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The Computer Science newsletter highlights recent events and achievements of students, faculty, and staff. The intention is to share valuable information, celebrate our faculty and student success, and communicate events and opportunities.
Computer Science faculty have received significant funding from various federal agencies, and we are excited to announce a total of $8.15 million in new external funding to UTSA.

Congratulations to all!

Dr. Kudithipudi (PI), Dr. Jadliwala (co-PI), Dr. Markopoulos (co-PI). “PARTNER: Neuro-Inspired AI for the Edge at UTSA (NAIAD),” $2.8M, NSF.


Dr Prasad (lead PI), “Approximate Nearest Neighbor Similarity Search for Large Polygonal and Trajectory Datasets,” ($364K to UTSA), NSF.

Dr. Quarles (PI) and Dr. Desai (co-PI), “Making Virtual Reality Safe,” $600K, NSF.

Dr. Sandhu (PI), Dr. Krishnan (co-PI). “Machine Learning Based Access Control Applied to Insider Threat Mitigation,” $100K, Cisco Research Center.

Dr. Krishnan (PI), Dr. Sandhu (co-PI). “Administration of Next Generation Access Control,” $400K, National Institute of Standards and Technology.


Dr. Mimi Xie (PI), Dr. Dakai Zhu (Co-PI), Dr. Mitra Hosseini (Co-PI), Dr. Wei Wang (Senior personnel). “SCC-PG: Bridge: An AI-Enabled Platform to Support Connected Communities for Coordinated Care of Children with Autism,” $150K, NSF.

Dr. Mimi Xie (PI), “Collaborative Research: FuSe: R3AP: Retunable, Reconfigurable, Racetrack-Memory Acceleration Platform,” $100K, NSF.

Dr. Mimi Xie (Co-PI), Smart and self-sustaining early-warning system for coastal flooding, $100K, Coastal Management Program (CMP).


Dr. Paul Rad (PI), Dr. Adel Alaeddini, Dr. Krystel Castillo, “Towards Smart City Resilience: AI-Enhanced Digital Twin for Urban Planning,” $1.5M, CPS Energy.


Dr. Paul Rad (co-PI), Collaborative Research with LSU and Vanderbilt, “CyberTraining: Implementation: Medium: Cross-Disciplinary Training for Joint Cyber-Physical Systems and IoT Security,” 1M ($180K to UTSA), NSF.

Dr. Paul Rad (co-PI), Dr. Anthony Rios (co-PI), “Detection of Text Generated by Large Language Models (LLMs),” $195K, PERATON Labs.


Dr. Prasad (lead PI), “Modern Course Exemplars infused with Parallel and Distributed Computing for the Introductory Computing Course Sequence,” $1M ($333K to UTSA), NSF.

Sumit K Jha (PI), Turgay Korkmaz (Co-PI), Palden Lama (Co-PI), Collaborative Research: SaTC-EDU: Integrating Cybersecurity in Computing Curricula: A Software PBL-Driven Approach with Focus on Identity and Access Management (IAM), $100K, NSF. With Dr. Jha’s departure, Dr. Korkmaz will serve as PI.
The Computer Science Department begins the 2023–2024 academic year with 6 tenure-track, tenured, and full-time fixed-term faculty. The faculty bring a wealth of knowledge and experiences from universities across the world.

Dr. Fred Martin, Professor and Chair

Fred Martin moved to San Antonio with his wife Angela Guerrero. Fred grew up in upstate New York. He attended the Massachusetts Institute of Technology and earned three degrees there. Prior to joining UTSA, he built his faculty career at the University of Massachusetts Lowell, becoming a full professor of computer science and associate dean in the sciences. Dr. Martin is passionate about computing to improve the human experience. His research group creates novel technologies for introducing K-12 students and teachers to computer science, artificial intelligence, machine learning, and virtual reality. Fred is delighted to be welcomed by faculty, staff, and students at UTSA. He is here to support everyone in discovering their goals and accomplishing them.

Dr. Samuel Ang, Assistant Professor of Instruction

Dr. Samuel Ang received his PhD in Computer Science at the University of Texas at San Antonio and joined the CS Department in Fall 2023. He also received a Bachelor of Science at Trinity University.

