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MESSAGE FROM THE DEPARTMENT CHAIR

Dr. Sushil K. Prasad

Welcome to the Summer 2020 edition of the *CS Kickstart* newsletter! First off I would like to congratulate all the department faculty, students, and staff for their successful perseverance in handling the abrupt and difficult changes to Spring 2020 semester due to the COVID-19 outbreak. We especially want to recognize our graduating CS class of Spring and Summer 2020! While this semester did not end quite the way we all had anticipated, the diligence and flexibility shown by our students has been remarkable.

I would also like to thank the department faculty and staff who have worked tirelessly to develop accommodations for remote learning and minimize the impact of the coronavirus on our campus. While the campus closure has disrupted normal operations, the move to online format has provided opportunities to strengthen and improve availability of resources for students off-campus. We have seen an unprecedented 80% increase in summer course enrollments and are in the process of expanding online course offerings for students. We as a department are confident we will emerge stronger from this experience when campus reopens.

In this newsletter, I invite you to read about the various successes that our faculty and students have recently accomplished, from Dr. Murtuza Jadliwala becoming the 9th NSF CAREER Award faculty recipient in UTSA's CS department to the first ever fully virtual ACM RowdyHacks student-led hackathon. Additionally, UTSA hosted its first VR Code Jam, an interdepartmental competition aimed at developing VR entertainment for gamers with disabilities. Lastly, of our NTT faculty members, Dr. Rocky Slavin, has received the NSF CRII award and will join the tenure track faculty as an Assistant Professor in August 2020. Congratulations to both Dr. Jadliwala and Dr. Slavin!

Our hope was this newsletter will lift your spirits high and showcase the positive success stories of our CS community.

Be safe, and thank you all!

Dr. Sushil K. Prasad

UTSA COMPUTER SCIENCE AND ENGINEERING FORM PARTNERSHIP TO BROADEN PARTICIPATION IN COMPUTING

Written by Kimberly Ward

The University of Texas at San Antonio (UTSA) departments of Computer Science (CS) and Electrical and Computer Engineering (ECE)

Departmental BPC Plans are part of an initiative established by the National Science Foundation (NSF) Directorate for Computer and Information Science and Engineering (CISE) aimed at increasing the participation of underrepresented groups or populations in a subset of CISE's research programs.

First announced by the NSF in July 2017, the BPC pilot aspires to usher in a broad culture change throughout computing institutions to create meaningful actions that address the longstanding underrepresentation of various populations, including women, minorities, and persons with disabilities in computing fields. BPC Plans outline activities, goals, and metrics departments use to provide more inclusive environments at all levels: K-12, undergraduate, graduate, and faculty.

UTSA's CS/ECE BPC Plan will seek to significantly improve the enrollment, retention, and graduation rates of its Hispanic, first-generation, and female student groups in undergraduate and graduate Computer Science/Engineering programs. Both departments have outlined activities to address these goals such as targeted student and faculty recruitment, curriculum development and improvement, student mentoring, faculty development and training, and professional community outreach programs.

This BPC plan gives an opportunity for both the CS and ECE departments to strengthen its programs and become role models for access and inclusion in computing for the greater academic community.

JADLIWALA AWARDED NSF CAREER GRANT FOR RESEARCH

Reprinted from UTSA Today

Murtuza Jadliwala, an assistant professor in UTSA's computer science department, has been awarded the National Science Foundation's Faculty Early Career Development, or CAREER, grant.

This prestigious $499,512 five-year award for early career faculty will fund Jadliwala's research on securing modern ubiquitous sensing and computing technologies, such as mobile, wearable and internet-of-things systems, against private data inference and exfiltration threats.

Jadliwala is the director of the Security, Privacy, Trust and Ethics in Computing research lab in the Department of Computer Science at UTSA. "Dr. Jadliwala is one of our rising stars and our ninth home-grown NSF CAREER awardee, a remarkable achievement for a CS department with only about 20 tenure-track/tenured faculty. I also credit the excellent tradition of mentorship and nurturing for early career faculty within this department," said Sushil Prasad, the department chair.

