NEWSLETTER

COMPUTER SCIENCE

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.

SDS partners with Reboot Representation to expand access, opportunities for underserved students

UTSA computer science professors Jianwei Niu and Amanda Fernandez have been awarded a $400,000 grant from the Reboot Representation Tech Coalition to provide scholarships and professional development opportunities for underserved undergraduate students at UTSA over the next two years.

Reboot Representation is a coalition of leading tech companies that collectively make targeted, philanthropic investments in programs and institutions that make education and careers in computing more accessible.

The funding will enable the UTSA School of Data Science to partner with the professors across the university and the Reboot Representation Tech Coalition to provide designated space and equipment support within San Pedro I for studying, collaboration and mentorship.

The grant will be used, in part, to equip a multipurpose area on the first floor of San Pedro I with computers and monitors for student use, specifically the underserved. This move is intended to increase the accessibility of this equipment for all students, said Fernandez, program co-leader and assistant professor of computer science in the UTSA College of Sciences.

"We don't require that students come in with laptops or computing resources," she explained, "and we do actually have computer science majors who don't have laptops or a computer at home, so we want to work with them and make sure that they have the resources that they need to be successful."

"We have a significant number of alumni in the San Antonio area," said Niu, program lead, SDS core faculty member and interim dean of the UTSA University College. "I am confident that they will be happy to come and work with the current junior and senior students, providing guidance and insights to prepare them for their future careers."

At the same time, UTSA is recruiting local professionals to provide students with access to experts in a diverse array of topics. From database curation to robotics, Fernandez said that computer science students face a dizzying number of choices in their junior and senior years when the time comes to pursue internships or employment. These industry connectors are also key to providing students with high-quality experiential learning opportunities that will help graduates set themselves apart as they compete for jobs.

"We want to tap professionals in the area to come talk about what it's like in different types of jobs, because computer science is a broad industry," Fernandez explained. "They can come in and help our students figure out which internship they might want to apply for or which field they might want to look into."
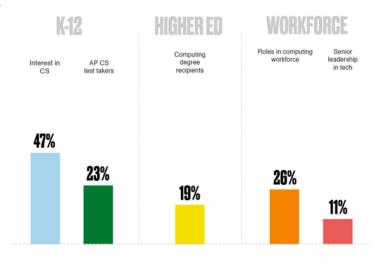
In addition to equipment and learning opportunities, the grant will also provide financial support for students.

"This funding will provide scholarships to reduce the financial burden of college students in need," said Niu. "Forty-five percent of our undergraduate students are first-generation college students and a substantial number of them are on financial aid. A scholarship will help alleviate their financial burden, facilitating their timely graduation."
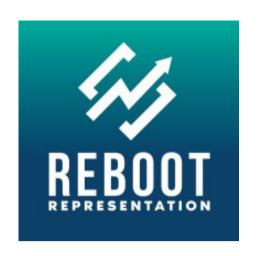
While the individual components of Reboot Representation at San Pedro I are intended to benefit computer science students specifically, Niu said the resources can be used by students of all majors.
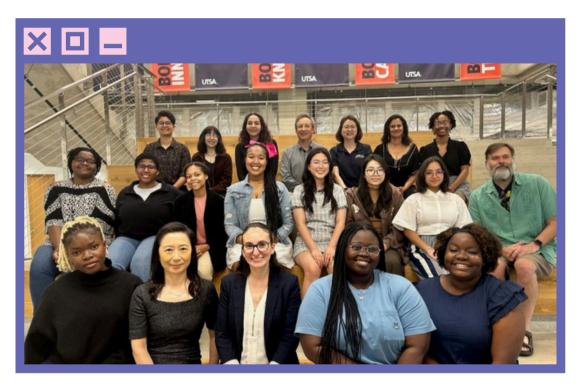
Christopher Reichert

WOMEN TODAY ARE CHRONICALLY UNDERREPRESENTED AT EVERY STAGE OF THE TECH JOURNEY.

K-12		HIGHER ED	WORKFORCE	
Interest in CS	AP CS test takers	Computing degree recipients	Roles in computing workforce	Senior leadership in tech
47%	23%	19%	26%	11%

https://www.rebootrepresentation.org/

Black, Latina, and Native American women make up only 4% of computing degree recipients nationally. Reboot Representation is a coalition of leading tech companies working to double the number of Black, Latina, and Native American women receiving computing degrees by 2025. The first Reboot Representation Ceremony was held on April 10, 2024 to honor Reboot Representation Scholars and celebrate their achievements.

