



# **ANNUAL REPORT** 2021-2022

**COMPUTER SCIENCE AND ENGINEERING** COLLEGE OF ENGINEERING



# **MESSAGE FROM THE CHAIR**

Computing education at USF is spread across three colleges, engineering, business, and arts & sciences. However, the hub is Computer Science and Engineering, in the College of Engineering. With a faculty rank of just 40 members (28 tenure-track and 12 instructional), we teach more than 2500 students, roughly 69% of all computing students, graduate and undergraduate at USF. This last annual year 2021-22, we graduated 383 BS, 59 MS, and

13 Ph.D. students, many of whom helped fulfill the massive local surge in tech jobs in recent years. According to a recent Forbes report, "Tampa is responsible for <u>over 25%</u> of Florida's tech jobs."

This year has been phenomenal for the department in terms of research. The department's annual research expenditure for 2020-21 was \$4.5 million – the highest ever. Faculty members are currently executing \$12 million in active external research projects that impact our health, security, and quality of life, enabled by funds from NSF, IARPA, US Army, DoD, NIH, NIST, industry, and state sources. We look forward to an even more exciting year with our five new faculty members joining the department in Fall 2022.

Our newest undergraduate program, BS in Cybersecurity, was reviewed by ABET and is now our third ABET-accredited degree; the other two are computer science and computer engineering. More than 550 students are enrolled in the BS Cybersecurity program, which is growing fast. Recently, our department and local high schools received \$1.39 million from the Florida Department of Education and the Florida Center for Cybersecurity to significantly boost the cybersecurity laboratories, curricular offerings, certifications, and student participation in competitions.

The broadening participation in computing initiative in the department, which was jumped-started last year by a three-year grant from Northeastern University's Center for Inclusive Computing, got another boost by the new Amazon Pay Scholarships for cybersecurity students from under-represented groups.

This year, we also launched a fully <u>online Pathway to Computing graduate certificate</u> program as a bridge to the Master of Science in Computer Science (MSCS) at USF. This program also provides a pathway to a computing career for college graduates with a degree in non-computing disciplines who want a new skill that they can immediately use professionally or transition into the MS Computer Science program. USF CSE is an active member of the National <u>MS Pathways to Computing</u>. <u>Consortium</u>.

These are some of the significant accomplishments we had this year and I invite you to peruse many others featured in the report.

Sincerely,

### Sudeep Sarkar | Distinguished University Professor and Chair | sarkar@usf.edu



The hub for computing education at USF is at Computer Science and Engineering. Computing education at USF is spread across three colleges: engineering, business, and arts & sciences. Computer Science and Engineering teach more than 2500 students, 69% of all computing students at USF (as of Fall 2021).

### RANKINGS

According to Academic Analytics Scholarly Research Index (using default weights for grants, articles, conferences, awards, and citations) (AAD 2020):

- USF CSE is in the top 15% of 177 CS departments in U.S. public universities.
- USF CSE is in the top 35% of CS departments in AAU Public Institutions.
- USF CSE is a top 10 USF department based on discipline-based ranks.



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# **FACULTY PROFILE**



# A.I. and Cognitive Computing



Computer Vision and Pattern Recognition, Artificial Intelligence and Machine Learning, Robotics, Brain-Computer Interfaces, Computational Neuroscience, Affective Computing

# Cybersecurity



Cryptography, Trustworthy Computing, Network Security, Smart Bio-Devices, Hardware Security, Biometrics

# **Efficient Computing Platforms**



Computer Architecture, VLSI, Ubiquitous Sensing Networks, Distributed Computing, Parallel Processing, Biomedical Devices, and Human-Centered Computing

# **Big-Data Algorithms**



Biomedical Imaging, Machine Learning, Databases, Visualization, Social Networks Great faculty members make for great departments. USF CSE has 28 tenure-stream faculty and 12 fulltime instructors, many of whom are IEEE, AAAS, IAPR, AIMBE Fellows, NSF CAREER award recipients (12 of them!), and Distinguished University Professors (three). Our faculty members value research, teaching, and service. Multiple faculty members have been awarded Outstanding Undergraduate Teaching awards from the university.

As reported to ASEE, the annual research expenditure for **2020-21 was \$4.5 million.** Research expenditures have more than doubled over the past five years. Faculty members and students are performing on **\$12 million in current active external research grants,** making discoveries and innovations in Artificial Intelligence, Cybersecurity, Efficient Computing Platform (hardware), and Big-Data Algorithms. Our faculty members are very involved with service to professional societies (such as IEEE-CS and ACM) and the community.

### PERSISTENCE IS KEY TO ACHIEVING SUCCESS



### Sayde King MS COMPUTER SCIENCE

She credits her experience on the executive board of the USF chapter of the National Society of Black Engineers for finding her internship with Northrop Grumman and also supporting her sense of identity as an engineer.

"There's something powerful about walking into a room and seeing people that look like you in the same field, wanting the same things you want."

Read Sayde's Story: https://bit.ly/210R8dH

### APPLYING LESSONS LEARNED IN THE DIGITAL WORKPLACE



### LilyTang BS COMPUTER SCIENCE

As a software engineer with Google, Lily Tang says she is applying not only her technical skills but also the leadership experience she gained in student organizations like the Society of Asian Scientists and Engineers and Women in Computer Science and Engineering.

"The department chair and the professors are very open to using their connections outside academia to help clubs. They provide opportunities."

Read Lily's Story: https://bit.ly/2mFQNTO

# DRIVING TOWARD AN AUTONOMOUS FUTURE



### Sara Savitz '20 MSCP COMPUTER ENGINEERING

Sara is following up on her research interests in robotics, artificial intelligence and autonomous transportation. A capstone project that applied classroom knowledge in solving real-world problems is among the undergraduate experiences that helped.

"It was a really good opportunity to work on a team, and I got exposure to things like virtual reality and programming languages."

Read Sara's Story: https://bit.ly/2oc612m

# **DEGREES AWARDED**



At the undergraduate level, we offer four degrees programs - the Bachelor of Science in Computer Science, Computer Engineering, Information Technology, and Cybersecurity. We have two Master of Science programs in Computer Science and Computer Engineering, and a PhD in Computer Science and Engineering. In AY 2021-22, we graduated 383 BS, 59 MS, and 13 PhD students. The breakup into the individual degree programs is show in the figure below.



# **FACULTY AWARDS & HONORS**

### CUTTING-EDGE INNOVATIONS TO FIGHT DISEASE, ENHANCE LEARNING WIN USF'S 2021 EXCELLENCE IN INNOVATION AWARDS February 1, 2021

USF faculty researchers who invented technology to combat a global shortage of COVID-19 testing swabs, created a surveillance system for mosquito-borne diseases, and turned captivating, augmented reality technology into a tool



to help bilingual children have been selected for this year's Excellence in Innovation Awards.

#### Learn More: https://bit.ly/3by9KjR

### SUDEEP SARKAR NAMED DISTINGUISHED UNIVERSITY PROFESSOR April 8, 2021

Sudeep Sarkar, Ph.D., Computer Science, and Engineering Professor and Chair was named Distinguished University Professor by USF. He is one of the global leaders in computer vision,



biometrics, and artificial intelligence. He has developed systems to recognize persons from the way they walk (gait), automated sign language recognition, and extracting precise medically relevant information from medical images. Sarkar is Fellows of AAAS, NAI, IEEE, IAPR, and AIMBE.

### Learn More: https://bit.ly/3zTZ9Jt

### **COLLABORATIVE PAPER EARNS 2020 IET BIOMETRICS PREMIUM AWARD** March 24, 2021

SE Alumni Earnest Hansley, Ph.D. ('18), CSE Visiting Assistant Professor Maurício Pamplona Segundo, and CSE Professor Sudeep Sarkar's 2018 paper, "Employing Fusion of Learned and Handcrafted Features for Unconstrained Ear Recognition," earned the 2020 IET Biometrics Premium Award.

