

CS KICKSTART

DECEMBER 9, 2019

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MESSAGE FROM THE DEPARTMENT CHAIR



Dr. Sushil K. Prasad

Welcome to our second newsletter for Fall'19! In my inaugural message, I related to you about the solid PhD research program and our phenomenal growth with now over 1,500 students. To begin responding to such growth, we are hiring for three tenure-track/tenured faculty positions in algorithms/theory, computer systems/big data, and data science/artificial intelligence areas, for two cluster hires in augmented and virtual reality and in quantum computing and information, and several non-tenure-track positions.

We are especially looking at student success of both undergraduate and graduate students, considering a range of activities contributing to their intellectual growth, retention, professional development, and internships and placement. Several activities are ongoing, and we welcome ideas for improving these and initiating others.

In this newsletter, I invite you to read about how our students are engaged with foundational and applied

research and education winning awards in AI Summit, securing Cyber FastTrack Scholarship, organizing and competing at the International Collegiate Programming Contest, and showcasing their exciting research projects at our own Computer Science Research Exhibition Day held successfully last month. Congratulations to these winners!

Our students are participating in myriad of activities and two stories serve to highlight these. The department sponsored ten students to attend the Grace Hopper conference in Orlando, an annual event attracting about 25K participants to discuss issues on women in computing. Our ACM student chapter - an active, welcoming organization - volunteered at the Pumpkin Smash STEM fair.

We are also building stronger connections to the federal funding agencies and actively pursuing top-notch research and educational projects. Read about a recent visit of Dr. Alan Sussman from National Science Foundation, and three recently funded projects.

Email me at sushil.prasad@utsa.edu with questions and suggestions!

UTSA'S FIRST AI SUMMIT ENGAGES INNOVATION AND TRANSDISCIPLINARY RESEARCH IN TECHNOLOGY



Written by Kimberly Ward

An inaugural Artificial Intelligence (AI) Summit was held at UTSA on November 11 solidifying the university's establishment of AI as a strategic focus area. The event hosted AI experts from across the country to discuss their advanced research.

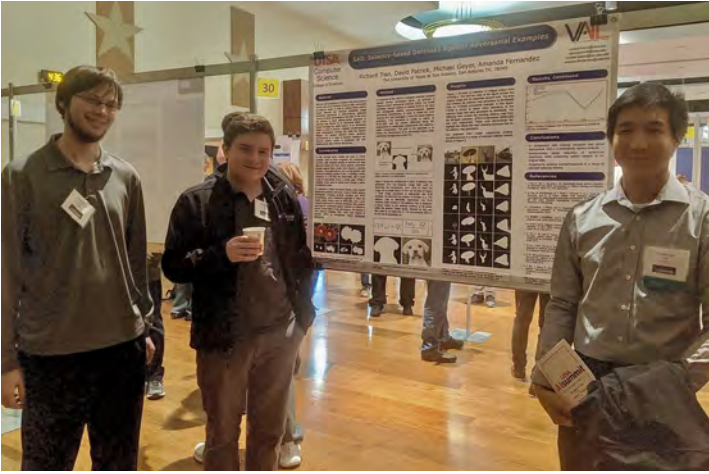
The goal of UTSA's AI efforts—driven by the National Security Collaboration Center and School of Data Science—is to strategically collaborate and engage with the private sector, academia, the Greater San Antonio community and key international partners to advance transdisciplinary solutions.

Invited guest speakers were featured throughout the summit, including representatives from Sandia National Laboratories, UT Health San Antonio, Indiana University, VMware, Allen Institute for Brain Science, Stanford University, and Texas' 23rd district U.S. representative Will Hurd. Additionally, distinguished panel sessions were conducted to discuss organizational AI research initiatives and projects with representatives from Southwest Research Institute, Texas Advanced Computing Center, Oak Ridge National Laboratory, and the Air Force Research Laboratory.

Continued on page 2

"UTSA's First AI Summit"

UTSA'S FIRST AI SUMMIT CONTD.



UTSA Masters of Computer Science student Richard Tran, UTSA PhD of Computer Science student David Patrick, and UTSA PhD of Computer Science student Michael Geyer present their research poster to attendees at the first UTSA AI Summit on November 11, 2019. Their poster, *Saliency-based Defenses Against Adversarial Examples*, was awarded best poster in the category of Fundamental Research in AI. MS. Tran, Patrick, and Geyer all conduct research in the UTSA Vision and Artificial Intelligence Lab (VAIL) under the supervision of Dr. Amanda Fernandez, Assistant Professor of Computer Science.