"My project is motivated by the fact that we as humans are living in a society where we are constantly surrounded by sensors, which are continuously sensing every smallest activity/event in our lives," Jadliwala explained. "We have sensors in our pockets in the form of smartphones, sensors on our bodies in the form of smartwatches and sensors in our immediate surroundings in the form of smart home devices and appliances. There is no doubt that these devices have improved our lives significantly by enabling useful applications, but at what cost?"

"Dr. Jadliwala is one of our rising stars and our ninth home-grown NSF Career Awardee," Prasad said.

Jadliwala said that sensor data collected by—or originating from—modern ubiquitous sensing and computing systems, such as smartphones, wearables and IoT devices, can be easily exploited to significantly compromise users' privacy unless the current weaknesses are addressed.

Although individually some of these devices and applications running on them may provide limited means for privacy protection, they do not holistically work across all the different types of devices, sensors and applications surrounding users.

"The main challenge is that most of these device and sensor platforms are pretty heterogeneous in nature—produced by different manufacturers, running different operating systems or operated by different providers," Jadliwala said. "As a result, these different systems don't talk to each other when it comes to holistically protecting users' privacy. For instance, a protection mechanism on your smartphone that restricts when an application accesses your phone's camera might not help protect against a snooping surveillance camera in your house."

To overcome these challenges, Jadliwala and his research team will focus on uncovering new security and privacy risks in modern ubiquitous sensing and computing environments comprising of functionally heterogeneous and isolated sensors, devices and applications.

The team will also design and evaluate a promising new approach to protect against uncoordinated and unregulated sensing and actuation in such environments. This approach will efficiently and securely determine sensitive user-contexts and share it in a user-friendly fashion across a diverse set of sensing devices and applications to provide complete or holistic privacy protection.

> "Dr. Jadliwala is one of our rising stars and our 9th home-grown NSF CAREER Awardee."

Using his research findings, Jadliwala will develop a curriculum in mobile and IoT security that local high school teachers can implement in their classrooms.

"After talking to educators in the San Antonio Independent School District, I was excited to learn that cybersecurity courses are already being offered in some of the high schools in our community," he said. "However, the problem is that the high school teachers are not always exposed or get an opportunity to expose themselves to the recent advancements in the field. One of the goals of the project will be to train the teachers themselves by involving them in our research."

"This work is a prime example of how research being conducted at UTSA drives what students are learning in the classrooms and the importance of having strong K-12 partnerships," said Kimberly Andrews Espy, provost and senior vice president for academic affairs. "Congratulations to Dr. Jadliwala for carrying on a proud tradition of tenure-track faculty at UTSA receiving this recognition. CAREER awards are bestowed to the most talented junior faculty, and this award is reflective of the high quality of the UTSA academic experience."

Local high school students will also have an opportunity to participate in cybersecurity summer camps, which Jadliwala is currently planning.

"For enrollment at these camps we will specifically target students from San Antonio area's underrepresented and impoverished communities who ideally would not be able to afford attending expensive educational camps in the summer," said Jadliwala. The team will also offer a summer camp for veterans who are interested in a career in cybersecurity.

NEW ROWDYCREATORS STUDENT ORGANIZATION PROVIDES HANDS-ON INTERDISCIPLINARY OPPORTUNITIES FOR STUDENTS INTERESTED IN TECH

Written by Talha Khan, edited by Kimberly Ward

Rowdy Creators is ACM UTSA's club which gives students interested in technology the opportunity to learn new skills, network with other students, and create/develop hands-on projects. This group channels the skills of various disciplines (Computer Science, Engineering, Business, etc.) into technology projects using software and/or hardware. Students having varying experience can be part of different teams, meet every week, brainstorm project ideas, and pursue projects in their interest and for their resume. Some examples of projects going on are a Security Camera using Facial Recognition, a Video Game using Unity, a robotic arm using the Arduino and various sensors, and a room-finder app for UTSA.

Rowdy Creators was co-founded by Talha Khan and Russell Gardener and is backed by ACM UTSA with Dr. Kevin Desai as the faculty advisor. Other student board members include David Crouch, Alexandra Garcia, Jason Mcollough, Eric Nave, Jenelle Millison, and Alex Smith.