Learn More: https://bit.ly/3zvhaMU



### SUDEEP SARKAR ELECTED TO ACADEMY OF SCIENCE, ENGINEERING AND MEDICINE OF FLORIDA April 8, 2021

CSE Professor and Chair Sudeep Sarkar, Ph.D., was elected to the Academy of Science, Engineering and Medicine of Florida (ASEMFL) for his "distinguished contributions in computer vision and pattern recognition, perceptual organization and biometrics." What the National Academy of Science, Engineering and Medicine is to the Nation, ASEMFL is for the State of Florida. Individuals who are members of one of the three National Academies and work or reside in Florida are members of ASEMFL. Individuals who work or live in Florida who have made significant societal impact are elected to ASEMFL.

### ASSISTANT PROFESSOR LICATO WINS BEST PAPER AWARD AT 1ST INTERNATIONAL Workshop on knowledge graphs for online discourse analysis

April 30, 2021



CSE Assistant Professor John Licato won the Best Paper Award at the 1st International Workshop on Knowledge Graphs for Online Discourse Analysis. His paper, Fact-checking, False Narratives, and Argumentation Schemes, was one of 7 works presented at the conference. It focused on Fact-checking, False Narratives, and Argumentation Schemes.

### Learn More: https://bit.ly/3PZoqYo



### USF CSE BROADENING PARTICIPATING IN COMPUTING (BPC) AWARD August 15, 2021

The 2021 award recipient is Dr. Larry Hall for launching and leading the departmental BPC efforts as the department chair. The CSE Broadening Participation in Computing (BPC) Award is to celebrate a faculty member who has made efforts to increase diversity and inclusion in CSE at USF. The purpose of the award is to communicate to the world the CSE department's commitment to diversity and inclusion. The award will be presented at the first Department meeting of the year. Applications will be reviewed by a committee with a focus on impact.

# COLLABORATIVE TEAM EARNS DISTINGUISHED PAPER AT SOUPS 2021

September 3, 2021

A paper authored by CSE Ph.D. student Anwesh Tuladhar, CSE Professors Jay Ligatti and Xinming (Simon) Ou, and Anthropology collaborator Daniel Lende, "An Analysis of the Role of Situated Learning in Starting a Security Culture in a Software Company" was awarded Distinguished Paper at SOUPS 2021. SOUPS 2021 is the top conference on usable security and privacy.

### Learn More: https://bit.ly/3QfSXAK





### COLLABORATIVE PAPER EARNS BEST PAPER AWARD AT AFFECTIVE MOVEMENT RECOGNITION CHALLENGE AND WORKSHOP AT ACII 2021 September 28, 2021

Assistant Professor Shaun Canavan, Ph.D. student Saandeep Aathreya, undergraduate REU student Liza Jivani, and alumni Shivam Srivastava and Saurabh Hinduja earned



the Best Paper Award at the Affective Movement Recognition Challenge and Workshop at the 9th International Conference on Affective Computing and Intelligent Interaction for "Task-based Classification of Reflective Thinking using Mixture of Classifiers."

### Learn More: https://bit.ly/3d7ls5f

### LAWRENCE HALL RECEIVES THE 2021 IEEE CIS FUZZY SYSTEMS PIONEER AWARD October 13, 2021

Professor Lawrence Hall received the 2021 Fuzzy Systems Pioneer Award from the IEEE Computational Intelligence Society for acceleration methods in fuzzy clustering and medical image interpretation. The award recognizes significant contributions to early concepts and sustained developments in the field of fuzzy systems and includes a \$2,500 honorarium. Lawrence O. Hall is a Distinguished University Professor in the Department of Computer Science and Engineering at the University of South Florida and the co-Director of the Institute for Artificial Intelligence + X. He is the 2021 IEEE Vice President for Publications, Products and Services.

#### Learn More: <u>https://bit.ly/3vFWdNW</u>

### SRINIVAS KATKOORI AND COLLABORATORS RECEIVE THE BEST PAPER AWARD AT IFIT IOT 2021 December 9, 2021

CSE Associate Professor Srinivas Katkoori and collaborators S. Abdullah, A. Priyasha, S. R. Patri, from NIT Warangal, India, received the best paper award at IFIT Internet of Things (IoT) 2021 for



their paper "Smart Agriculture using Flapping Wing Micro Aerial Vehicles (FWMAVs)." The proposed design requires less material and low manufacturing cost due to simpler design and a low number of required parts. To the best of our knowledge, this design is the first of its kind which is a fully functional FWMAV suitable for artificial pollination.

### Learn More: https://bit.ly/3zX5kMM

### ALESSIO GASPAR RECEIVES 2020/21 OUTSTANDING UNDERGRADUATE TEACHING AWARD December 10, 2021

Associate Professor Alessio Gaspar received the 2020/21 Outstanding Undergraduate Teaching Award. The Outstanding Undergraduate Teaching Awards recognize excellence. innovation and



effectiveness in teaching in USF undergraduate programs. The recognition comes with a \$2,000 award.

Learn More: https://bit.ly/3by5vVy

### ATILLA YAVUZ WAS RECOGNIZED WITH USF'S 2022 EXCELLENCE IN INNOVATION AWARDS January 21, 2022

Attila Yavuz was one of the six faculty members to receive the USF Excellence in Innovation Award. His research focuses on efficient end-to-end protection of encrypted systems to enable trustworthy machine learning



for users without revealing sensitive contents to cloud servers. Prior work has been expensive for embedded devices and relied on trust assumptions for data collection and analysis. Yavuz's research presents a series of new techniques that offer lightweight postquantum signatures, consensus, and metadata-hiding file-sharing properties. This research has resulted in several papers and a patent filing.

Learn More: https://bit.ly/3P7NEI0

### THREE FACULTY MEMBERS FROM CSE ELECTED TO AAIA FELLOW STATUS December 9, 2021

Dmitry Goldgof, Larry Hall, and Sudeep Sarkar were elected Fellows of the Asia-Pacific Artificial Intelligence Association (AAIA). The new association "aims to build a broad AI industry



to promote the development and application of Al in different fields of science and technology," as described on its website.

### Learn More: https://bit.ly/3QQKmp3

# **NEW HIRES**



Dr. Ankur Mali completed his Ph.D. under Prof. Clyde Lee Giles from The Pennsylvania State University in 2022. He works at the intersection of language, memory, and computation—spanning Natural Language Processing (NLP), linguistics, and formal language theory. He also works on designing learning algorithms and computational architectures guided by theories of the brain. These architectures focus on solving challenges such as continual/lifelong learning, learning with minimal supervision, RL, and sparsity (both in computer vision and natural language processing). In particular, he

has proposed several knowledge-guided interpretable deep learning systems that generate fair, accountable, and trustworthy information. Furthermore, he has also designed approaches to investigate the mysterious success of deep learning in recognizing natural language from a theoretical and empirical perspective.

Dr. Dayane Reis received her Ph.D. in Computer Science and Engineering from the University of Notre Dame in 2022, under the direction of Dr. Xiaobo Sharon Hu and Dr. Michael Niemier. She also received a M.S. in Electrical Engineering from the Federal University of Minas Gerais, Brazil, in 2016, and a B.S. in Electronic Engineering from the Pontifical Catholic University of Minas Gerais, Brazil, in 2012. Dr. Reis's research exploits beyond CMOS technologies for the design of fast, energy-efficient, and reliable in-memory computing kernels that can be used in a wide range of data-intensive application scenarios. She is the author of more than 25 articles in journals such as IEEE TVLSI, IEEE TCAD, IEEE Design and



Test, and Nature Electronics, as well as renowned conferences including DAC, DATE, ICCAD, ISLPED, and ASP-DAC. Dr. Reis was one of the two winners of the best paper award at the ACM/IEEE International Symposium on Electronics and Low Power Design in 2018 (ISLPED'18) for her paper "Computing in memory with FeFETs", and a recipient of the Cadence Women in Technology (WIT) Scholarship 2018/2019, in recognition to her efforts toward the inclusion of women in STEM fields.



Dr. Gene Louis Kim has been a Visiting Assistant Professor at USF in the Department of Computer Science and Engineering since the start of 2022. He received his Ph.D. in the Department of Computer Science at the University of Rochester, advised by Professor Lenhart Schubert, and received his B.S. in Computer Science at the University of Washington. In the past, he has been a Sproull fellow, a Heidelberg Laureate Forum invitee, and a research intern at Google and Facebook. His research aims to integrate the benefits of neural and symbolic methods for modeling language meaning which supports automatic parsing and computer reasoning while being informed by linguistic semantics.

