google, Microsoft and Salesforce, as well as graduate schools like Stanford, Carnegie Mellon and Georgia Tech. Multiple students, after making a very good impression in initial conversations, were offered the opportunity to interview for internships and full-time positions... On behalf of all the WiCSE students who benefitted from your kind donation, I would like to say a heartfelt thank you, without it many of us would not have been able to have this wonderful experience."

Sarah Garcia was also able to attend the Tapia Conference because of CPP funds. Garcia was able to use the conference to network and make plans for her future research projects. "The Tapia Conference was a great experience for me. It allowed me to feel a sense of community in my field. This event allowed me to meet potential future collaborators in my field, as well as assisted me in my academic growth," Garcia said. Twenty-eight CSE students, faculty and staff members will be attending the Grace Hopper Celebration (GHC) being held in Orlando, Florida from October 1-4, 2019. Funds from CPP, so far totaling \$9,800, have been used to help pay for a booth at the event as well as registration fees and partial hotel expenses for the participants.

According to the website, "The Grace Hopper Celebration is the world's largest gathering of women technologists." Exposure at these conferences can result

in internship and career opportunities for CSE students as well as educational experiences.

CSE graduates are well prepared for industry jobs, learning relevant concepts and skills that translate directly to success for the students and the companies that hire them. Becoming a computing partner not only helps to fund educational initiatives, but allows members greater access to CSE students and faculty.

Raymond James took advantage of one of these opportunities during the CSE "Welcome to Cybersecurity" event. Andy Zolper, the chief information security officer at Raymond James, gave a presentation during the event where he spoke to over 100 CSE students about career and internship opportunities at Raymond James. "I had a great opportunity to deliver key messages regarding the cybersecurity profession, particularly around the mindset needed and how to start developing that mindset in school. We really enjoy working with younger generations of cybersecurity professionals. The Computing Partners Program at USF allows us to do that and enrich our talent pipeline with high quality candidates," Zolper said. Kishen Sridharan, the cybersecurity partnership and outreach executive at Raymond James, added, "The March 1 event was important to bring different cybersecurity professionals together: educators, students, practitioners and researchers. The event underscored the

importance of each to the professional. Raymond James was grateful to be a part of it. Being a computing partner allows us to accomplish two things: have access to top class talent and have access to faculty to collaborate on joint research opportunities together."

Alan Brannan, CAE's director of engineering, serves on the College of Engineering and the Department of Computer Science and Engineering advisory boards. CAE also sponsors the CAE USA, Inc. Scholarship for computer science and computer engineering students in the College of Engineering on the Tampa campus. In 2018-2019 three USF students were awarded \$2,000 each from this scholarship. The students must be at the sophomore level or higher, a graduate of a Florida high school and have a GPA of 3.5 or above. CAE also provides projects for the CSE capstone course. Last year, Brannan and the CAE USA team were awarded the USF College of Engineering Corporate Ambassador of the Year - Large Corp award. JPMorgan Chase & Co. (JPMC) hosted the technical workshop "Passing the Coding Test" in collaboration with WiCSE and the Association for Computing Machinery (ACM).

"We hosted the actual coding challenge on HackerRank using two financial services problems. We brought a large group of software engineers to support the students if they ran into challenges. The students were so competent and

competitive, they did not need to take advantage of the support team, and performed very well at the challenges. In the end, our winners had perfect scores on the code challenges,” Mike Forest the executive director in technology architecture and JPMC’s senior sponsor for USF recruiting said.

At this workshop, undergraduate students also learned interviewing skills for coding and programming careers. Thirty copies of the textbook “Cracking the Coding Interview” were given away to students who attended the event. Approximately \$1050 of CPP funds were used to supply these textbooks.

Poorav Shah, the JPMC executive director, leading the capstone program this spring, stated, “The students we’ve worked with have a solid grasp of the foundational technology concepts and have been able to apply them to banking problems seamlessly. The team learned new technologies required to deliver the solution, adjusted to changes based upon limitations (test data, etc.) and our requirements and produced solid output in an iterative fashion.”

“Activities like these along with continued on campus interaction with student groups and Career Center activities, allow JPMorgan Chase & Co. to continue to partner with USF in helping to develop student skillsets while having visibility and access to the USF student talent pool. We consider that a win/

win for all,” Forest added.