Photo provided by Amanda Fernandez

Over 30 student presenters engaged attendees with their innovative research, technology, and transdisciplinary use-cases in the field of AI. Students had the opportunity to network with prospective collaborators and established AI professionals. A panel of judges evaluated, scored, and awarded top poster presenters in a variety of categories.

Poster Presentation Awardees 2019

Category: Applied AI Research

Sanchita Ghose

AUTOFOLEY: Artificial synthesis of synchronized sound tracks for silent videos with deep learning

Category: Fundamental Research in AI, MS

Richard Tran, David Patrick

Saliency-based Defenses Against Adversarial Examples

Category: Fundamental Research in AI, PhD

Seyed Hamed Fatemi Langroudi

Cheetah: Mixed Low-Precision Hardware & Software Co-Design Framework for DNNs on the Edge

Category: Special Recognitions (cross-disciplinary, engaging, and stimulating)

Nikolas Merlock, Md Musaddaql Hasib

Using Machine Learning to Define Cortical Network Features in Epileptic Cerebral Organoids for Precision Medicine

Nayeema Nasrin

How Many Users Are Enough? Exploring Semi-Supervision and Stylometric Features to Uncover a Russian Troll Farm

NSF PROGRAM DIRECTOR DR. ALAN SUSSMAN VISITS UTSA COMPUTER SCIENCE



UTSA Department Chair of Computer Science Dr. Sushil Prasad introduces NSF Director Dr. Alan Sussman to the faculty and graduate student attendees at the October 28th NSF talk.

Written by Kimberly Ward, Photo provided by Kimberly Ward

On October 28, 2019 the Department of Computer Science hosted invited speaker, Dr. Alan Sussman, to visit UTSA campus to give a talk and meet with faculty in one-on-one meetings.

Dr. Sussman is currently a program director in the Office of Advanced Cyberinfrastructure at NSF in charge of learning and workforce development programs, and is also active in software and data related cyberinfrastructure programs. He is on leave from his permanent position as a Computer Science Professor at the University of Maryland. His research interests have focused on systems software support for large-scale applications that require high performance parallel and distributed computing. In addition, since 2010, he has been helping coordinate a curriculum initiative in parallel and distributed computing with the premise that every undergraduate student in Computer Science or Computer Engineering must acquire basic parallel computing skills.

His talk focused on the key programs in the NSF Office of Advanced Cyberinfrastructure (OAC) within the Directorate for Computer and Information Science and Engineering (CISE). These programs support the research workforce development and education pipeline from undergraduates to early career faculty, and the talk will discuss how the programs came about and highlight some aspects for proposal preparation. Dr. Sussman also addressed other current research opportunities, such as EAGERS and the OAC-led software and data CSSI program.

Faculty and graduate students from the departments of computer science, information systems and cyber security, and all other COS departments were invited to attend the session.

CS PHD ANANDA KUMAR THUMMAPUDI WINS CYBER FASTTRACK SCHOLARSHIP

Written by Perla Garcia

Current PhD of Computer Science student Ananda Kumar Thummapudi competed and placed in the semifinals of the 2019 Cyber FastTrack Scholarship challenge. Cyber FastTrack is an online program for college students who have an interest for the cyber workforce. Designed by world-leaders in the field of cybersecurity, this program provides an unprecedented opportunity for students to fast track their career in cybersecurity. This program encourages students from all backgrounds to apply and explore whether they want to pursue a fast pathway into the cybersecurity world.

College students sign up for Cyber FastTrack online in the Spring and build their knowledge of the foundations of cybersecurity. Once students have proven excellence in those foundations, they move on to master forensics, intrusion detection, security operations, system

and network penetration, and application penetration testing. Students may expect to face three “bases” with over 200 challenges that can last over the course of 6 months. The goal is to complete as many challenges as you can in order to advance to the next base. Problems consist of testing student’s abilities on how well they perform a range of cybersecurity skills.