Dr. Julia Woodward received her Ph.D. in Human-Centered Computing from the University of Florida and is a National Science Foundation Graduate Research Fellow. Her research lies in the field of human-computer interaction (HCI), which focuses on comprehending how people use and conceptualize technology to design more effective experiences. Her main research interests include designing visual information in augmented reality (AR) headsets for both adults and children, and understanding how to design technology to fit children's perceptions and interaction behaviors.





Dr. Seungbae Kim earned his Ph.D. from the Department of Computer Science at the University of California, Los Angeles in 2021, and he was a member of the Scalable Analytics Institute under the supervision of Professor Wei Wang. He worked as a postdoctoral fellow at the Department of Communication at UCLA for one year before joining USF. His research interests lie in machine learning, artificial intelligence, applied data science, computational social science, and data mining for social systems including social media, crowd-sourced platforms, video-sharing platforms, and online markets. He utilizes techniques from machine learning specifically focusing on graph neural networks,

multi-modal multi-task learning methods, and social network analysis on multi-relational and multi-layer networks. He was an awardee of the Samueli Deans Fellowship and the Balu and Mohini Balakrishnan Endowed Fellowship, and a teaching fellow who was nominated for the Outstanding TA award at UCLA.

# REMEMBRANCE



Prof. Miguel Labrador passed away peacefully at his home in Tampa, Florida, on August 17, 2021, surrounded by his beloved family. He was born on October 23, 1961, in Caracas, Venezuela. Miguel Angel is survived by his wife of thirty-one years, Mariela; their sons: Miguel Andres and Daniel Ignacio; his parents Maria del Carmen and Mariano; his brother Mariano; his sisters Mary and Maria Elena, his brothers in law Gustavo Castro and Juan Ramos, his nieces Marietta Castro, Valeria Labrador and nephews David and Christian Vega.

Prof. Miguel A. Labrador received the M.S. in Telecommunications and the Ph.D. degree in Information Science with a concentration in Telecommunications from the University of Pittsburgh in 1994 and 2000. In 2001, he joined the University of South Florida (USF)

in Tampa, FL. He rose to the ranks of a full professor in the Department of Computer Science and Engineering and the Director of the Research Experiences for Undergraduates Program. Before joining USF, he worked for more than 15 years in industry. His last industry job was in Telcordia Technologies, Inc., NJ, in the Broadband Networking Group of the Professional Services Business Unit.

His research interests were in the design and performance evaluation of computer networks and communication protocols, energy-efficient mechanisms for wireless sensor networks, location-based services, and ubiquitous sensing. His research had been funded by NSF, DARPA, FDOT, TACLAN, the Florida High Tech Corridor, and Draper Laboratories. Dr. Labrador published more than 100 journal and conference papers and holds ten patents in these areas. He was the lead author of the books "Human Activity Recognition Using Wearable Sensors and Smartphones," CRC Press 2013, "Location-Based Information Systems," CRC Press 2010, and "Topology Control in Wireless Sensor Networks," Springer 2009. He served on the organizing committee of many IEEE conferences and was a member of the Editorial Board of Computer Communications and the Journal of Network and Computer Applications (Elsevier Science).

Dr. Labrador received the 2005 American Society for Engineering Education (ASEE), Southeastern Section New Faculty Research Award, 2007 USF Outstanding Undergraduate Teaching Award, the 2008 USF Excellence in Innovation Award "for the highly innovative work done in the area of Location-Aware Information Systems," and the 2012 College of Engineering Outstanding Research Achievement Award. He was a senior member of the IEEE and a member of Beta Phi Mu, ACM SIGCOMM and SIGCSE, and ASEE.



# RETIREMENT

Prof. Rafael Perez, professor of the Department of Computer Science and Engineering, retired after a long service to USF at the departmental, college, and university levels. Prof. Perez received his Ph.D. in Electrical Engineering from the University of Pittsburgh. At USF, he has also held the positions of Interim Dean of the Patel College of Global Sustainability, Interim Dean of the College of Engineering, and Associate Dean for Academics in the College of Engineering. Prof. Perez's career spans a broad range of experiences with 13 years in industry and more than 30 years in academia. Before joining the University of South Florida, he worked for the Westinghouse Research Laboratories and the Westinghouse International Corporation. He worked in many foreign countries on a variety of industrial projects. While at USF as a professor of Computer



Science and Engineering, he has been the primary investigator in numerous externally funded research projects to develop intelligent systems. His work on innovative mobile apps for cell phones has resulted in 12 U.S. patents. The patented inventions cover many location-aware applications, from techniques that provide real-time transit navigation instructions for public transportation riders with disabilities to the next-generation emergency alert notifications. Prof. Perez will continue to be associated with the department as Professor Emeritus.



# **DIVERSITY AND INCLUSION**

CSE faculty and staff are committed to building an inclusive environment that encourages, supports, and celebrates the diverse voices of our students. This commitment is essential as we educate new generations of scientists and engineers, and our graduates become members of a diverse workforce that reflects the communities they serve. To enrich the student educational experience facilitated by a diverse student body, we have embraced an accelerated approach to diversity and inclusion with exceptional support and activities designed to recruit and assist the personal development, academic achievement, and graduation of underrepresented groups in the computing field.

Demographics of all students in CSE, excluding non-resident aliens for whom race/ethnicity data is not available.



Gender diversity of CSE students over the years for the degree programs in CSE. On the left is the data from the Computer Science and Computer Engineering programs and the on the right is the data from Information Technology and Cybersecurity degree programs.

## Women in CS/CpE (Fall 2021)





### Women in IT/CyS

### Evidence-based Effort to Increasing Women in CSE



The Department of Computer Science and Engineering received a three-year, \$579,737 grant from the Center for Inclusive Computing at Northeastern University for funding evidence-based approaches to attract and retain more women computer science, information technology, and cybersecurity students. This funding is made possible by Melinda Gates Pivotal Ventures. Led by the department chair and Professor Sudeep Sarkar, Professor Jing Wang, and Professor Ken Christensen, this project is implementing the following initiatives to improve the representation of women in computer science and engineering:

- Highly coordinated entry level courses with proactive advising.
- Teaching assistant training to help BPC effort
- <u>CSE Ambassadors</u> for peer mentoring and recruitment efforts
- Pathways into CSE for non-majors





### PATHWAY TO COMPUTING AT GRADUATE LEVEL

USF is a member of the MSCS Pathways to Computing Consortium, a national effort with the mission of designing and implementing programs that enable individuals from diverse academic backgrounds to obtain a Master of Science in computing disciplines and to pursue a career in tech. Consortium members join efforts in outreach and fund-raising, providing scholarship opportunities to eligible students. Inspired by efforts at peer organizations, USF CSE now offers a <u>fully online Pathway to Computing</u> graduate certificate program as a bridge to the Master of Science in Computer Science (MSCS) at USF. This program also provides a pathway to a computing career for college graduates with a degree in non-computing disciplines who want a new skill set that they can immediately use professionally. Certificate graduates are well positioned to transition their career to computing and earn an advanced academic credential in computing. Qualified students who successfully complete the online certificate program gain guaranteed entry into USF's MSCS program, with no GRE required.

## **RESEARCH GRANTS & FUNDING**

As reported to ASEE, the annual research expenditure for 2020-21 was \$4.5 million. Research expenditures have more than doubled over the past five years. While teaching beyond maximum capacity, the departmental faculty members have also been operating at total capacity in terms of research. CSE research expenditures have consistently increased from \$1.8 million to \$4.5 million since 2015-16 (see figure below). Over this period, tenure track faculty increased by just four from 24 to 28.



**CSE** Research Expenditures

The plot shows the variation of research expenditures for CSE and the average of engineering over the years. CSE has increased consistently from \$1.8 million to \$4.5 million since 2015-16.

### C.Y. 2021-2022 Active Grants

Andujar, Marvin (PI), Immersive Brain Painting for College Students with ADHD, NSF, \$80,205, 09/01/2020-08/31/2022.