Read more about the mission of Reboot Representation
here: https://www.rebootrepresentation.org/

Graduate Student Spotlight
Meet Johanna Jacob - PhD. Student

I selected UTSA because of its outstanding national reputation in cybersecurity research. Encouraged by my faculty advisors from my alma mater, I considered UTSA's PhD program. After exploring the university's research contributions to national cybersecurity challenges, I was thoroughly impressed. A campus tour, along with a visit to the city, revealed UTSA's vibrant urban campus and diverse student body. Its strategic position within a key cybersecurity hub also played a crucial role in my decision to make UTSA my academic home. On a personal note, San Antonio had less crazy traffic and better Mexican food than Houston.

What advise do you give women in Computer Science?

My advise to women in Computer Science is to confidently express your skills, interests, and capabilities. As a woman, I firmly believe it is crucial to cultivate a strong network of supporters and mentors who guide and direct us along the way. As Dr. Siraj, the founder of WiCyS always says, "Surround yourself with people who would not hesitate to shout your name in a room full of opportunities". Remember to stand up for yourself and others, never stop learning, stay humble and teachable, willing to receive correction but not aggression. Finally, pay it forward by contributing to the broader academic community in some way or the other.

What research activities or CS activities/student orgs are you involved in?

I'm currently involved in an NSF-funded project under the supervision of Dr. Greg White, focusing on a small rural Title I school district that serves approximately 200 students. Our objective is to introduce cybersecurity to middle and high school students in this area, addressing the significant disparities in access to cybersecurity resources. Rural schools often face challenges such as limited funding, insufficient teaching staff, and a broad digital divide that restricts students' access to these essential resources and career pathways. In response, our research team has developed a targeted intervention to meet the specific needs and constraints of this rural school district. This initiative not only provides valuable insights for integrating cybersecurity education into underserved rural schools but also aids in building community-wide cyber resilience in rural cities. It has been incredibly rewarding to collaborate with middle and high school students, parents, teachers, and administrators. Beyond my research, I participate in the UTSA Women in Cybersecurity Student Chapter and engage in professional development activities organized by the UTSA Graduate School. If you are a current Teaching Assistant, be sure to check out the Roadrunner Assistantship Academy!

How do you spend your free time?

During my free time, I play the piano and compose/record music. I also spend time reading, journaling, and practicing my calligraphy skills. Some weekends, I volunteer at a local dog shelter. Other than these, I like to cook new recipes and share them with friends and family.

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

My drive to address inequities in Cybersecurity education is the fuel to pursue my academic goals. I am committed to using my research to expand knowledge in K-12 participation, enhancing practices that foster inclusivity in cybersecurity, especially in rural and Title I school districts. The desire to contribute to a fairer, more equitable landscape in Cybersecurity education is fulfilling in itself and gives me a profound sense of purpose and commitment to complete my PhD. Another key motivation is my advisor, Dr. Greg White, whose expertise, and insightful guidance have shaped me into a dedicated independent researcher.

#ThisIsWhatAScientistLooksLike

Albert Villarreal, Computer Science Major
By Pelle Muñoz

Meet Albert Villarreal, founder of Console Cowboys, a cybersecurity club that focuses on hardware, reverse engineering and physical security, and esteemed embedded security researcher at UTSA.

Despite being a young institution, UTSA has made considerable gains in the field of research, particularly through the university's Carnegie R1 classification. Albert found UTSA to be the perfect environment to cultivate new ideas and pursue research opportunities.

As technology continues to become more embedded in the lives of consumers, majors like cybersecurity and computer science are increasingly becoming more sought after by employers.

The path of Albert's education was determined by his love and passion for computers and security, and UTSA offered the ideal blend of foundational and advanced knowledge required for these disciplines.

Albert is excited to contribute to the developing field of cybersecurity research. For over three years, he served as a security researcher for both the Cyber Center for Security and Analytics and the Cyber Protection Operation Center at UTSA. His research involved investigating non-destructive data acquisition for IoT devices (i.e., devices with sensors, processing ability, software and other technologies that connect and exchange data with other devices and systems over the Internet.) In addition, he has been a Scholarship for Service (SFS) student for the past two years. SFS is a unique program designed to recruit and train the next generation of information technology professionals, industrial control system security professionals, and security managers.