Computing partners also hold monthly mentoring lunches. There are usually about 10 WiCSE students and two mentors in attendance at these meetings. During these lunches, students are able to learn more about the industry and have a chance to be considered for internships. Lunches are held at the On Top of the Palms restaurant and are paid for with CPP funds.

The CPP enables industry members to better engage with CSE students and faculty by developing close working relationships. Computing partners receive an enhanced level of engagement with department students and faculty in two tiers of engagement as described below. Additional levels of engagement will be developed in later years in discussion with donors. An annual membership is \$5000 for tier one and \$10,000 for tier two. Membership to tier one is free for community service, non-profit organizations. Annual membership is due on the anniversary of the joining date.

If you would like to learn more about the Computing Partners Program or become a member, please contact Professor and Associate Chair of Undergraduate Affairs Ken Christensen by email at christen@cse.usf.edu or phone at 813-974-4761.

In Memory of Nagarajan “Ranga” Ranganathan

Distinguished University Professor Emeritus Nagarajan “Ranga” Ranganathan, 57, died on October 25, 2018, following an extended illness. He was a professor in the Department of Computer Science and Engineering at the University of South Florida and was the senior faculty member in the computer engineering program. He joined USF as an assistant professor in 1988 and shaped the Department of Computer Science and Engineering in many different aspects. Dr. Ranganathan was a man of great character and a leader in his field and in the department. He had a very warm and modest personality. He will be greatly missed by his colleagues and the many students who received an excellent and inspired education.

Dr. Ranganathan received his bachelor’s with honors in electrical and electronics engineering from Regional Engineering College, Tiruchirappalli (now known as National Institute of Technology, Tiruchirappalli), formally affiliated University of Madras, India in 1983 and his Ph.D. in computer science from the University of Central Florida, Orlando in 1988.

Dr. Ranganathan developed many special purpose VLSI circuits and systems for computer vision, image and video processing, pattern recognition, data compression and signal processing applications. He and his students developed several VLSI CAD algorithms based on decision theory, game theory, auction theory and fuzzy modeling. He

co-authored over 295 papers in refereed journals and conferences, five book chapters, and co-owned eight U.S. patents. He edited three books. Dr. Ranganathan served on the editorial board and steering committee for many Institute of Electrical and Electronics Engineers (IEEE) and Association for Computing Machinery (ACM) journals, he was the editor-in-chief of IEEE Transactions on VLSI Systems from 2003 to 2007.



Dr. Ranganathan graduated 31 Ph.D. students in his 30 years at USF. His students have successful careers in industry and academia in leadership positions. Many of his Ph.D. graduates are now at Intel. Six of his Ph.D. graduates were awarded the Outstanding Thesis/Dissertation Award from the USF Office of Graduate Studies. Vijaykrishnan Narayanan, graduated in 1998, is now a distinguished professor of electrical and computer engineering at Penn State University. Dr. Ranganathan was very proud of the accomplishments of his students.

In 2007, Dr. Ranganathan was conferred the highly prestigious USF Distinguished University Professor title. He was elected as a Fellow of IEEE in 2002. He was elected Fellow of American Association for the Advancement of Science (AAAS) in 2012. He received the USF Outstanding Undergraduate Teaching Award in 2009, the USF President’s Faculty Excellence Award in 2003, USF’s Theodore-Venette Askounes Ashford Distinguished Scholar Award in 2003 and the USF Outstanding Research Achievement Award in 2002. He was also a co-recipient (with his students) of three Best Paper Awards at the International Conference on VLSI Design (in 1995, 2004, and 2006), and awarded SIGMA XI Scientific Honor Society Tampa Bay Chapter Outstanding Faculty Researcher Award in 2004.