**Canavan, Shaun** (PI); Sarkar, Sudeep; Hall, Lawrence; Goldgof, Dmitry; Rosen, Paul, A Novel, Robust Fake Video Detection System, Defense Intelligence Agency, \$904,980, 5/28/2020 - 5/27/2021.

Carney, R. (PI); **Chellappan, Sriram**; Bowser, A; Low, R., Surveillance and Control of Mosquito-Borne Diseases through Automated Species Identification and Spatiotemporal Modeling, NSF, \$916,000, 10/01/2020 -9/30/2024. **Chellappan, Sriram** (PI); **Christensen, Ken**; Batson, Bernard; Pazos-Revilla, Marbin; **Sarkar, Sudeep**, Expanding the pipeline of Cyber/IT workforce in the Tampa Bay area, Florida Department of Education and Cyber Florida, \$1,390,000, 08/01/2022-07/31/2023

Fisk, N. (PI); **Chellappan, Sriram; Sarkar, Sudeep**, Al-Cybersecurity: Faking It: Facilitating Public Awareness of Cybersecurity Issues in A.I., NSF, \$300,000, 7/15/2021 – 6/30/2024.

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

#### Christensen, Kenneth (PI); Paul Rosen; Rafael

**Perez**, Florida Information Technology Graduation Attainment Pathways, NSF, \$1,421,774, 07/01/2021-06/30/2026.

Gaspar, Alessio, Coevolutionary Peer Instruction, NSF, \$377,012, 07/01/2020 - 07/01/2023.

Ghani, Nasir (PI); **Katkoori, Srinivas**, Assessment of Emerging Quantum Technologies: Computing, Communications, and Cryptography, SOCOM, \$99,994, 04/01/2021 - 09/30/21.

Gillies, R. (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); **Sarkar, Sudeep**; **Sun, Yu**, An Automated Pressure Ulcer Monitoring System to Improve Pressure Ulcer Outcomes for Veterans with SCI, DoD/V.A., \$127,838, 9/30/2016-9/29/2020.

Mouton, P. (SRC PI); **Goldgof, Dmitry** (PI); **Hall, Lawrence**, STTR Phase II: Microscope-based Technology for Automatic Brain Cell Counts Using Unbiased Methods, NSF+ Florida High Tech Corridor, \$899,292, 11/1/2019 – 9/31/2021.

**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.

Karam, Robert (USF PI), The UroMonitor: Innovative Technology to Improve Management of Bladder Dysfunction, NIH/CCF, \$111,783, 09/01/2021 – 08/31/2022.

Karam, Robert (PI), Katkoori, Srinivas, Mozaffari-Kermani, Mehran, Improving Student Learning through Competitive Embedded System Security Challenges, NSF, \$499,145, 05/01/2020 – 04/30/2023

Takshi, A. (PI), Sagar P., and **Katkoori, Srinivas**, Cellulose Based Flexible Solid-State High Power and High Energy Supercapacitor, MDA (SBIR subcontract from PolyMaterials Inc), \$273,555, 12/1/2020 -11/30/2022. Labrador, Miguel (PI); Sun, Yu, REU Site on Ubiquitous Sensing, NSF, \$439,215, 08/01/2016-07/31/2022.

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

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

Lin, P.S. (PI), **Ligatti, Jay**; Li, Xiaopeng; Barbeau, Sean; Kourtellis, Achilleas, Identify Sources and Risks on Cybersecurity for Connected Vehicle Infrastructures, FDOT, \$240,989, 5/18/2020-8/23/2022.

Liu, Yao, CAREER: A Pathway to Virtual Channel Camouflage Wireless Security, NSF \$297,053, 3/1/2016-2/28/2021.

Liu, Yao (PI), Zhuo L., Creating Content Verification Tools to Protect Document Integrity, NSF, \$500,000, 10/1/2020-9/30/2023.

**Mozaffari Kermani, Mehran**, Investigating Active Side-Channel Attacks and Developing Countermeasures for Standardization of Lightweight Cryptography, NIST, \$500,000, 04/01/2020-04/01/2024.

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

**Neal, Tempestt** (PI); **Canavan, Shaun**; Anthony, L.; Ruiz, J., Toward Age-Aware Continuous Authentication on Personal Computing Devices, NSF, \$533,292, 04/01/2021-03/31/2023.

Thomas, S. (PI); **Neal, Tempestt**; Negro, A., Early Detection of Disease Outbreaks using Self-Organizing Patterns – COVID-19, NSF, \$200,000, 05/07/2020-04/06/2022 Kosyluk, K. (PI); **Neal, Tempestt**; Salzer, M.; Corrigan, P., Up To Me: Erasing the Stigma of Mental Illness on College Campuses, NIH/NIDILRR, \$600,000, 09/01/2021-08/31/2024.

**Ou, Xinming** (PI); Lende, D.; **Ligatti, Jay**, Understanding Security in the Software Development Lifecycle: A Holistic, Mixed-Methods Approach, NSF, \$500,000, 09/01/2018-08/31/2022.

**Ou, Xinming**, Data-driven Approaches for Largescale Security Analysis of Mobile Applications, NSF, \$200,000, 8/15/2017-7/31/2021.

Zhang, Q. (PI); Wells, E.; **Ou, Xinming**; Lu, Q.; Mohebbi, S., Integrative Decision Making Framework to Enhance the Resiliency of Interdependent Critical Infrastructures, NSF, \$1,963,542, 09/01/2016-08/31/2022.

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

Alman, A.; Couluris, M.; **Rosen, Paul**, Feasibility of mHealth Technology for Improving Self-Management and Adherence Among Asthmatic Adolescents, NIH, \$655,737, 8/1/2020-5/31/2023.

Sarkar, Sudeep (PI), Licato, John, Das, Tapas, Testing & Evaluation for Soldier-Device Teaming Compatibility, Vulnerability, and Durability in Emergent Situations, U.S. Army DEVCOM Data & Analysis Center (DAC)/KRI Northeastern, \$5,000,000, 2022-2027.

Sarkar, Sudeep (PI), Distant Observation Enhancement and Recognition System (DOERS), Intelligence Advanced Research Projects Activity (IARPA)/Kitware, \$687,752, 2021-2025.

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Dubey, R. (PI); **Sarkar, Sudeep**; Reed, K.; Alqasemi, R., Achieving Autonomy by Learning from Sensor-Assisted Control in a Wheelchair-Based Human-Robot Collaborative System, NSF, \$560,383, 09/01/2018-08/31/2022.

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Sun, Yu (PI), Dmitry Goldgof, Thao H., Denise M., Yangxin H., A Multimodal Approach for Monitoring Prolonged Acute Pain in Neonates, NIH R21, \$400,567, 7/16/2020-6/30/2022.

Okamura, A. (Stanford); **Sun, Yu**, Wearable Fingertip Haptic Devices for Virtual and Augmented Reality: Design, Control, and Predictive Tracking, NSF, \$173,338 (USF Portion), 08/01/2018-07/31/2021.

Tu, Yicheng, Data Management Molecular Simulations
A Throughput-Oriented Approach, NIH-RO1 (NIGMS),
\$1,149,236, 9/22/2021-9/21/2025.

Weitzenfeld, Alfredo, Experimental and Robotics Investigations of Multi-Scale Spatial Memory Consolidation of Complex Environments, NSF \$494,420, 9/1/2017-8/31/2022.

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

**Yavuz, Attila A.**, Trustworthy Digital Forensics for Heterogeneous Internet of Things, Cisco Research Award, \$98,985, 06/2021-12/2022. Yavuz, Attila A., Low-cost, Scalable and Practical Post Quantum Key Distribution (sub-award), DoE - Cyber Resilient Energy Delivery Consortium, \$100,000, 06/2020-09/2021. Zhang, Z. (Utah State), Zheng, Hao (USF), Winstead,
C. (U Utah), An Efficient Framework for the Stochastic
Verification of Computation and Communication
Systems Using Emerging Technologies, NSF,
\$985,274, 7/15/2019-6/30/2023.