In 2020, Albert was recognized for his research contributions and won second place in the Undergraduate Research & Creative Inquiry Showcase for his oral presentation, "A Cybersecurity Look at Amazon Echo Dot: Hacking the Echo." "My research is important, because I'm using my knowledge to protect everyone who uses IoT devices." Albert said. "We do our research to better understand what we are putting in our homes." A vast portion of Albert's journey culminated in him founding and presiding over UTSA's Console Cowboys. His interest in embedded security research also led to his participation in four U.S. Department of Defense (DoD) internships since 2021. This included a two-year experience with the U.S. Army Combat Capabilities Development Command (DEVCOM) Army Research Laboratory under the Journeyman Fellowship. The DEVCOM Army Research Laboratory Education and Outreach Program is designed to support the lab's efforts to build the highly talented, innovative, and diverse workforce necessary to meet the Army's future needs.

continued

Notably, Albert also played a pivotal role in the creation of a specialized course for the National Computer Forensics Institute (NCFI), tailored specifically for the United States Secret Service (USSS) and the Department of Homeland Security (DHS).

His contributions extend beyond the classroom, and include producing technical reports and publications that illuminate critical facets of computer forensics and security. Additionally, he holds a patent (UTSA Patent: D2021-001),which represents an innovative tool and application specifically tailored for digital forensics.

The patent was created specifically for digital forensics investigators, including organizations like the United States Secret Service and other forensic organizations for a fast, easy, and repetitive data extraction methodology.

These achievements stand as testament to Albert's unwavering commitment to driving progress and excellence in the field of cybersecurity.

Suzanne Tanaka, Anne Rozelle and Debra Leal attended academic conferences to support UTSA's mission of elevating itself as a nationally recognized institution.

Debra Leal attended the HSI Tech Sumit at Bloomberg L.P., a financial, software, data, and media company. HSI Tech summit featured discussions on technology, internship processes and the many great initiatives at Bloomberg. Per Debra, "I am excited to take back to UTSA computer science students information on how to successfully secure internships and careers at Bloomberg".

Anne Rozelle, CS, and Suzanne Tanaka, Institute for Cyber Security, attended the SACUBO conference in Louisville, KY. Attending the conference was a great way to network and meet other professionals in higher education. Participants attended sessions featuring topics relevant to business professionals in higher education.

Suzanne Tanaka, Research Program Manager, Institute for Cyber Security and Anne Rozelle, Administrative Services Officer II, CS Dept.

Ms. Anne Rozelle

Kentucky Derby bugler

Debra Leal, Sr. Management Analyst

Alumni Spotlight - Zaquariah Holland

Zaquariah Holland is a 2022 Computer Science graduate from UTSA. During his time on campus, he participated in student organizations, built various projects and attended a multitude of hackathons outside of the classroom. Zaq says that attending hackathons is how he got introduced to the tech community, specifically, UTSA's Association of Computing Machinery. As part of ACM on campus, Zaq went on to become the organization's Technical Officer, Vice-President, RowdyHacks Director and Rowdy Datathon Co-Director before graduating and becoming an advisor for the organization ever since. During his senior year, Zaq began working for an SWBC company, Swivel, as an intern here in San Antonio!

Zaq continued to work with Swivel leading up until his graduation, shortly after he was quickly promoted to work with the company full-time as a Software Engineer where he continues to contribute to the organization's goals. Zaq's degree and passion for serving the community and networking with other peers helped him not only complete his degree at UTSA but also helped him get his foot in the door during a time of uncertainty.

Outside of work, Zaq continues to learn and grow his technical skills and he also serves his community as the new Chair for the Software Engineering SA Association of Computing Machinery here in San Antonio. Zaq encourages new students, current students or graduating students to use their time in school to build relationships with their peers, create projects, and explore the numerous opportunities that campus life offers through events, fairs and research. These opportunities are abundant on campus and finding your niche for Computer Science can be easily found during your time at UTSA.

Cyber Warriors: A Comprehensive Introduction to Cybersecurity Tools and Techniques

Cyber Warriors introduces students to white-hat hacking and penetration testing. Starting with an introduction of cybersecurity principles, this camp will teach the toolkits and approaches used to compromise and secure vulnerable computer and network systems & applications.
Cyber Warriors is scheduled from Monday, June 24 - Friday, June 28th from 9-3:00 PM.