His research interest are artificial intelligence, deep learning, human-computer interaction, natural language processing, procedural generation and virtual reality.

Dr. Maryam Tabar, Assistant Professor

Dr. Maryam Tabar received her PhD in Informatics at Pennsylvania State University. She also received her Master of Science in Computer Engineering and Bachelor of Science in Computer Engineering at Sharif University.

Dr. Tabar’s research interest are in data Science for social good and machine learning.
Dr. Ke Yang, Assistant Professor

Prior to joining UTSA, Dr. Yang was a Postdoctoral Research Associate in the College of Information and Computer Sciences at the University of Massachusetts Amherst. Dr. Yang received her Ph.D. from New York University. She received a postdoctoral fellowship from the Center for Data Science at UMass and a Pearl Brownstein Doctoral Research Award from the Tandon School of Engineering at NYU. Her research focuses on data management and machine learning, with an emphasis on algorithmic fairness, model explanation, and the social impact of AI and machine learning. In recent years, she has focused on developing algorithms to solve data problems for responsible ML and to mitigate unfairness in ranking applications. Her work has been published in top AI and database venues. She also enjoys building open-source tools to make her research accessible to a wide audience. When she is away from the keyboard, she enjoys cooking, running, and reading science fiction.

Dr. Zijie Zhang, Assistant Professor

Dr. Zijie Zhang received his Ph.D. from the Department of Computer Science and Software Engineering at Auburn University and just joined UTSA this Fall. During the interview, he saw the great support UTSA is providing for new faculties and decided to join the university, hoping to further extend his previous research on Machine Unlearning and other topics. He is teaching AI for graduates this semester, and is currently looking forward to seeing students fighting each other with their handcrafted AI in Reversi battles. Dr. Zhang spends most of his free time discovering new restaurants in town.

Dr. Kirsten Webbe, Associate Professor of Instruction

Dr. Kirsten Webbe received her PhD in Information Systems and Master of Science in Information Systems from the University of Maryland Baltimore County.

Dr. Webbe’s research interest are in human factors in privacy and cyber security, and interface and interaction design for privacy and cyber security.
UTSA has more than 330 student organizations on campus, giving its students plenty of opportunities to connect with one another. Computer Science (CS) has many student organizations organized and run by computer science students to create a network of community amongst their fellow CS peers. One of the best ways to get connected with other students and stay in-the-know of upcoming events and activities is to join one or more of the CS clubs available for students. These organizations host various events throughout the year, including but not limited to hackathon competitions, capture the flag cyber competitions, industry panels from invited speakers, volunteer opportunities, career prep, hands-on tech workshops, studying sessions, mentoring circles, networking events, and fun socials on and off-campus.

**UTSA Association for Computing Machinery Student Chapter (ACM)**
The Association for Computing Machinery at UTSA is dedicated to giving members and students the opportunity to gain experience, network, socialize, learn, and grow outside of the classroom in all fields of technology and computing.

**UTSA Association for Computing Machinery Women's Chapter (ACM-W)**
The Association for Computing Machinery at UTSA Women's Chapter aims to create an engaging academic, professional, and social network for women and minorities in technology. ACM-W's purpose is to connect students with leaders and encourage them to pursue career opportunities in computing fields and to mentor for academic and professional success.

**Computer Security Association (CSA)**
The Computer Security Association is a group of students dedicated to better understanding cyber security in all its domains. CSA regularly participate in offensive and defensive cyber competitions and exercises to hone their skills. CSA provides training and professional events for students in computing fields.
Google Developer Student Clubs (GDSC)

Google Developer Student Clubs are community groups for college and university students interested in Google developer technologies. Students from all undergraduate or graduate programs with an interest in growing as a developer are welcome. By joining a GDSC, students grow their knowledge in a peer-to-peer learning environment and build solutions for local businesses and their community.

Computer Science Graduate Association (CSGSA)

The Computer Science Graduate Association organizes events to encourage research activities and provide a knowledge sharing environment in the department of computer science. It coordinates with other related organizations to enhance networking opportunities, facilitate recruitment information sessions, and host computing related speakers and contests.