# **PATENTS & LICENSING**

### FOR FY 2016-2020

- 38 patents issued to CSE faculty
- 120 US and foreign patent applications
- 6 copyrights
- 13 license/option agreements
- 4 NSF I-Corps Teams



### MACHINE-BASED INFANTS PAIN ASSESSMENT TOOL

Neonatal pain monitoring is one of the most challenging aspects of caring for newborns, especially fragile premature babies. The task of determining when babies need pain medicine most often falls to nurses, who rely on years of experience to visually monitor an infant for signs of pain. A team of USF medical and engineering experts collaborated in creating an artificial intelligence-enabled system of cameras and sensors that monitor infants' cries, limb movements, vital signs, and facial expressions to alert caregivers to the earliest signs of pain. The researchers hope earlier warnings of an infant's pain will allow medical staff to use non-drug interventions or lessen the amount of severe pain relief drugs, such as morphine and fentanyl. Morsani College of Medicine's Dr. Terri Ashmeade and College of Engineering Professors Dmitry Goldgof, Yu Sun, Rangachar Kasturi, and USF Engineering Ph.D. alumna Ghada Al Zamzmi are the inventors. Last year, Dr. Zamzmi was named <u>MIT Technology</u> Review's Innovators Under 35 list for her work on this project and others.

#### Learn More: https://bit.ly/3C14K1Q

# **FACULTY NEWS**

### **TEMPESTT NEAL AND SHAUN CANAVAN AWARDED \$261,996 GRANT**

March 24, 2021

CSE Assistant Professors Tempestt Neal (PI) and Shaun Canavan (Co-PI) and two faculty members from the University of Florida were awarded a two-year \$261,996 grant for their project "Collaborative Research: SaTC: CORE: Medium: Toward Age-Aware Continuous Authentication on Personal Computing Devices."

### Learn More: https://bit.ly/3Qpl7cK



### COLLABORATIVE NSF GRANT WILL PROVIDE SCHOLARSHIPS FOR USF CSE STUDENTS September 11, 2021

Computer Science and Engineering (CSE) professors Ken Christensen and Rafael Perez are co-Principal Investigators on a \$5M NSF grant to provide scholarships over five years to students with financial needs majoring in computer science, computer engineering, cybersecurity, or information technology.

Learn More: https://bit.ly/3Ae9gsR

# COLLABORATIVE GRANT FUNDED BY NIDILRR/ADMINISTRATION FOR COMMUNITY LIVING

September 21, 2021

Assistant professor Dr. Tempestt Neal is the co-Investigator on a grant with Dr. Kristin Kosyluk, USF Department of Mental Health Law & Policy as the Principal Investigator entitled, "Up To Me: Erasing the Stigma of Mental IIIness



on College Campuses" has been funded by the US DHSS National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR/Administration for Community Living). Other collaborators are faculty at Temple University and the Illinois Institute of Technology.

### Learn More: https://bit.ly/3w3i7el



### SIMON OU FEATURED IN TAMPA'S 83 DEGREES MEDIA ONLINE MAGAZINE May 26, 2021

Tampa's 83 Degrees Media online magazine featured CSE Cybersecurity researcher Simon Ou, who studies the topic of cyber physical system security, which focuses on the systems used to monitor and control water treatment plants, power plants, manufacturing facilities, and other types of industrial uses.

Learn More: https://bit.ly/3QKfNko



### USF RESEARCHERS LAUNCH SOCIAL MEDIA CAMPAIGN TO IDENTIFY THE RISK OF Mosquito-Borne Diseases in Tampa Bay August 20,2021

USF researchers have launched a social media campaign that invites citizen scientists to upload images of mosquitoes in the Tampa Bay region to the iNaturalist platform, a smartphone app. The app will automatically identify disease-carrying species such as Aedes aegypti, a known transmitter of Zika, dengue, and yellow fever.

### Learn More: https://bit.ly/3PcHDoi



### YICHENG TU RECEIVES NIH GRANT FOR INTERDISCIPLINARY SCIENTIFIC SIMULATION RESEARCH May 20, 2020

Yicheng Tu, professor of computer science and engineering and principal investigator, has been awarded a four-year R01 grant from the National Institutes of Health (NIH), totaling \$1,149,236 for "Data Management of Molecular Simulations – A Throughput-Oriented Approach." This is a collaboration with H. Lee Woodcock from the USF Department of Chemistry.

Learn More: https://bit.ly/3vTh5Bl



### NEW BRAIN-PAINTING METHOD DEVELOPED AT USF BEING TESTED FOR ADHD TREATMENT May 20, 2022

Andujar just wrapped up a two-year pilot study funded by the <u>National Science Foundation</u>. He and his students collected data from participants who are mainly college students with ADHD who need additional help to focus throughout the semester and pass exams. The most common treatment prescribed is Adderall – a medication known to disturb eating and sleeping patterns.

Learn More: https://bit.ly/3vT5sdE



### YU SUN FEATURED ON ROBOHUB PODCAST

May 21, 2022

Yu Sun was featured on the Robohub podcast, "Robotics Grasping and Manipulation Competition Spotlight," on May 21. Robohub is produced by the ROBOTS Association, a non-profit based in Zurich, Switzerland and dedicated to providing free, high-quality information for the robotics community and the general public. <u>The recording can be found here.</u>

Learn More: https://bit.ly/3bGXY71

# **STUDENT NEWS**



### CSE PHD STUDENT TROI WILLIAMS RECEIVES KOERNER FAMILY FOUNDATION RESEARCH AWARD January 15, 2021

Junuary 10, 2021

The Koerner Family Foundation (KFF) has selected two USF College of Engineering PhD students, John Cotter (Mechanical Engineering) and Troi Williams (Computer Science and Engineering), for a supplemental student stipend award of \$10K each for their graduate research in microfluids and in agriculture and intelligent networks respectively for 2021.

### Learn More: https://bit.ly/3SDcOXL

# CSE PHD STUDENT SAMEERA HORAWALAVITHANA AND COLLABORATORS WIN NASN 2021 GRAND CHALLENGE

February 9, 2021

CSE PhD student Sameera Horawalavithana, in collaboration with Ravindu De Silva, Mohamed Nabeel, Charitha Elvitigala, Primal Wijesekara, and Adriana lamnitchi won the NASN Grand Challenge for their paper titled "Malicious and Low Credibility URLs on Twitter during COVID-19."

Learn more: https://bit.ly/3Ac1f7J

# CSE GRADUATE STUDENT QI ZHENG RECEIVES USF GSS FELLOWSHIP

March 2, 2021

CSE graduate student, Qi Zheng, under the supervision of Professor Yu Sun, received a Graduate Student Success (GSS) Fellowship. This three-year fellowship, which recognizes Zheng's academic abilities, includes a \$10,000 stipend and tuition waiver.

Learn more: https://bit.ly/3SEYTW4

## CSE STUDENT DELONG YANG INDUCTED INTO PHI BETA KAPPA

April 1, 2021

CSE undergraduate student Delong Yang was inducted into Phi Beta Kappa, the oldest and most respected undergraduate honor society for the liberal arts and sciences in the United States, during the Spring 2021 induction ceremony. Yang is a senior earning a B.S. in Computer Engineering. Students are selected based on scholastic achievement, broad cultural interests, and good moral character.

### Learn more: <u>https://bit.ly/3p6TBol</u>



### TENEX SOFTWARE ESTABLISHES THE MATTHEW MORENO SCHOLARSHIP To honor his memory

April 16, 2021

When USF computer science alum Matt Moren '14 passed away in January, his co-workers at Tenex Software Solutions decided to create a scholarship to honor their friend and colleague so his legacy can live on through future students. Ravi and Alka Kallem, founders of Tenex Software Solutions, Inc., established the Matthew James Moreno Memorial Scholarship with an initial pledge of \$100,000. The scholarship will support full-time students studying computer engineering, computer science, electrical engineering, mechanical engineering, or information technology in the College of Engineering at USF.