Computer Science and Engineering Holds its Second Annual WOW Event



USF Computer Science and Engineering (CSE) held its second annual Week of Welcome (WOW) event on August, 29 with close to 150 attendees. This was a 33% increase over last year’s attendance. The event was organized by CSE undergraduate program specialist Mayra Morfin. Based on the success of last year’s event, students were again given scavenger hunt cards and instructed to visit the informational tables to collect stickers for the accompanying spaces on their cards. Tables included student organizations, CSE faculty, CSE advisors, demos and the USF Wellness table. Once the students

collected at least four stickers, they were given the new CSE Class of 2023 t-shirt and a slice of pizza. This event provided new students with an opportunity to meet faculty, advisors and other students as well as learn more about becoming involved in CSE. Due to the success of this program, along with last spring’s Decoding Your Stress event, CSE will be partnering with USF Wellness on several events in the future. This student event was made possible by the Computing Partners Program.

Decoding Your Stress Event Helps Students Relax and Recharge



Marjorie Fontalvo, undergraduate advisor, initiated the department’s first Decoding Your Stress event in March 2019. The one-hour event helped approximately 80 students learn how to recognize and manage their stress. Representatives from the USF Center for Student Well-Being, USF Campus Recreation and USF Dining Services brought games, activities and healthy snacks for the students to enjoy. Indoor activities included adult coloring, Jenga, Legos and Kinetic sand. Outside activities included stretching sessions and games as well healthy snacks.

CSE Participates in Black Heritage Month

In February 2019 CSE held its first Black Heritage Month event, “Black Computer Scientist: The Past, Present and You,” organized by undergraduate advisor Marjorie Fontalvo. The event featured department faculty members Tempestt Neal, Schinnel Small and Henrick Jeanty who discussed some of the obstacles they had to overcome.



CSE Hosts Welcome to Cybersecurity Event

In March 2019, the department held a cybersecurity event to inform students about changes to the program, as well as give them insight into future career paths. Mayra Morfin, undergraduate program specialist, organized the event, which included presentations from Sudeep Sarkar, department faculty, department advisors, student groups and guest speaker Andy Zolper, chief information security officer with Raymond James Financial, Inc. Zolper spoke about the trends in cybersecurity, opportunities at Raymond James and conducting a successful job interview. More than 100 students from the department attended the event.



Women in Cybersecurity Panel

Cyber Florida at the University of South Florida hosted a discussion panel examining ways to improve the representation of women in cybersecurity on June 20, 2019. Panel members included Catherine Berrouet, Florida Atlantic University (FAU) graduate student and Association for Women in Mathematics vice president; Lt. Col. N’Keiba J. Estelle, Commander, 6th Communications Squadron, MacDill Air Force Base; USF CSE faculty members Tempestt Neal and Jing Wang; and Margaret Salter, former technical director for the National Security Agency.

Congratulations to Douglas W. Hood Professor Rangachar Kasturi on his Retirement after 16 Years of Service at USF



The Department of Computer Science and Engineering (CSE) congratulates Douglas W. Hood Professor Rangachar Kasturi on his retirement from USF after 16 years of service. Having been born into a family of teachers in Bangalore, India, Kasturi has teaching in his blood. Education has always been a major part of his life. He began accompanying his mother to her school at an early age and started fourth-grade class at the age of five.

Kasturi graduated from Bangalore University with a B.E. in electrical engineering in 1968. After receiving his bachelor's degree, Kasturi worked as an engineer for 10 years. He had always planned on pursuing a teaching career, so after a decade in the industry, Kasturi came to the U.S. and earned his M.S. and Ph.D. in electrical engineering from Texas Tech University in 1980 and 1982 respectively. Kasturi's research interests are in computer vision and pattern recognition.

During his time as a graduate student, Kasturi presented his first paper, which was on multiplex holography, at an Optical Society of America conference. He also presented a paper on restoration of images degraded by signal dependent noise based on his doctoral research at the very first Computer Vision and Pattern Recognition conference (CVPR) held in Washington D.C. in 1983.

After receiving his Ph.D., Kasturi accepted a position at the Pennsylvania State University as an assistant professor of electrical engineering. Kasturi was a part of a small group of faculty who started the computer engineering program which merged with the Computer Science Department to create the Computer Science and Engineering Department in 1992, which is among the top CSE departments in the country today.

During his first year at Penn State, Kasturi received the National Science Foundation (NSF) Research Initiation Grant for New Faculty. This led him to become involved in document image analysis, specifically separating texts from graphics, and he continued this research until his retirement. He received the International Association for Pattern Recognition (IAPR)

Outstanding Achievements Award at the 2017 International Conference on Document Analysis and Recognition (ICDAR) in Kyoto, Japan.