Program Highlights: This one-week online/virtual camp will introduce students to the world of white-hat hacking and penetration testing. Starting with a comprehensive introduction of foundational cybersecurity principles, this camp will introduce participants to the various toolkits and approaches used to compromise and secure vulnerable computer and network systems, applications, and protocols. Students will be mentored towards pursuing advanced technical or research-focused careers in the exciting field of cybersecurity. They will also be exposed to the ground-breaking cybersecurity research currently taking place in the Computer Science department at UTSA.

More Information can be found here: https://sprite.utsa.edu/cyberwarrior24/
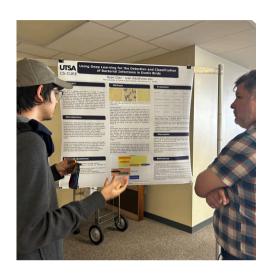
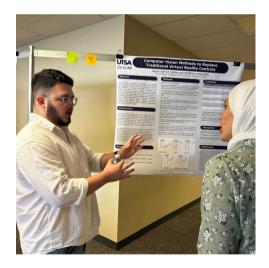# UTSA Computer Science Research Showcase

The first annual CS Course-based Undergraduate Research Experience was held on April 30, 2024, and May 2, 2024. The course was facilitated by Dr. Fernandez which is designed to prepare students for research opportunities. Through this experience, students were allowed to investigate personal interests as it related to areas of AI Ethics & Fairness, AI Applications, Computer Visions, Cybersecurity, Data Science, Quantum and Algorithms.
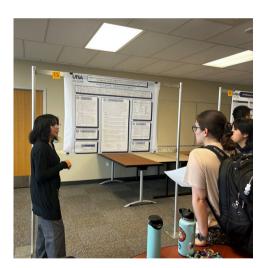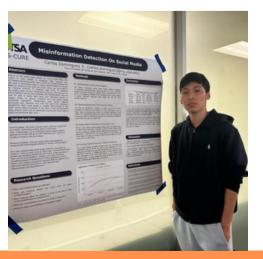Congratulations to all for a phenomenal job!

Education and Community Outreach

The Computer Science Department is committed to strengthening partnerships within the community

.

Developing AI Tools for K-12

Dr. Fred Martin, Computer Science Chair and Professor, lead a group of Computer Science students that 'created original software products to teach central ideas in Artificial Intelligence, including text representation, machine learning, image recognition, algorithms, and recommender systems'. The teams worked tirelessly all semester to develop AI demos for BASIS Shavano ISD middle school kids. In addition, the teams tested their tool with 150 middle school students and are evaluating student learning after its use. Here is a glimpse on this amazing collaboration and applications created.

Dr. Fred Martin, Adrian Cisneros, and Durga Rajarajan

RowdyHacks 2024

A Successful Event for Technology and Innovation
The 9th annual RowdyHacks event was held on March 24th – 25th, 2024 in UTSA's School of Data Science (SDS). Hackers from all disciplines, backgrounds, & technical levels were welcomed and it brought together a diverse group of individuals with a shared passion for technology and innovation. The event was a huge success, and we are proud to have been a part of it.

https://rowdyhacks.org/

[MLH] Best Use of Kintone
DinoQuiz

DinoQuiz is an interactive game in which you can learn all the amazing facts about dinosaurs. This fun device interfaces with Kintone to download different questions and upload your score to webpage using the native Kintone API.

Best Use Of San Antonio Data, General Track: 2nd Place
Dialectosoar

Where language learning soars! Dialectosoar teaches new languages to users by engaging them in foreign language videos, using contextual and intriguing questions to teach and check for understanding!

Best Hardware Hack
Expedition

Expedition can be controlled remotely or given its own agency to wander the environment, collect data from the sensors mounted on its back, and return that data to be graphed and displayed on a small screen on the rover itself.
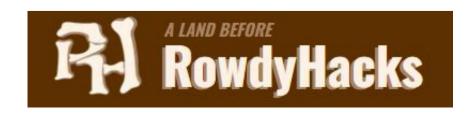
General Track: 1st Place
DermAI

AI-Powered Skin Cancer Detection for everyone

Best Banking Navigation Tool
Fossil Finances

Friendly finances and resources meant to aid the elderly and others in need in navigating the financial landscape.

Best Cyber hack
Native API Injection Attack

This program gets a reverse shell on the target machine using process injection. It avoids common Win32 API functions in favor of NTAPI function calls closer to the hardware for antivirus evasion.