### Learn More: https://bit.ly/3A9hVg3



# CSE STUDENTS WIN BIG AT 2021 HACKABULL

March 18, 2021

Hackabull, a Major League Hacking (MLH) sanctioned hackathon hosted by USF's Society of Hispanic Professional Engineers (SHPE), took place March 13-14 over a full 24-hour period. 192 hackers participated and 155 submitted a project. Five of the winners were USF Students: Rishabh Ravi (Third Place), Vennela Gudla Venkata Siva (Third Place), Brian Urias (2nd Place for Best use of Google Cloud API Challenge), Andre Tenjo (echoAR Sponsor Prize), and Jun Kim Tenjo (echoAR Sponsor Prize).

Learn more: https://bit.ly/3bMqiEW

# CSE PH.D. STUDENT BROOKS OLNEY, ONE OF THE RESEARCH CATEGORY WINNERS IN THE USF GRADUATE STUDENT RESEARCH SYMPOSIUM

April 29, 2021

CSE doctoral student Brooks Olney was one of the Research Category Winners in the USF Graduate Student Research Symposium. He presented a poster on the secure deployment of neural network I.P. in an adversarial environment. Olney and CSE Assistant Professor Robert Karam have submitted a full patent on this work, and it is also pending publication in a special issue of ACM JETC. As one of the winners, Olney is entitled to \$5000 in travel funds to present his research at a meeting of his choice.

Learn more: https://bit.ly/3vPorWL

### **CSE PH.D. STUDENTS WIN DUOLINGO AWARD**

September 8, 2021

CSE Ph.D. students Antonio Laverghetta Jr., Animesh Nighojkar, and Jamshidbek Mirzakhalov have won the Duolingo Award for best student presentation at this year's International Meeting of the Psychometric Society (IMPS 2021) for presenting their paper "Predicting Human Psychometric Properties Using Computational Language Models."

Learn more: https://bit.ly/3JR11pF

# COLLEGE OF ENGINEERING STUDENTS WIN FIRST PLACE AT IEEE BIG DATA CUP 2021

September 12, 2021

CSE PhD students Minh Pham, Jennifer Adorno, Long Dang, and EE PhD student Hung Nguyen won first place at IEEE BigData Cup 2021: RL based RecSys, a competition in machine learning. The team received high marks for the paper (solution) they submitted. Winners were announced September 12, 2021.

### Learn more: https://bit.ly/3JW6uLL





# TWO DOCTORAL STUDENTS AWARDED 2021 COMPUTING INNOVATION FELLOWSHIPS

**September 9, 2021** 

Two doctoral students (Troi Williams and Ghulam Jilani Quadri) in Computer Science and Engineering have received the highly selective 2021 Computing Innovation CI Fellowships sponsored by the Computing Research Association (CRA) and the Computing Community Consortium (CCC) with support from the National Science Foundation (NSF). William's CI Mentor is Pratap Tokekar at the University of Maryland. His research title is: Integrating State-Dependent Sensor Measurement Models and Risk-Aware Planning. Quadri's CI mentor is Danielle Albers Szafit at the University of North Carolina at Chapel Hill. His research title is: Developing Perceptual Framework for Task-Optimized Visualization.

Learn more: https://bit.ly/3phCXme

### **OUTSTANDING GRADUATE STUDENT AWARDS**

November 10, 2021

Sheikh Ariful Islam, PhD "20), received the Outstanding Dissertation Award from USF Office of Graduate Studies for his dissertation, Behavioral and RT-Level Synthesis of Secure Nano VLSI Digital ASIC Designs. Islam was a student of Associate Professor Srinivas Katkoori.

Ausmita Sarker received the Chih Foundation Research & Publication Award. The Chih Foundation seeks to support exceptional third- or fourth-year Science, Engineering or Medicine PhD, PharmD, or M.D. students who are conducting transformative research with the potential to advance health science. Through their generosity, the Chih Foundation Research & Publication Award provides a \$2,500 monetary award to exemplary scholars that reflect these qualities.





### Learn more: <u>https://bit.ly/3C3XodY</u>

# CSE STUDENTS COMPETE AT REGIONAL 2022 INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST

### March 5, 2022

Visiting Assistant Professor Mauricio Pamplona Segundo led 30 CSE students and members of the CSE student organization Society of Competitive Programmers (SCP) in the 2022 International Collegiate Programming Contest (ICPC) Division 2 regional phase on March 5, 2022 in Miami, Florida.

Three of the USF teams received medals and worked diligently to lead the scoreboard for part of the competition, with the highest-ranking team earning 5th place among all of the universities participating. The students who medaled are:

Gold medal - Mirshokhid Okilbekov, Ramziddin Suyunov, Sanjarbek Kodirjonov (Team name: USF Uzbeks)

- Silver medal Ali Aslanbayli, Arsalan Farrokhi, Chloe Berry (Team name: astro\_coders)
- Bronze medal Jack Roberts, Joshua DeLawter-Gourlay, Luis Vega (Team name: First String)
- This experience was made possible thanks to funding from the Computing Partners Program.

# CSE COMPUTING PARTNERS PROGRAM RESUME REVIEW EVENT WAS A SUCCESS

March 23, 2022

On March 23, multiple CSE student organizations, including WiCSE, SCP, and ACM, hosted a resume review event for Computing Partners Program (CPP) member companies. Over 200 CSE students attended the event held in the ENB building "fishbowl." Representatives from CAE, JP Morgan Chase, Nielsen, and Raymond James Financial helped CSE students sharpen their resumes for their job searches.

Evetta Davis, IT Training & Development Program Manager from Raymond James said, "It was a rewarding experience to speak with the students about their career aspirations and provide feedback on their resumes. I see value in hosting this event on a recurring basis in the fall and spring of each year."

### Learn more: https://bit.ly/3vR30tm



### **CSE STUDENTS WIN HACKABULL 2022**

March 27, 2022

Almost 80 participants sleeplessly worked for 24 hours at the fourth annual Hackabull. The event is USF's largest hackathon featuring innovative projects and creative solutions. The winning project, 'StockOverflow,' aimed to provide a clean, and visually pleasing dashboard with informative summaries of stocks and cryptocurrencies using data from Yahoo Finance. The winning team consisted of Chirag Singh (Computer Science), Michael Clark (Information Systems and Operations Management), Eric Higgins (Cyber Security), and Marcus Weinberger (Cyber Security).

One of the sponsors of the Hackabull 2022, CockroachDB, awarded a prize to the makers of 'Vote.io' for using their technology in the best way during the hackathon. The Vote.io team consisted of Andrew Caldwell (Cybersecurity), Arianna Loucks (IT), Jacob Taylor (Cybersecurity), and Trang Do (IT). Vote.io provides a cryptographically secure digital voting platform using multi-layered security protocols.

### Learn more: <u>https://bit.ly/3Ux0s72</u>

# USF CSE STUDENTS LEAD TEAM TO SECOND PLACE AT 2022 NATIONAL CENTERS OF ACADEMIC EXCELLENCE NSA CYBER EXERCISE

April 13, 2022



Team USF took second place at the 2022 National Centers of Academic Excellence NSA Cyber Exercise on April 11-13, 2022, beating 19 other schools, including Carnegie Mellon University. The team was comprised of three CSE students - Waseem Albaba (team leader and Whitehatters Computer Security Club president), Ethan Couch, and Matias Casas – and three Information Studies (College of Arts and Sciences) students - Bill Muhr, Jack Wansboro, Marc Imhof. The team was guided by Information Studies faculty member Stephen Gary.

The National Centers of Academic Excellence NSA Cyber Exercise is one of the most prestigious cybersecurity contests. The contest requires competitors to take part in five aspects of cybersecurity: Malware, Cryptography, Software Development, Attack/Defense, and Policy.

- Malware Tasked to reverse engineer malware samples to identify the behavior of the malware as well as the source.
- Cryptography Tasked to decrypt complicated cryptographic schemes with and write explanations about the vulnerabilities in these schemes.

- Software Development Build Software from scratch using half the time allotted following the guidelines placed. Break their version of the software in the second half of the time allotted.
- Attack/Defense Defend machines that were assigned to our team and attack machines assigned to other universities.
- Policy Write and present a document that presents a COA on a scenario that is presented by the NSA. This year we had to effectively respond to a cyber-attack against national infrastructure.