In the summer of 1990, Kasturi participated in a faculty research program sponsored by NASA, working on runway incursion — aircraft collision avoidance— which led to a decade of sponsored research on computer vision assisted systems for aircraft navigation. In 2003, Kasturi left Penn State to accept the department chair position at USF, where he continued his research, supported in part through the Douglas W. Hood endowment.

During his academic career, Kasturi advised 53 graduate students. He jokes that he needed to advise 52 students so he could visit and stay with each of them for one week out of the year, without wearing out his welcome. He likes to say that he achieved this goal with one student to spare. Himanshu Vajaria, one of Kasturi's graduate students, considers Kasturi as a positive influence. "When writing a paper, I was trying to carve out the data to show our results (vs existing approaches) in the best light, and went to Prof. Kasturi for advice. He simply said 'just be honest' and that was the end of it. Every time I'm faced with a difficult decision, this incident comes to mind," Vajaria remembered.

"I had been working with Prof. Kasturi for about a year before I attended my first conference with him. Literally every professor at the conference stopped by to talk to him. It amazed me that someone who was so highly respected in academia kept such a low profile at work. Since then I've always seen him as the epitome of modesty and balance," Vajaria said.

Kasturi was the editor-in-chief of the IEEE Transactions

on Pattern Analysis and Machine Intelligence journal from 1995-1998 and of the Machine Vision and Application journal from 1993-1994. He has published numerous papers and is also an author of the textbook "Machine Vision". His publications have received over 10,000 citations. Kasturi served as the president of IAPR from 2002 to 2004 and as the president of the IEEE Computer Society in 2008. Kasturi led the effort to bring the International Conference on Pattern Recognition (ICPR) to Tampa in 2008 which attracted over one thousand delegates from around the world.

He was a Fulbright Scholar in 1999 in India and a Fulbright Specialist in 2019 in Brazil. He is a Fellow of IEEE and IAPR. He received the IEEE Computer Society's Richard E. Merwin Distinguished Service Award in 2015. This award is given in recognition of outstanding volunteer service to the profession and is the Society's highest volunteer service award.

His retirement was celebrated at the USF Marshall Student Center on April 26, 2019. In attendance were his wife, colleagues and some of the graduate students he advised. Ghada Alzamzmi, one of his former students, considers Kasturi her role model and mentor. "It was because of Dr. Kasturi that I decided to pursue a doctoral degree in my current area of research. It was not until I walked into his course (Computer Vision) that I discovered my interest and realized that I want to continue working on this area of research under his supervision. I was not very confident when I was a junior graduate student. He believed in me and pushed me to do my best. He guided me and supported me. He allowed me to freely express different research ideas and explore them. He encouraged me to reach my goals. He made feel comfortable enough to be myself. He really cared about my success. I hope I can be as good of a mentor to my future students as Dr. Kasturi was to me. I am very lucky to have him as my mentor," Alzamzmi said.



▲ Professor Adriana Iamnitchi (back row, center) with members of the distributed systems group.

Women in Computer Science and Engineering: Defying Stereotypes

By Jessica Pruitt

One of the highest paying career fields for women is computer science, but it is also an area where women make up only about 25% of the workforce, according to Pew Research, even dropping from 32% in 1990.

Department of Computer Science and Engineering (CSE) faculty members Adriana Iamnitchi and Schinnel Small are proud to be a part of the effort to improve the representation of women in STEM fields.

Iamnitchi joined CSE as an assistant professor in 2005. Her interest in computer science came about more from a teenage rebellion than a conscious decision, gravitating toward STEM at a young age because

she disapproved of the communist political discourse that heavily permeated the humanities.

After receiving her bachelor's and master's degrees in Computer Science in Romania, Iamnitchi moved to the United States to earn her master's and doctorate degrees in Computer Science at the University of Chicago. Her plan was to earn her degree and then move back to Romania.

The U.S. offered a lot of research opportunities, and once she was offered the position at USF, staying in the U.S. seemed natural.