Best Design
Dino Dash

A thrilling fusion of Chrome's T-Rex and Flappy Bird, boasting mesmerizing animations and radiant graphics for an aesthetically pleasing gaming experience.

Best Domain Name from GoDaddy Registry
Land of Pterror

Be shown the magnificence of the Pterodactyls and ignite your inner child.

Best DEI Hack sponsored by Fidelity
Penny

Beginner Track: 1st Place
Sign_Interpreter_App

Real time ASL based sign language interpreter

Beginner Track: 2nd Place
PerfectDateSA

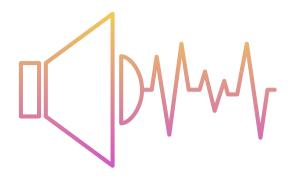Find the perfect time to travel to San Antonio (and Six Flags!) using AI and historical travel data!

Best Theme Hack
A Land Before Time

A Land Before Time is a low poly 3D game that allows the player to learn and identify many different dinosaurs and earn points within a set time limit.

Best use of Google Cloud
CyberSaurusRange

CyberSaurus Range: Your virtual cybersecurity playground. Practice hacking skills, deploy labs, and explore hands-on learning in a secure environment.

Staff Recognition

Meet Brandon Davis, Senior Systems Administrator for the Department of Computer Science at UTSA. Brandon graduated from UTSA in 2016 with a degree in biology and again in 2017 with a master's in business. After working as a staff member in the College of Business after his graduate program, Brandon joined the Department of Computer Science in 2019.

Brandon's responsibilities within the department primarily include maintaining department servers, networking, and classroom and lab technology.

What Brandon likes most about his job are the projects he gets to work on that benefit our students and the opportunity to keep learning new and fascinating things.

While his educational background did not start off in computer science, Brandon has always had an interest in the field and related technology. He is glad to be part of such a vast group of learners at UTSA and hopes he can make a positive impact on the community.

Faculty Teaching Position Available

The Department of Computer Science (CS) in the College of Sciences at the University of Texas at San Antonio invites applications for up to three (3) fixed-term track (FTT) faculty members to specialize in teaching.

We seek outstanding candidates with teaching expertise in areas to include introductory programming; software engineering; discrete math; cybersecurity; systems; artificial intelligence, machine learning, and data science; human-computer interaction; and mobile application development. Strong candidates with expertise in any area of computer science are welcome. We are looking for candidates who are dedicated to teaching computer science and have a record of (or potential for) excellent teaching. We welcome individuals with industry experience who wish to begin or continue a teaching career.

Primary duties will be teaching undergraduate computer science courses, four courses/sections per semester (Fall and Spring).

One of the three positions has the possibility for an administrative leadership role in our MS in Cybersecurity Science degree program for a qualified candidate.

More information can be found at https://www.utsa.edu/people-excellence/careers/

For the latest department news updates, visit our website at cs.utsa.edu

Or follow us on social media
Facebook.com/ utsacomputerscience

Linkedin groups/5061256/

Instagram utsacs

Congratulations to Computer Science
Spring and Summer 2024 Perspective Students

Osamah Alqaisi
Major Professor: Turgay Korkmaz, Ph.D.
Dissertation Title: "Containerized Computer Vision Applications on ARM-Powered Edge"

Kevin Baldor
Major Professor: Jianwei Niu, Ph.D.
Dissertation Title: "Runtime Verification of Real-Time Properties and Bounded Model Checking in the Thorium Reactive Programming Language"

Sahidul Islam
Major Professor: Mimi Xie, Ph.D.
Dissertation Title: "Resource-aware Tiny Machine Learning for Battery-less System"

Kang Peng
Major Professor: Wei Wang, Ph.D.
Dissertation Title: "SLO-Aware Resource Management for Edge Computing"

Jodh Singh Pannu
Major Professor: Sushil Prasad, Ph.D.
Dissertation Title: "Synthesis and Applications of Flow-Based Computing"

Ethan Payne
Ph.D. in Computer Science
Dissertation Title: "Leveraging Latent Fields"

Bilal Siddiqui
Major Professor: Dakai Zhu, Ph.D.
Dissertation Title: "Structured Segment Rescaling with Gaussian Processes for Parameter Efficient ConvNets"

Zhongxiu Yang
Major Professor: Matthew Gibson-Lopez, Ph.D.
Dissertation Title: " Computer Aided Proofs for the VC-Dimension of Art Gallery Variants"