USF CSE has four undergraduate degree programs – computer science, computer engineering, cybersecurity, and information technology. The cybersecurity program has over 550 students enrolled and is the fast-growing program in CSE. CSE has an industry partners program – the Computing Partners Program – to enable closer engagement of companies with our students.

Learn more: https://bit.ly/3p7rTlj

# CSE GRADUATE ADRIANA LADERA AWARDED NSF GRADUATE RESEARCH FELLOWSHIP

May 9, 2022

An incoming graduate student in the Massachusetts Institute of Technology (MIT) Doctoral Program in Computational Science and Engineering, USF computer science senior Adriana Ladera first came to the institution as an MIT Summer Research Program intern in 2021. Ladera said that being awarded an NSF Graduate Research Fellowship will allow her to spend more time pursuing other initiatives while working in research. One part of her academic career that's certain is her promotion of diversity in STEM.



A member of the <u>Women in Computer Science and Engineering (WICSE) chapter at USF</u>, Ladera said she'd like to work with both oSTEM and Girls Who Code once she's achieved her PhD and become a professor.

Learn more: https://bit.ly/3Qh61GD



### Learn more: https://bit.ly/3BQhtVg

## TEN CSE STUDENTS AWARDED AMAZON CYBERSECURITY SCHOLARSHIP

June 6, 2022

Ashley Burinski, Brooke Gregory, Dalyla Nguyen, Flavio Velecela, Jadon Jackson, Jason Ryan Rodriguez, Joaquin P. Merida, Kayley Burinski, Pari Patel, and Trang Do (shown in the picture) were each awarded a \$3000 scholarship made possible by a generous donation from Amazon Pay.

Selection criteria included academic standing and student leadership. This scholarship initiative is part of the larger focus on Broadening Participation in Computing and industry engagement with students through the Computing Partners Program. CSE offers more than 40 scholarships to students on a yearly basis. **CSE is continually looking for more scholarships for our 2345 undergraduate students.** 

### LEVERAGING A PHD INTO A BOUNDARY PUSHING CAREER



### **Rekha Govindaraj** PHD COMPUTER SCIENCE & ENGINEERING

Rekha is a patent holder and Apple design engineer who is helping to bring new products to market.

"Sometimes you have to try again and again to learn the things you need to. Don't be overwhelmed by it. Be focused on the bigger picture, and you'll be able to do it at the end."

Read Rekha's Story: https://bit.ly/2oc3o0F

### LEADING THE WAY FOR OTHERS



### Meryem Berrada BS, MS IN COMPUTER SCIENCE

Supporting the aspirations and efforts of others has helped Meryem successfully lead organizations and initiatives that promote diversity in STEM fields.

"One of the things I see in my field is there are not enough women, though I see more every year."

Read Meryem's Story: https://bit.ly/32doieJ

### FIGHTING CYBERCRIME WITH ENGAGING CONTENT



### Natalie Koly BS IN INFORMATION TECHNOLOGY

Natalie is building a rewarding career as a technical content engineer, educating corporate clients about cybersecurity.

"Whatever career you're working on now, that may not be your future career, so learn more things and make yourself more skilled in different areas, and that way you can evolve."

Read Natalie's Story: <u>https://bit.ly/2mBG3F1</u>

# PHD GRADUATE GHULAM JILANI QUADRI WINS THE COVETED VGTC'S DISSERTATION AWARD FOR 2021

June 18, 2022

Ghulam Jilani Quadri, who in Oct 2021 defended his PhD dissertation, entitled "Constructing Frameworks for Task-Optimized Visualizations," received the 2022 Visualization and Graphics Technical Committee's (VGTC) dissertation Award. His PhD advisor was Prof. Paul Rosen. This highly prestigious award recognizes outstanding academic research and development in the field. The dissertations must address a relevant topic. The selection criteria include: the significance and impact of the scholarly contributions of the work, and the clarity with which these contributions are communicated. Dr. Quadri is now a postdoctoral scholar with Danielle Albers Szafit at the University of North Carolina at Chapel Hill, with a 2021 Computing Innovation CI Fellowship.

NAME	ADVISOR(S)	PLACEMENT
Tuladhar, Anwesh	X. Ou	Research Scientist I Facebook I Seattle, WA
Babaeian Jelodar, Ahmad	Y. Sun	Software Engineer I Uber I San Francisco, CA
Horawalavithana, Yasanka (Sameera)	A. Iamnitchi	Post-Doctoral Research Scientists I National Security Directorate, Pacific National Northwest Lab I Richland, WA
Lewandowski, Matthew	S. Katkoori	Network Engineer I   USF Computing   Tampa, FL
Dey, Arup Kanti	S. Chellappan	Software Engineer - Machine Learning I EnerSys I Reading, PA
Pai, Chih-Yun	D. Goldgof	Data Scientist I Global ETS I Odessa, FL
Quadri, Ghulam Jilani	P. Rosen	CI Fellow Postdoctoral Researcher I University of North Carolina I Chapel Hill, NC
Ziaie Tabari, Armin	X. Ou	Security Researcher I OPSWAT I Tampa, FL
Williams, Troi	Y. Sun	Postdoctoral Research Fellow I University of Maryland I College Park
Alanazi, Abed	Y. Liu	Assistant Professor I Prince Sattam bin Abdulaziz University I Al-Khari, Saudi Arabia
Diaz Hernandez, Steven	T. Neal	Machine Learning Engineer 2 for Research and Development I CAE USA I Tampa, FL
Sarker, Ausmita	M. Mozaffari Kermani	Applied Cryptographer I IBM I Charlotte, NC
Mou, ChengCheng	Y. Tu	Senior Software Engineer   ASML US LP   San Jose, CA

# 2021-22 PH.D. GRADUATES AND PLACEMENT

# **INDUSTRY PARTNERS**

We can find CSE graduates in many companies in the Tampa Bay area and leading high-tech companies outside the Tampa Bay area, including Amazon, Facebook, Intel, Google, Microsoft, Twitter, etc. We deeply engage with the industry in two modes: (i) participation in the External Advisory Board (EAB) and (ii) as a member of the Computing Partners Program (CPP).

## **EXTERNAL ADVISORY BOARD**

The objective of the EAB is to draw upon the wisdom and experience of selected leaders from industry and academia. The EAB assists the department by providing expert opinions to improve the department's external and internal rankings and accreditation through continuous improvement.

### They accomplish the following:

- Provide professional advice to the Department Chair and faculty on matters that may affect the Department faculty, staff, students, graduates, and external stakeholders.
- Serve as a liaison with the business and professional community.
- Foster support for the work of the CSE Department, either through direct encouragement or indirectly through developing support through the community.
- Support the development and growth of the department and play an active role in fundraising.
- Assist in mentoring undergraduate and graduate students as the occasion arises.
- Participate in the review of Program Educational Objectives to support ABET accreditation. Participate in ABET accreditation evaluation visits as appropriate.

### The current industrial advisory board consists of:

- Alan Brannan (Chair of Advisory Board), Director of Engineering, CAE
- Dave Allen (Vice-Chair of Advisory Board), Senior Vice President and Chief Technical Officer, Raymond James Financial
- Kevin Bowyer, PhD, Professor, Department of Computer Science & Engineering, Notre Dame University
- Asha Calderon, Manager, Johnson & Johnson Technology Services
- Sidney Fernandes, Vice President, and CIO, University of South Florida
- Mike Forest, Executive Director, J.P. Morgan Chase
- Brad Lawrence, Architect, Microsoft
- Gary Leavens, PhD, Professor and Chair, University of Central Florida
- Ayush Parashar, Co-founder and VP of Engineering, Unifi Software
- Jeremy L. Rasmussen, CTO and Cybersecurity Director, Abacode
- Maha Sallam, PhD, President, VuEssence

## **COMPUTING PARTNERS PROGRAM**

The USF Computing Partners Program enables industries to develop close working relationships with the Department of Computer Science and Engineering (CSE) students and faculty. The Computing Partners Program enables industry members to better engage with CSE students and faculty. Industry partners get an enhanced level of engagement with Department students and faculty in two tiers of engagement as described below. We will develop additional levels of engagement in later years. The department is in discussion with donors.