Are you interested in knowing about future events and student organizations? Discover unique opportunities at The University of Texas at San Antonio. RowdyLink is a web-based program that encourages student engagement through organizations, programs and events, volunteerism, and leadership. Within RowdyLink, students can discover opportunities and events on campus, record activities, and obtain events latest news and information.
Education and Community Outreach
The Computer Science Department is committed to strengthening partnerships within the community. Various outreach efforts ...

Kaylee Chambers, Kustin Breaux, Isabella Montemayor, and Fred Martin shared their academic journey’s with students at Kennedy High School.

STEM Academy at Nimitz students attended our annual Explore STEM university field trip. The group of 44 middle school students were introduced to AI demos by PhD student, Saniya Vahedian. The visit included a tour of UTSA, and exploring robots in the Real-Time and Embedded System (RTES) Lab.

Reboot Organization

‘WOMEN TODAY ARE CHRONICALLY UNDERREPRESENTED AT EVERY STAGE OF THE TECH JOURNEY AND EXPERIENCE THE GREATEST BARRIERS’

According to Reboot Organization, “Black, Latinas, and Native American women make up only 4% of computing degree recipients and the current tech workforce. If we do nothing, the number of women of color receiving computing degrees won’t double over today’s numbers until 2052”. Students met with Dr. Niu and the Reboot Organization to begin discussions on challenges of Computer Science women in tech. Stories were shared and victories were celebrated during the meeting.

More Information about Reboot can be found here: https://www.rebootrepresentation.org/
Research Lab Spotlight

Cohort for AI REsponsibility

The Computer Science Department has 19 dedicated research labs for faculty, and student researchers working on various ongoing federally funded research projects in the areas of Software and Hardware Systems, Cybersecurity, Software Engineering, Artificial Intelligence and Machine Learning, Cloud Computing, High Performance Computing and Big Data Analysis. This month’s newsletter features The Cohort for AI Responsibility (CARE) lab is located at UTSA School of Data Science San Pedro I building. Founded and led by Dr. Ke Yang, Core Faculty, the CARE lab aims at advancing research on algorithmic fairness, AI accountability, XAI, and privacy in AI systems.

For more information on the CARE lab, or if you are interested in advancing AI responsibility, click here: https://careonline.github.io/

Alumni Spotlight

Meet Dr. Rehan Akbani, a UTSA alumnus of the class of '02, '05, and '09. Born in Pakistan, Dr. Akbani enrolled in UTSA out of high school where he received his degrees in Computer Science and joined the University of Texas MD Anderson Cancer Center as an Associate Professor in the Department of Bioinformatics and Computational Biology. While under the supervision and mentorship of Dr. Turgay Korkmaz, Dr. Akbani graduated in 2009 with his PhD in Computer Science.

Dr. Akbani leads multiple initiatives at UT MD Anderson Cancer Center in addition to several gastric cancer research projects. Per the UT MD Anderson Cancer Center,

“Dr. Rehan Akbani has dedicated himself to working on high-profile, large-scale genomics projects such as The Cancer Genome Atlas (TCGA) and other projects from the Center for Cancer Genomics (CCG) at NCI with twin emphases on (i) proteomic analysis ( Principally by reverse-phase proteomic array; RPPA) and (ii) quality control and batch effects mitigation for cancer molecular data sets.”.

Dr. Akbani has recently been promoted to Professor at the UT MD Anderson Cancer Center. Congratulations, Dr. Akbani!
As we endeavor to explore the seemingly unlimited potential of AI (Artificial Intelligence) we often end up with a question What makes us human? Is it something related to intelligence or is it our ability to learn and adopt or is it something else. This is one of those questions that enticingly linger along the boundaries of the science-fiction thriller Ex Machina.