Iamnitchi's current research focuses on online social environments and behavior patterns, which can be observed and used to help foster "a

more ethical online experience or for resource management in distributed systems," according to her USF faculty page.

"I am interested in two main classes of problems: one is to figure out how to limit the damage in/from online environments. Another is to develop tools and methodologies to understand the phenomena in online environments," Iamnitchi stated.

Small joined CSE as an instructor in 2016. She received her Doctor of Engineering degree from Morgan State University. She attributes her childhood interest in science to role models such as Bill Nye, Neil Armstrong and Neil deGrass Tyson. Small was especially interested in why things worked the way they did and

how science could be applied to many of the things we use today.

"I used to grow up watching Bill Nye and I was fascinated by the way he covered things and I thought that engineering was a great way to harness that knowledge that I picked up in science from an early age," Small said. One of the contributing factors to Small's educational success was participating in the bachelor-to-doctorate path. "It was a little bit challenging at times because you have to go straight through, there's no exceptions for any circumstances; it's doctorate or bust," Small stated.

Besides being an instructor for CSE, Small is also the undergraduate program coordinator for IT. Going from being a student to being an instructor, Small felt this new challenge was a way to step outside of the classroom and become exposed to the different forms of academia and curriculum challenges. One of the greatest challenges she faces in her career is finding better ways to communicate with students who take failures extremely hard.

"I think one of the disappointing aspects is not being able to articulate to those students that failure is something you can learn from and not this dramatic end of the world incident," Small explains. Working with the students is one of what she says are her favorite aspects of the job.

"I feel like the environment is inclusive. It is encouraging and I like being a part of that. It is a very positive environment here at USF," Small said.

Iamnitchi also says that the environment and working with her graduate students is part of what she likes best about her work.

"Our colleagues are really good in their own research fields and there is a very nice collegial atmosphere," she said. "Every year you have a bunch of really great undergraduate students in your classes."



▲ Schinnel Small, Ph.D.

Willie McClinton Becomes One of USF's 11 Goldwater Scholars

By Russell Nay

USF Computer Science and Engineering junior Willie McClinton is one of two USF students this year to earn a Goldwater scholarship — the most prestigious undergraduate award in natural sciences, engineering and mathematics.

McClinton is one of 11 students in USF's history to earn the scholarship, supporting college sophomores and juniors who show promise of becoming the nation's next generation of research leaders. Only around 1,300 students are nominated for the scholarship each year, which provides students with \$7,500 for educational expenses and research support.

"The success of Willie demonstrates that our undergraduate students are among the cream of the crop," said USF Department of Computer Science and Engineering Chair Sudeep Sarkar, Ph.D. "It paves the way for USF to be an attractive option for talented high school students to apply for a productive education and research program in their studies."

McClinton applied last spring for an undergraduate research position in Andujar's Neuro-Machine Interaction Lab before the lab was even finished, and he began his work there by leading development of a program that would allow users to paint in virtual reality (VR) using just their thoughts sent through a BCI.

"I think he has initiative, a hunger for knowledge and really wants to succeed," he said. "I could definitely see him succeeding as a Ph.D. student ... for being an undergrad that young and being able to handle a Ph.D.-level project by himself."

Andujar thought the project would be competitive because of the scarcity of BCI research in the U.S. — especially when combined with a VR application. He said he's only known of similar work having been done in Europe.

"For the Goldwater — the most prestigious undergrad scholarship in the nation — students need their own project, and it's something that has to be very unique," Andujar said. "I don't think any other computer science student in Florida or even in the nation would have this kind of project."

McClinton has also been a student researcher in Chellappan's USF Social Computing Lab since January 2018.



Working with computer science and engineering junior Jamshidbek "Jim" Mirzakhlov, he's currently co-developing two smartphone applications for projects to identify disease-carrying mosquitoes and help detect cyberbullying.

The project on cyberbullying detection is funded by a three-year grant from the National Science Foundation (NSF) and is also a collaboration between faculty at the USF College of Engineering, College of Education and College of Arts and Sciences.

McClinton is using data mining and feature extraction techniques to develop an app that analyzes messaging patterns and timing of texts — metadata — from the phones of teens and pre-teens. The metadata doesn't need to show message content to identify potential instances of cyberbullying,

protecting users' privacy. The resulting app could one day alert parents through their phone carriers to abusive messages without either party needing to read them.