Thummapudi was one of 178 students in the United States who received a \$500 scholarship cash award. To be eligible for Cyber FastTrack students must be 18 or older, and have been registered as a student in the past 24 months. Over 91% of those who participated agreed that their skills had improved since they first began the Cyber FastTrack program. Those who are interested in joining the Cyber FastTrack 2020 cohort can apply at <http://www.cyber-fasttrack.org>

FEATURED PHOTO: UTSA ACM VOLUNTEER AT MONSTER MASH PUMPKIN SMASH STEM FAIR 2019

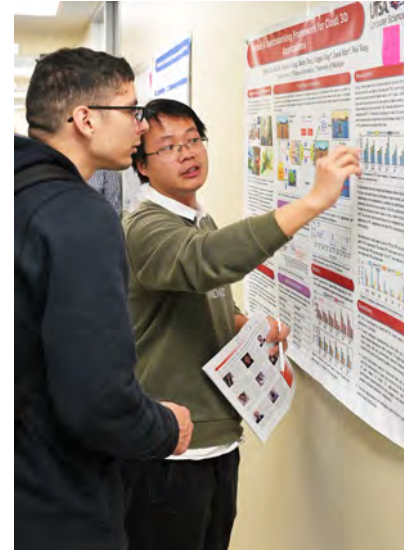


UTSA’s Association for Computing Machinery (ACM) student chapter volunteered at the annual Monster Mash Pumpkin Smash/STEM Fair on November 2nd in the East Campus Parking Lots. This family-friendly event is hosted by the College of Engineering in partnership with the College of Sciences where departments and student organizations run kid-friendly STEM related activities. Every year UTSA student organizations build medieval trebuchets, which are catapulting devices, and compete in a pumpkin-launching contest to see who can sling their pumpkin the farthest. This has been a long-standing tradition within the college, and it gets very competitive. ACM provided interactive virtual and augmented reality experiences to introduce kids to computing concepts in real-world settings. Photo provided by Mark Robinson.

COMPUTER SCIENCE RESEARCH EXHIBITION 2019

Written by Perla Garcia, Photos provided by Weining Zhang

On November 1, 2019, the University of Texas at San Antonio Computer Science department hosted their annual CS Posters and Cookies event. The event is an opportunity for students to share their research, connect with their student peers, network with industry employers and UTSA alumni, and hear about the latest projects and research conducted by department faculty.



Located in the 2nd floor hallways of the North Paseo Building, the CS Research Showcase exhibited 24 student research posters from current undergraduate, graduate, and PhD computer science students. Poster presenters had the opportunity to connect and share ideas with the UTSA community, invited speakers, and guests. Event attendees had a chance to network with invited industry visitors, including representatives from Ernst & Young, Air Force Office of Special Investigations, and Leidos Inc.



Additionally, presentations on current department research was provided by department chair Dr. Sushil Prasad and newly hired faculty members Dr. Mauricio Gomez, Dr. Kamal Al Nasr, and Dr. Amanda Fernandez.

Another popular feature of the CS Research Showcase was the live lab demonstrations, where attendees could view and participate in hands-on applications of research in cutting-edge areas such as AI and cybersecurity.

This year's Lab Demonstrations were provided by the UTSA Vision & Artificial Intelligence (VAIL) led by Dr. Amanda Fernandez, the Large Scale System Optimization Research (LASOR) by Dr. Wei Wang, Real-Time Embedded Systems (RTES) by Dr. Dakai Zhu, and the Center for Infrastructure Assurance and Security (CIAS) led by Dr. Greg White.



UTSA CS ATTENDS GRACE HOPPER CELEBRATION 2019 IN ORLANDO



Written by Kimberly Ward, Photo provided by Kimberly Ward

Ten students from the University of Texas at San Antonio Computer Science were able to attend the Grace Hopper Celebration 2019, a four-day international conference for women in technology, in Orlando.

Grace Hopper Celebration (GHC) is the world's largest gathering of women technologists and is produced by AnitaB.org and presented in partnership with the Association of Computing Machinery. GHC is the premier event for women technologists worldwide. GHC aims to

support and inspire women to further their careers, break boundaries, and transform the world of technology. Over 20,000 attendees attended the conference, plus thousands more listening via livestream services from around the world.

The conference includes presentations on a variety of topics, professional development activities, an open source day, current technology showcase demonstrations, and networking and mentoring opportunities for attendees.

Over 400 corporate, academic, government, nonprofit organizations sponsored booths at the career fair and interview hall, giving recruiters the opportunity to connect with prospective talent and job candidates. In addition to interviews, companies hosted social events for attendees both at the conference site and at local venues such as Universal Studios Wizarding World of Harry Potter and Disney World's Animal Kingdom.

This was the first year UTSA's CS department hosted a booth to recruit graduate, PhD, and recruit faculty candidates for open positions. The department sponsored five student scholarships to attend the 2019 conference.