The plot of the movie revolved around three main Characters. Ava (Alicia Vikander – AI robot), Nathan (Oscar Isaac – inverter of Ava) and Caleb Smith (Domhnall Gleeson – Programmer invited by Nathan to test Ava). Nathan created a paradise where he can see and listen everything with the help of technology. Ava exists in this paradise. Caleb is one of Nathans employee. Nathan introduced Ava to Caleb so that he can test Ava’s capabilities. I believe that this general introduction to the movie would be sufficient, as I would hate to spoil the movie for anyone. Interestingly, Ex Machina is one of those movies that doesn't have a single layer of storyline. The movie presents numerous points of view for the viewer. For me, it was the most outstanding depiction of AI's capabilities and how AI was able to identify human vulnerabilities to achieve its desired goal. The movie also raises questions on the ethical aspect of AI. But of course it depends on how you perceive the movie and what is your understanding in term of ethical values for such AI entity. I would highly recommend the movie for students who are planning to study AI or Machine Learning (ML) as their majors.

References:
• A Brief Analysis and Thoughts on Ex Machina by Daniel Guerson
• Ex Machina And What It (Might) Mean to Be Human by Josh Larsen
• Ex Machina's Ending, Explained by Aya Tsintziras

By Dr. Siddiqui
Meet Nisha Vinayaga Sureshkanth. Nisha is a Computer Science Ph. D. candidate and student researcher in the SPRiTELab.

What has motivated you the most to complete your Computer Science degree?

I have always believed in the maxim that if technology can't help people, at least it shouldn't harm or exploit them. As an avid enthusiast and individual passionate about security and privacy, the opportunities to ensure that I can embody that motto through multi-disciplinary research that can make a difference while striking a balance between what I want to pursue and what I have to do has driven me to choose UTSA and SPRiTELab and continued to keep me motivated to complete my degree.

What research activities are you involved in?

My current research activities nestle broadly in scalable data science, privacy and security in cyber-physical systems. I'm personally invested in exploring social science, biological, blockchain and game-theoretical applications. As a researcher in SPRiTELab, I have been working in projects that mainly focused on identifying and ameliorating safety, privacy and security issues brought about by ubiquitous technology used by day-to-day pedestrians in urban communities -- the key aspect being driven by data collected by the pedestrians and from their perspective. At a high level, I have focused on complex human activity recognition using resource-constrained wearable devices, on system frameworks for detecting pedestrian distractions and detecting nearby electric scooters (a.k.a e-scooters) directly on a smartwatch. I have also extensively analyzed privacy and security issues within the e-scooter rental ecosystem, with an emphasis on both hardware and software components associated with different models and their counterpart mobile applications. Recently, I have been focusing on identifying user safety and privacy issues in extended reality worlds and real-world pedestrian safety applications.

How do you spend your free time?

As a puzzle solving enthusiast, I spend most of my free time solving intricate logic puzzles, deciphering mysteries, and seeking out unique activities to challenge my intellect. You can find me exploring and trying out new technology and sharpening my skills through CTFs and other gamification-based learning resources. Depending on the situation and available free time, I spend time reading fiction, watching anime, de-stressing through video games, and may venture out to explore the lesser-known gems and multicultural cuisines within or outside the city. Oftentimes, you can find me lost in thought pondering over the galaxy and philosophical paradoxes in my life.

What advise do you give women in Computer Science?

It may be daunting at times to establish your presence and get your opinions heard across the room given unspoken and unaddressed stigmas floating around in your personal and professional lives. However, don't be afraid to stand up and speak up for yourself. Trust your instincts and ardently follow what you are passionate about. Embrace the rocky road ahead. Don't succumb to hearsay that you may not make it to the end, or you should be focusing elsewhere. Most importantly, don't shy away from saying NO to prioritize your physical and mental well-being. There are others important and exciting things in life too apart from work — which I learned it the hard way. Time your tasks and plan accordingly to accommodate last-minute surprises and meet deadlines. Don't berate yourself if you don't meet set expectations from you, it's not the end of the world. From my experience, suffering in silence is not worth it. Face the problem head on and seek out your personal support system and peers for help if you get overwhelmed — you will not only gain fresh perspective but also know you’re not in it alone. Don't let your past mistakes stop you from moving forward. It's never too late to change to be who you want to be, learn what you want to or go where you want to go. Persevere and believe that you can get through any obstacle, I'm sure you will as I have and am continuing to do so in my academic journey.
Undergraduate Student Spotlight