Annual membership is \$5000 for Tier 1 and \$10,000 for Tier 2. Membership to Tier 1 is free for community service non-profit organizations. Companies joining in the first year will be designated a "Charter member." Annual membership will be due on the anniversary of the joining date. Computing Partners Program funds support educational initiatives and activities of CSE students and costs associated with administering the Computing Partners Program. The program will support expenses such as scholarships, travel, academic conferences, competitions, educational events, relevant seminar series, tutoring, student program ambassadors, summer programs, and student recruiting. The current members of CPP are the following:



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# **OUTSTANDING ALUMNI**

### CSE ALUMNA, GHADA ZAMZMI, SELECTED AS ONE OF 10 MIT TECHNOLOGY REVIEW INNOVATORS UNDER 35 MENA

January 11, 2021

Ghada Zamzmi, Ph.D., has been selected as one of the 10 Innovators Under 35 MENA by MIT Technology Review Arabia for the year 2020. Zamzmi was selected for her innovative research focused on Computer Vision, Machine/Deep



Learning, Mathematical Modeling, and Cognitive Computing.

Learn More: https://bit.ly/3AcvDi7

### CSE ALUMNI' ('98) VIJAYKRISHNAN NARAYANAN Received the prestigious status 2020 Fellow of the national academy of Inventors (NAI).

June 2021

Prof. Narayanan is a Robert Noll Chair of Electrical Engineering and Computer Science at Penn State. He holds two patents in embedded neural network



hardware and six on circuit design using emerging transistor technologies. Narayanan's embedded vision technology was the earliest to deploy reconfigurable hardware accelerators for neural networks. Prof. Narayanan received his Ph.D. in Computer Science & Engineering from the University of South Florida, USA, in 1998 under the late Distinguished University Professor Nagarajan Ranganathan.

### USF CSE ALUMNA DR. SHETAY Ashford-hanserd receives NSF career Award

March 1, 2021

Shetay Ashford-Hanserd, Ph.D., is a two-time graduate of USF with a Ph.D. in Curriculum and Instruction (2016) and a B.S. in Computer Science (2000). Ashford-Hanserd is an assistant professor in



the Department of Organization, Workforce, and Leadership Studies at Texas State University. The five-year, \$843,000 award will support Black and Hispanic women entering the fields of science, technology, engineering and mathematics (STEM).

Learn More: https://bit.ly/3bOryHK

## CSE ALUMNI NITESH CHAWLA NAMED IEEE Fellow

January 12, 2022

CSE Alumni' ('02) Nitesh Chawla has been

named an IEEE Fellow for contributions to learning from imbalanced data and heterogeneous graphs. Prof. Nitesh Chawla is the Frank Freimann Professor of Computer Science and Engineering and the Director of Data Inference Analysis



and Learning Lab at Notre Dame University. He received his Ph.D. from USF CSE in 2002 in A.I. and machine learning under Distinguished University Professor Larry Hall.

Learn More: https://bit.ly/3zPsDqr

### Learn More: https://bit.ly/3Qw4b4n

### SATHYANARAYANAN AAKUR, NOW AT OKLAHOMA STATE University, won the prestigious NSF career Award for his research.

April 29, 2022

Aakur, a 2019 PhD graduate of USF CSE and an advisee of Prof. Sudeep Sarkar, won the Faculty Early Career Development Award, a distinguished honor given to junior faculty who balances the role of teacher and scholar through research, education and integration of the two within the



mission of their university. The award, "CAREER: Towards Casual Multi-Modal Understanding with Event Partonomy and Active Perception," is distributed over five years, totaling \$514,186. Aakur will use the funds to support his research on building visual understanding agents, which are more complex, interactive and useful in realworld environments than the current passive recognition of events from multimodal data.

#### Learn More: https://bit.ly/3bJ9NcN

# CSE ALUMNI RANSFORD HYMAN RECEIVES 2021 Adobe Founders Award

January 21, 2022

CSE Alumni (' 11) Ransford Hyman, Ph.D., is the recipient of the 2021 Adobe Founders Award. Adobe's founder, Geschke, created the annual award to recognize talent and contribution to Adobe's workplace.



He is a Sensei On-Device ML Engineering Manager at Adobe. He completed his doctoral program at USF in 2011, focusing on the reliability and optimization of microprocessors under the late Distinguished University Professor Nagarajan Ranganathan.

Learn More: https://bit.ly/3zMfK06



# **CSE STUDENT ORGANIZATIONS**



### WOMEN IN COMPUTER SCIENCE AND ENGINEERING (WICSE)

Gathers female students who are majoring, or interested in, any engineeringrelated field to provide support, career guidance, and relevant opportunities. Facebook | Instagram | BullsConnect President: Lokambika Muthu Advisor: Jing Wang



### WHITEHATTERS COMPUTER SECURITY CLUB (WCSC)

The Whitehatters Computer Security Club (WCSC) is a club for students with a passion for computer security to come out and learn more about reverse engineering, computer forensics, web hacking, and more! The club competes in a variety of national competitions, including CSAW, Raymond James CTF, and the Southeast Collegiate Cyber Defense Competition (SECCDC). Website | Slack | Facebook | Twitter | BullsConnect President: Waseem Albaba Advisor: Simon Ou



### SOCIETY OF COMPETITIVE PROGRAMMERS (SCP)

Provides resources and mentoring to assist CSE students participating in hack-athon and other types of programming competitions. Discordl MS Teams | LinkedInl BullsConnect | Instagram President: Ali Aslanbayli Advisor: Mauricio Pamplona Segundo



### ROBOBULLS

RoboBulls is a student organization within the University of South Florida for students who have an interest or passion for robotics. USF RoboBulls students have participated in national and international competitions, such as RoboCup. Website | BullsConnect President: Param Vipulkumar Chokshi Advisor: Alfredo Weitzenfeld





# INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS COMPUTER SOCIETY (IEEE - CS)

The computing professional's single, unmatched source for technology information, inspiration, and collaboration. Website I BullsConnect President: Brooks Olney Advisor: Robert Karam



### GIRLS WHO CODE COLLEGE LOOPS

Girls Who Code College Loop is about more than programming; we are an on-campus organization offering monthly challenges focusing on honing computer science skills and engaging women to take action, collaborate and create with one another. Website I Instagram I BullsConnect President: Richa Kakar Advisor: Schinnel Small



### GAMEDEV CLUB

The USF GameDev Club (GDC) acts as a meeting ground for USF students interested in creating video games. Facebook | BullsConnect| Discord President: Julia Flores Advisor: Jing Wang



### BRAIN-COMPUTER INTERFACE (BCI) CLUB

Encourages and attracts individuals to the world of engineering, specifically brain drone racing. Website | BullsConnect President: Isabella Mantilla Advisor: Marvin Andujar



### ASSOCIATION FOR COMPUTING MACHINERY (ACM)

Provides CSE students with social, professional, and technical opportunities for career development. Discord | Instagram | BullsConnect President: Piyush Manjhi Advisor: Ken Christensen

# **CSE LEADERSHIP**

- Sudeep Sarkar, Chair
- Dmitry Goldgof, Vice-Chair
- Jing Wang, Director of Broadening Participation in Computing
- Ken Christensen, Associate Chair of Undergraduate Affairs
- Alfredo Weitzenfeld, Associate Chair of Graduate Affairs
- Jay Ligatti, Director of Graduate Admissions
- Marbin Pazos-Revilla, CSE Tech Administrator
- William Hendrix III, Program Director for CS/CpE
- Schinnel Small, Program Director for IT/CyS

# **UG ADVISING**

- John Morgan, Undergraduate Advisor
- Marjorie Fontalvo, Undergraduate Advisor

# **STAFF**

- Laura Owczarek, Academic Services Administrator
- Jessica Pruitt, Graduate Program Advisor
- Mayra Morfin, Undergraduate Program Specialist
- Ashlee John, Academic Program Specialist
- Elijah Malaby, Systems Administrator
- Jasmin Jones, Success Coach (BPC/CPP)
- Terri Fox, Program Coordinator-Advisor, Certificate Programs

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