Grace Hopper Celebration 2020 will be held in Orlando, Florida September 29 through October 20, 2020. For more information on Grace Hopper Celebration, please visit <https://ghc.anitab.org/>

RECENT CS GRANTS AND AWARDS FALL 2019

Collaborative Research: CyberTraining: Conceptualization: Planning a Sustainable Ecosystem for Incorporating Parallel and Distributed Computing into Undergraduate Education

Sponsor: *National Science Foundation*

Amount: \$423,921

Start Date: 2019-11-11

End Date: 2021-01-31

PI: Sushil Prasad (Department Chair)

Abstract Overview: In this era of pervasive multi-core machines, GPUs, cloud services, big data, machine learning, and the Internet of Things, there is a critical need for an institute to create a sustainable, discipline-wide ecosystem for incorporating parallel and distributed computing (PDC) into undergraduate computing curricula. Such an institute would support the community of educators, students, and other stakeholders, with the goal of developing a workforce that is ready to meet the challenges of working with current and future computing fabrics. We propose planning for such an institute (iPDC) that can help eliminate the longstanding barrier of the sequential computing paradigm such that, analogous to the establishment of the object oriented paradigm, the PDC paradigm is naturally integrated into Computer Science and Computer Engineering curricula across various institutions as recommended by ABET.

Planning Grant: Engineering Research Center for Sustainable Urban Ecosystems

Sponsor: *National Science Foundation (NSF)*

Amount: \$100,000

Start Date: 2019-09-01

End Date: 2020-08-31

PI: Adolfo Matamoros (Professor)

Co-PI: David Akopian (Professor)

Co-PI: Ravi Sandhu (Professor)

Co-PI: Christopher Reddick (Professor)

Co-PI: Krystal Castillo (Associate Professor)

Abstract Overview: The Engineering Research Center for Sustainable Urban Ecosystems will develop transforming technologies for one of the most important societal problems we presently face: managing the growth of large population centers so it remains sustainable and does not harm the safety and wellbeing of residents. To achieve this mission, the center will develop science and engineering systems needed by authorities and the private sector to make decisions that yield the most benefit to urban residents. Sustainable growth of large population centers is a very complex societal problem that will require advances in data science and engineering to improve efficiency, minimize the consumption of natural resources, and enhance the ability to adapt to disruptions of different types and magnitudes.

UTSA Research Innovation Award 2019

Sponsor: *UTSA Office of Commercialization and Innovation*

Patent Title: Authorization Policy for Group-Centric Secure Info Sharing

Patent Number: 10116664, United States

PI: Ram Krishnan (Associate Professor)

Co-PI: Ravi Sandhu (Professor)

Abstract Overview: In the present specification, a methodology for incremental security policy specification at varying levels of abstraction is disclosed. The method maintains strict equivalence with respect to authorization state and is based on the group-centric secure information sharing (g-SIS) domain, which is known in the art. A g-SIS authorization policy is specified statelessly, in that it focuses solely on specifying the precise conditions under which authorization can hold in the system while only considering the history of actions that have occurred. The policy supports join, leave, add, and remove operations, which may have either strict or liberal semantics. The stateful application policy is then specified using linear temporal logic. The stateful specification is authorization equivalent to the stateless specification, and may enforce well-formedness constraints.

UTSA HOSTS 2019 INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST SOUTH CENTRAL USA REGIONAL COMPETITION



Written by Perla Garcia, Photos provided by Mark Robinson

On Saturday November 9, The University of Texas at San Antonio (UTSA) welcomed four other universities to its campus to compete in the 2019 International Collegiate Programming Contest (ICPC) for the South Central USA Regional qualifiers.

ICPC is a worldwide competition where teams of three students, each representing their university, work together to solve algorithmic programming problems. The competition is based on precision, therefore students have to commit as few mistakes as possible in order to be the first team to solve the question accurately.

Student teams from UTSA, Trinity University, Angelo State, Southwestern, and North American University all came together from 8am to 5pm to not only compete against one another, but against the other ICPC South Central Regional competition sites across Texas, Louisiana and Oklahoma. Students compete for a chance to advance to the 2019 World Finals, which will take place in Porto, Portugal.

To assist with this event, 30 UTSA student volunteers from the Association for Computing Machinery student chapter helped coordinate and facilitate the competition's proceedings. UTSA's ICPC team is advised and led by Dr. Mark Robinson, Assistant Professor in Practice of computer science, who also leads the planning efforts each year of hosting ICPC at the UTSA campus.