Meet Isabella. Isabella Montemayor is currently pursuing her bachelor’s degree in Computer Science with a concentration in software engineering at UTSA. She is a member of the SHPE Organization – Leading Hispanics in Stem, and was previously the ACM-W Vice President. Her plans after graduation are to pursue a master’s degree in computer science. Her long-term goal is to work in software engineering in a tech company that shares the same values and goals in making a positive impact in the world of computer science. She sees herself as ‘supporting and empowering other Latinas in computer science through nonprofit organizations such as ACM, SHPE, or Rewriting The Code’. Isabella’s family and loved ones, and her passion for the Latina community in computer science have motivated her to complete her degree. For Isabella, ‘the possibilities and paths to take are endless, so for now I’ll put my best efforts forward and take it step by step.’ Read more about her journey in the Q&A below:

Why did you choose UTSA?
I chose UTSA because the computer science program did not require prior knowledge of coding. This was really important to me because though I took a coding class in high school, I knew it would not have been sufficient for the foundation of my major. I liked the community UTSA has built and knew that I would have a variety of resources to help guide my personal growth in this academic journey.

Why did you choose Computer Science?
I did not have any exposure to computer science until my senior year of high school. My dad actually suggested it to me because he knew I always liked solving problems and was very detail-oriented. I fell in love with my class and found solving coding problems so challenging but loved trying to find solutions to them. The problems didn’t have just one right answer and there were so many different approaches to solve them. Computer science is also so broad! I liked the idea that I didn’t have to stick to one thing in computer science. There are so many career paths and opportunities in computer science: software engineering, data science, cyber security/operations, cloud computing, and so many more! Taking different classes offered from UTSA in these topics also gives you a better understanding of all these options too!

What advice do you give women in Computer Science?
According to UTSA’s Student Demographics from Fall 2022, only 21% of women were Computer Science majors which is the lowest out of all science majors at UTSA. It’s really easy to let yourself become a number in class but don’t let these numbers ever discourage you from pursuing your degree or making you feel like you’re alone in your journey. My biggest piece of advice would be to join a supportive community like ACM-W, WICS, Women In Stem, or SHPE to find yours! We all have different experiences and stories that got us to where we are but don’t let those of others stop you from making your own. Winnie The Pooh said it best - “You’re braver than you believe, stronger than you seem, and smarter than you think”.

What research activities or CS activities/student org’s are you involved in?
My freshman year of college I reached out to ACM-W to become involved because I wanted a sense of community that I lacked and became a Junior Officer for this organization. I then wanted to give back and help others find their space in computer science so my sophomore year I became Vice President. ACM as a whole will always hold a special place in my heart as it has given me true friendships throughout my college experience. I also love participating in RowdyHacks and have gained so much experience from attending each year! For two semesters now I have also been a SHPE tutor and the 10 of us Latinas in this program tutor for Programming 1 and Programming 2. I think it’s really important to be a part of some community in college to help support you through your academic journey and I am so grateful I’ve had that.
In CPTC, the students take on the role of cybersecurity assessors, “hired” to conduct a cybersecurity assessment of a fictitious company. The real-world nature of CPTC competition begins even before a team qualifies for the event, with a Request for Proposal (RFP) being released by the fictitious organization. The students have to respond to the RFP as if they are a professional organization, submitting a proposal that includes their qualifications, identifying how they are suited for the required assessment activities, and including resumes for all team members. These proposals are scored, with the top teams being selected to travel on-site for the various regional competitions.