Between McClinton's mathematics and programming knowledge and his ability to work well with a team, Chellappan said he had an impact on his lab on his first day.

"Willie is one of the top two undergraduate students I've worked with in the last 15 years," Chellappan said. "Many of my grad students like to involve Willie in their projects ... and he will push the boundaries (in his research)."

Aside from his roles in the Neuro-Machine Interaction Lab and USF Social Computing Lab, McClinton is also a co-founder of the USF Society of Competitive Programmers. The organization allows USF students to travel to hackathons hosted around the country, which challenge students to team up and design and build a program, robot or other tech idea throughout a weekend. In the future, McClinton said he would like to focus his research efforts on general purpose robots — robots capable of performing a wide variety of tasks on demand, such as cleaning, taking care of pets or shopping.

"I'm always for research that can have a good impact on a lot of people," he said. "There's a huge impact (general purpose robots) could have if done right."

McClinton plans to pursue a Ph.D. and wants to mentor undergraduate and graduate students later in his career to guide them through their own research the way his mentors guided him.

"With all the amazing mentors and people who helped me throughout my career, I thought it would be what's due of me to give back," he said.



Tracy Miller Awarded the SMART Scholarship

A Department of Defense scholarship for STEM students is doing more than helping Computer Engineering senior Tracy Miller pay for her education, she will also have a job as a civilian employee within the DoD science community after she graduates with her master's degree.

When Miller decided to return to college to study computer engineering at USF, she discovered the number of credits she accumulated earning two associate degrees disqualified her from federal grants and loans. Fortunately, she was eligible to apply for the Department of Defense's Science, Mathematics and Research for Transformation (SMART) program scholarship, which she received for the Fall 2019 through Spring 2020 academic year.

The SMART program allows students pursuing an undergraduate or graduate degree in one of the 21 approved STEM disciplines to receive full tuition and fees, a cash stipend, health insurance and a summer internship. For each academic year the scholarship is awarded, the recipient is required to work one year as a civilian in the Science and Technology (S&T) workforce for the DoD.

"The DoD is sponsoring me for 1.5 years, so I am obligated to work for at least 1.5 years after graduation. I hope I enjoy it and continue working with them until

retirement," Miller said.

According to their website, "The SMART Scholarship-for-Service Program was established as a concentrated effort to enhance the Department of Defense workforce with talented, innovative and brilliant scientists, engineers and researchers." Competition for the scholarships is keen, but the benefits are substantial.

In 2018, the DoD awarded 382 scholarships, 18% of the reviewed applications. Since the start of the program in 2005, USF students have received seven SMART Scholarships, with Miller's being the eighth.

In addition to paying for her tuition and fees, Miller will receive a \$25,000 per year stipend, \$1,200 per year for health insurance costs and \$1,000 per year for miscellaneous expenses. She will be doing her internship with the DoD for 12 weeks over the summer in Washington D.C. During the internship, she will be paid an additional \$1,000 per week.

Miller is currently participating in the Accelerated BS/MS program which allows students to take two master level classes, and count them toward both the master's and bachelor's degrees, leading to graduation in a shorter amount of time. She will be graduating with her bachelor's degree in December 2020 and can then

progress to the graduate program.

"I am still unsure of where I want to go with research. In the fall, I will be assisting a Ph.D. student, Saurabh Hinduja, with his research in affective computing, which I look forward to," Miller said.

Miller earned her associate degree in pre-engineering in 1990 while working part-time in a dental office. She then went on to earn another associate degree in dental hygiene in 1992. She planned to continue to study engineering while working as a dental hygienist, but was afraid that too much time had passed and she would have forgotten the math, when a chance encounter provided the encouragement she needed.

"I ran into a friend that I studied with in my pre-engineering classes. She graduated from USF with a Ph.D. in electrical engineering and motivated me to lose the fear and pursue my dream," Miller said.

Florida Center for Cybersecurity partners with USF and SOFWERX to support student research on Smart Safe Houses

With support from the Florida Center for Cybersecurity six students from the University of South Florida's College of Engineering embarked on a yearlong internship to develop a state-of-the-art, cyber-ready safe house.