This year, teams were given 12 rigorous questions and had to compete against one another to see which team would successfully solve the given questions within the five hour deadline. Out of the 60 total teams that competed in the South Central region category, the University of Texas at Austin took first place.

At the UTSA specific ICPC competition site, UTSA's student team received 3rd place out of the 10 that competed that day. The second runner up team was Trinity University, and first place was won by North American University.

ROWDY HACKS

March 28-29 2020 | UTSA MAIN CAMPUS

<https://www.rowdyhacks.org/>

UPCOMING CIAS COMPETITIONS FALL 2019



December 6–8, 2019

CyberPatriot State Round 2019

CyberPatriot, the world's largest cyber defense competition, will host the state round for student team participants who made it through the first two rounds. The purpose and design is to inspire students toward careers in cybersecurity or other science, technology, engineering and mathematics (STEM) disciplines critical to our nation's future. UTSA's Center for Infrastructure Assurance and Security (CIAS) designs, builds, and supplies the technology and virtual machines used in the CyberPatriot Cyber Defense Competition component of the program.

For more information, visit <https://www.uscyberpatriot.org/> Photo provided by CIAS

DEPARTMENT OF DEFENSE CYBER SECURITY (CYSP) SCHOLARSHIP 2020-2021



The U.S. Department of Defense offers full scholarships to undergraduate and graduate students who pursue Information Assurance related fields of study. Following graduation, students are eligible for full-time employment with the Department of Defense. Students are required to work in the DoD a minimum of one year for each year of scholarship they receive.

For details, application form, and eligibility requirements, visit

https://business.utsa.edu/wp-content/uploads/2019/12/DOD_scholarship.pdf

APPLICATION DEADLINE

****Handwritten applications will not be accepted****

Friday January 31, 2020 by 5:00PM CST - NPB 3.228 in a sealed envelope with all original required documents. Incomplete applications will not be considered.

For more information and/or questions, please contact Cecilia "CJ" Jaquez at Cecilia.jaquez@utsa.edu



Featured Job Opportunities!

#	Employer	Job Title	Type	Application Deadline	How to Apply
1	UP Partnership	Network Data Manager	Full Time Job	December 9th at 5:00pm	Apply via UTSA Handshake
2	UTSA Innovative and Inclusive STEM Education Research and Evaluation Lab (iSTEM)	Graduate Research Assistant	Part Time Job	December 13th at 8:00am	Apply via UTSA Handshake
3	Giant Noise	Spring 2020 Digital Content / Social Media Internship	Part Time Internship	December 14th at 12:00am	Apply via UTSA Handshake
4	CNF Technologies Corporation	Software Engineer	Full Time Job	December 20th 10:15am	Apply via UTSA Handshake
5	Ernst & Young GPS SDC	Data Analyst	Full Time Job	December 20th at 2:00pm	Apply via UTSA Handshake
6	Marathon Petroleum Company	Information Technology Intern	Full Time Internship	December 27th at 11:00pm	Apply via UTSA Handshake
7	Turnkey Cyber Solutions	Technical Support/Cyber Systems	Part Time Internship	December 31st at 11:50am	Apply via UTSA Handshake
8	Alamo City Engineering Services	Cyber Security Intern	Part Time Internship	December 31st at 11:55pm	Apply via UTSA Handshake
9	Chromosome 18 Registry & Research	IT & Web Development Intern	Part Time Internship	December 31st at 12:00am	Apply via UTSA Handshake
10	780th Military Intelligence Brigade	Cyber Operations / Cyber Analyst	Full Time Job	December 31st at 10:55 pm	Apply via UTSA Handshake

VISIT UTSA'S CAREEREDGE WEBSITE

<http://careercenter.utsa.edu/>

FOR MORE GREAT OPPORTUNITIES LIKE THESE!!!

Upcoming Events for Spring 2020

UTSA Day

Sat Feb 22nd, 9:00am-1:00pm – 1604 Main Campus

Sat Apr 18th, 9:00am-1:00pm – 1604 Main Campus

For more info: <https://future.utsa.edu/visit/utsa-day/>

RowdyHacks 2020

Sat Mar 28th and 29th – UTSA Main Campus

For more info: <https://www.rowdyhacks.org/>

CS Spring Picnic 2020

Sat May 2nd, 11:00am-3:00pm, OP Schabel Park



Have Questions?
 Story Ideas?
 Photos?

Email the editor at
cs@utsa.edu



Kimberly Ward