Once selected, the first task for the Roadrunner team was submit a non-disclosure agreement (NDA) limiting the information they can talk about, share, or post. This NDA is in effect until the day after the Global Finals – so all that can be said about this year’s competition is it involves a fictitious airport, and the types of systems you would expect to find there. Last year, the fictitious organization was The Cozy Croissant, a “family-friendly hotel located in Reno, NV” and required the students to assess video surveillance systems, Hotel Management Software, guest Wi-Fi services, and even the physical security of safes that could be found in a hotel room. (The safe from the 2022-23 CPTC is currently on display in NPB 2.132.)
CPTC is an especially grueling competition because of the schedule students are given to compete. After their in-brief Saturday morning, the students are given 8 hours to conduct their penetration testing and other assessment activities. However, that is just the start as, after a short out-brief, the students are given 7 hours to write their assessment reports. So, from 8:00 A.M. until midnight the students are on the clock – although, the students know they have to avoid joining the “11:59 Club” and submit their report well before the deadline, giving them a chance to double-check everything was submitted correctly before the timer reaches zero.
Their reports and other activities are graded by industry professionals overnight – (who all earned the warmest thanks of the team for volunteering for that task) – and, at the awards ceremony on Sunday, the team discovered that their months of training and hard work had paid off – and they were taking home the First Place trophy.

By: Ben Anderson

The CPTC team members are:
Jacob Rahimi, Senior, Computer Science,
Team Captain
Aditya Dindi, Sophomore, Cyber Security
Alex Bryant, Junior, Computer Science
Alexis Obeng, Sophomore, Computer Science
Julian Peña, Freshman, Computer Science
Logan Goins, Freshman, Cyber Security
In addition, Aidan Kollar, Junior, Computer Science and Brandon Hawkins, Senior, Computer Science were the alternates for the team.
Faculty Coaches: John Newsom and Benjamin Anderson
Congratulations to Computer Science
Fall 2023 Ph.D. Prospective Graduates

Kevin Baldor
Major Professor: Jianwei Niu, Ph.D.
Dissertation Title: “Verification of Time-Varying Reactive Systems”

Michael Geyer
Major Professor: Amanda Fernandez, Ph.D.
Dissertation Title: “Analyzing the Geometric Structure of Deep Learning Decision Boundaries”

Vinodh Kumara Jayakumar
Major Professor: Wei Wang, Ph.D.

Xue Li
Major Professor: Palden Lama, Ph.D.
Dissertation Title: “Efficient Resource Management for Serverless Computing at the Edge”

M. Rasel Mahmud
Major Professor: John Quarles, Ph.D.
Dissertation Title: “Multimodal Feedback Techniques to Increase Accessibility of Immersive Virtual Reality”

David Patrick
Major Professor: Amanda Fernandez, Ph.D.
Dissertation Title: “Leveraging Explainability to Increase Efficiency and Robustness in Computer Vision”

Suraj Singireddy
Major Professor: Sushil Prasad, Ph.D.
Dissertation Title: “Automated Reasoning using Neuro-Symbolic Artificial Intelligence”

Congratulations!
CyberAI Winter School 2023

San Antonio, Texas November 6-10, 2023

The University of Texas at San Antonio (UTSA) and the Technical University of Darmstadt (TU Darmstadt) jointly offers CyberAI Winter School 2023, a week-long training program on securing modern cyber systems, focusing on Security and Privacy of AI/ML models and applications, featuring lectures by esteemed academics and researchers. The CyberAI Winter School 2023 will be held in the Weston Conference Center located inside UTSA's San Pedro I building in Downtown San Antonio, Texas.

HIGHLIGHTS
• 5-Day In-Person Event
• 15 Sessions
• 6 Keynote Talks
• 7 Distinguished Guest Speakers
• Student Poster Session
• Networking Reception
• Rich Cultural German Experience
• Excursion to New Braunfels, TX

ORGANIZERS/CO-CHAIRS
- Murtuza Jadliwala, Associate Professor, UTSA
- Ahmad-Reza Sadeghi, Professor, TU-Darmstadt

REGISTRATION FEE: $200 FOR THE ENTIRE EVENT
OPEN TO ALL STUDENTS, RESEARCHERS, FACULTY

REGISTER HERE: https://sprite.utsa.edu/cyberaiwinterschool/

KEYNOTE SPEAKERS

Gene Tsudik
Distinguished Professor
University of California, Irvine

Ahmad-Reza Sadeghi
Professor
TU-Darmstadt

Farinaz Koushanfar
Professor
University of California, San Diego

Alexandra Dmitrienko
Professor
University of Würzburg

Jeyavijayan Rajendran
Associate Professor
Texas A&M University

Eric Adolphe
CEO
Forward Edge-AI