USF Ranked 31 out of 150 for Major League Hacking during Hack-A-Bull in March 2019, surpassing Florida International University, Carnegie Mellon, Stanford, MIT and Florida State University.

USF Whitehatters place third in A-ISAC Collegiate Aviation-themed Capture the Flag (CTF) Challenge hosted at the Aviation ISAC Annual Summit (inaugural CTF event) in September, 2018.



WiCSE members attended the 2018 ACM Richard Tapia Celebration of Diversity in Computing Conference September 2018 in Orlando. Students had the opportunity to engage with these companies Google, Microsoft and Salesforce, as well as graduate schools such as Stanford, Carnegie Mellon and Georgia Tech. Several students were interviewed for internships and full-time positions.

The Whitehatters Student Computer Security Club competed in a national cybersecurity competition, along with 12 other teams, in the Raymond James Financial Capture the Flag competition held in October, 2018.



Student members of the Society of Competitive Programmers competed at the world's largest collegiate hackathon at University of California, Berkeley, in November 2018.

WiCSE officers Catherine Giraldo and Rachel Klesius participated in the 2018 Great American Teach-In at Wesley Chapel Elementary School and John Long Middle School on November 14, 2018.

Eight CSE Students Awarded CSE Scholarships for 2018-2019



Nolan Matthew Deogracia
\$1,000 Peter Pempsell Scholarship

Jordan Miller
Marta Wilczynski
Tawana Jerome
\$2,000 each CAE USA Inc. Scholarship.



Belanna Marconi
My Nguyen
Michael Borkland
\$2,000 each CSE Undergraduate Scholarship



Onyx Imeh
\$2,500 SunView Software Scholarship.



David Paulius
Zachariah Beasley
\$1,500 each Spirit of Innovation Award.



Diego Fabiano Santalices, a computer science graduate student studying under Shaun Canavan, received an honorable mention in the Computing Research Association Undergraduate Research Award for 2019.

Shakil Mahmud, a Ph.D. student studying under Robert Karam, received a travel grant to attend the 2018 IEEE VLSI Test Symposium in San Francisco.



Song Fang, '18 Ph.D., a former student of Yao Liu, accepted a tenure-track faculty position at the University of Oklahoma, a flagship university of the state of Oklahoma with the Carnegie Classification of "Doctoral Universities: Highest Research Activity."

Farhath Zareen, computer science graduate student working with Robert Karam, presented a poster at the second workshop for Women in Hardware and Systems Security (WISE) at the IEEE International Symposium on Hardware Security and Trust (HOST) in May 2018.



ATM Golam Bari received an international travel grant from the USF Office of Graduate Studies to attend the IEEE World Congress on Computational Intelligence Conference. He is a student of Alessio Gasper.

Sarah Garcia, CSE doctoral student, appeared in an Adobe Intern video. Garcia, a student of Marvin Andujar, interned at Adobe summer 2018.



Steven Díaz Hernández, CSE doctoral student, was named Class of 2018 Hispanic Engineer National Achievement Awards Corporation Scholar at HENAAC Scholars on behalf of Great Minds in STEM conference.

Troi Williams



Troi Williams received a 2019 Microsoft Research Dissertation Grant for his proposal titled "Hunting Mosquito Breeding Habitats Using Drones and State-Dependent Measurement Models." Williams is a doctoral student advised by Yu Sun, associate professor and associate chair of Graduate Affairs, in the Robot Perception and Action Lab (RPAL).

The award consists of research funding of up to \$25,000 for the academic year 2019-20, as well as travel and accommodations to attend the Ph.D. Summit, a two-day workshop where students will present their research, receive career coaching and meet with Microsoft researchers in their field.

"This award will create opportunities for me to collaborate with researchers at Microsoft, other Microsoft Research Dissertation Grant Fellows, and expose me to other research areas that I can explore as a professor. This award will also help me purchase equipment, such as drones and cameras, for my dissertation research," Williams said.

Derek Caprio

Derek Caprio received the University Graduate Fellowship. This award consists of a \$9,142 stipend and tuition waiver for two semesters. Caprio was first introduced to research as an undergraduate, during his independent study course. He assisted in the Neuro-Machine Interaction Lab, and went on to participate in the Research Experience for Undergraduates (REU) Program headed by Assistant Professor Marvin Andujar. Caprio worked on a mobile application, which interfaces with a brain-computer interface device to track the user's attention levels while studying.

Caprio is currently working on a project that classifies affective states using Electroencephalogram (EEG) data and is interested in brain-computer interfaces, human-drone interaction and virtual reality. The fellowship will give Caprio financial assistance as well as strengthen his reputation as a researcher, allowing him to network with experts and improve his opportunities for research.

"I am very grateful to have been selected for this fellowship. I intend to make full use of it to benefit my research career and the scientific community while working on my Ph.D.," Caprio said.



Hailey Baez

Hailey Baez received the McKnight Doctoral Fellowship, consisting of a \$12,000 stipend and full tuition/fees, renewable for five years. Baez's first research experience was participating in the REU in Ubiquitous Sensing at USF, which gave her a better understanding of the fundamentals of research, and inspired her to pursue a career in applied research and academia. Her current research interests are machine learning and applied robotics, specifically to use multimodal sensing with machine learning to aid in the automatization of some activities for robotic cooking.

The financial assistance from the fellowship will enable Baez to fully focus on her research and studies as well as receive comprehensive Ph.D. support (professional development conferences, research writing assistance and travel grant awards) and networking opportunities within the McKnight community of fellows, graduates and faculty mentors, which will contribute to her success as a future educator.

"I am grateful for being a recipient of the FEF's (Florida Education Fund) McKnight Doctoral Fellowship and joining its mission to increase the representation of minorities in academia. I know what it is like to have had an opportunity that completely changes one's outlook in life, and because of this, I will always be an advocate for diversity and inclusion in my field," Baez said.



Qua'on Thomas

Qua'on Thomas is an Accelerated BS/MS Program student majoring in computer science. He has received the GEM Consortium Full Fellowship, consisting of a \$20,000 stipend, tuition waiver and two paid summer internships. The accelerated program gives students a chance to earn two degrees in five years, by enabling them to take two master level classes, and count them toward both the master's and bachelor's degrees, allowing them to graduate in a shorter amount of time.

Thomas was always interested in a graduate program, but was questioning if he should enter the workforce after completing his bachelor's degree and continue his education at a later date.

Thomas said his major focuses have been in software engineering and cybersecurity, specifically in the healthcare and energy fields. Thomas' fellowship and internships are supported by Idaho National Laboratory, one of the 17 national laboratories funded by the U.S. Department of Energy's Office of Science.

"I think it is an amazing award that continues to make our field more diverse, inclusive and ultimately more productive and innovative. It motivates me to want to give back to my peers and the generations after me to make sure they see the impact and positivity they can bring to the world through engineering!"



Jean-Luc Hayes



Jean-Luc Hayes received the USF Graduate Student Success (GSS) Fellowship, an award consisting of an \$18,000 stipend and tuition waiver, renewable for three years. Hayes also started his research in the REU program, working with Associate Professor Yu Sun in the Robot Perception and Action Lab at USF. Hayes said that his current research interest is robotic manipulation and developing more efficient algorithms for localization and mapping. As a graduate student, he hopes to work more with the tactile functions of grasping and appendage movement.

"Working with image detection and then acting on what is seen, is one of the most exciting applications of robotics," Hayes said.



Ghadh Alzamzmi
Post Doc - National Institute of Health



Song Fang
Assistant Professor - University of Oklahoma



Rekha Govindaraj
Design Engineer - Apple



Yuping Li
Security Engineer - Pinterest



Ian Markwood
Senior Security Engineer - CACI



Ravichandran Subramanian
Senior Principal Engineer - L3 Systems



Fengguo Wei
Software Engineer - Google



Xiaolong "Daniel" Wang
Product Software Security Engineer - Intuitive



Soheil Sarmadi
Data Scientist - EverestLabs.AI



Yongqiang "Garfield" Huang
Robotic Motion Generation
Spatial-Temporal Pattern Analysis



John Rippetoe
Software Engineer - Robotic Research

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