For more information on Rowdy Creators and how to get involved:

Email — rowdycreators@gmail.com

LinkedIn — linkedin.com/company/rowdy-creators

Instagram @rowdycreators

UTSA'S ROWDYHACKS COMPUTER "HACKATHON" COMPETITION GOING VIRTUAL

Reprinted by UTSA Today

With the computer science industry continuously growing and evolving, UTSA is giving students a way to create and innovate to help add more skills to their tool belts for the future.

Students will compete this weekend in the fifth annual RowdyHacks online computer coding event. This year, though—because of conditions created by the coronavirus situation—the event will be held fully online for the first time, with the opening ceremony being streamed at 11 a.m. on March 28.

"RowdyHacks is a 24-hour hackathon that our club, the Association for Computing Machinery, puts on every year that we've been doing for five years," said Anna Arroyo, a UTSA senior who is ACM vice president and RowdyHacks manager. "If you're unfamiliar with what a hackathon is, it's like a coding competition, where students will get in teams, and they'll try to build some kind of product by the end of the 24-hour cycle. They'll then demo whatever they created at the end and compete for prizes."

Unlike other hackathons that are geared toward people with computer science backgrounds, RowdyHacks is a program for people from all walks of life.

"One thing that we've been trying to do over the past couple of years is integrating more majors than just computer science into the hackathon," said **Matt Moore,** ACM president and a senior at UTSA. "We want to get rid of the stigma that it's just for people that know how to code. We want people of all skill levels and backgrounds to be part of our event."

By bringing in different college disciplines, a good foundation is created, said Mark Robinson, ACM faculty sponsor and assistant professor of practice in the Department of Computer Science.

"We want all college disciplines to participate: art, business, engineering, language, science. A great idea can come from anywhere and great ideas are the foundation of a good hackathon," Robinson said. "In the past few years, engineering teams have done very well at RowdyHacks, in addition to science. Art and music students have been on some of those teams."

Students have the opportunity to compete in three different categories: cybersecurity track, learners track and the general track.

"Last year we saw a lot of cyber-focused projects, so with San Antonio kind of being like a cyber hub we thought it'd be a good idea to offer its own track," Arroyo said. "It's for students who want to do projects focused on security-related topics or make some kind of security tool. Then if you're not really a first-time coder and you're not really interested in security—but you do want to make something else—we just have our general track. You can make a website, or you can make an app. That's pretty much where everything else fits."

For those who have never coded, there's the learner track, Arroyo added.

"This year we're offering a special learner track for students who have never coded before or they don't feel comfortable in other competitions competing with people who are like senior-level CS majors," she said. "They have their own like separate workshops at the event to kind of walk them through how to get started with making their own project."

Similar to the variety of participants the event attracts, the same goes for the projects created.

Last year the judges saw anything from a glove that helps deaf people "feel" music to a smart trash can that utilizes artificial intelligence to separate garbage from recyclables. During the event, students also have the opportunity to mingle with companies present at RowdyHacks.

Over the last five years ACM, an organization run fully by UTSA undergraduate and graduate students, has made it their mission to evolve RowdyHacks from a single classroom event to something that expects as many as 400 participants from all over the county to attend this year.

"We're really proud of how far we've come," Moore said, "and we just want to keep on improving on how we can make it better."

Winning Teams RowdyHacks 2020

Home Recipes.—Winner of RowdyHacks General Track
Created by Timothy Goh, Michael Spintson, Christina Zhou, and Camsy Huang

SinkMate—Winner of RowdyHacks General Track and Best Hardware Hack
Created by Matteo Agius-D'Arrigo and Austin Rat

ChaCha20_Kernel_Module_Demo—Winner of RowdyHacks Cyber Track
Created by Fosres Salim

fullXtest—Winner of RowdyHacks Cyber Track
Created by Jonathan Rosett, David Acuna, Peter Lachkov, and Robert Casillas

EcoCycle—Winner of RowdyHacks Learners Track
Created by Aditya Agrawal, Dylan Syahputra, and Abdur Aziz

Quaranteamed—Winner of RowdyHacks Learners Track
Created by Zaquariah Holland

Apartly—Winner of RowdyHacks Best UI/UX Track
Created by Dylan Theriot, Anooj Shah, Yonathan Zetune, Paurushmani Singh

OpenBed—Winner of Best Use of Google's Map API
Created by Jacob Dong, Imani Braxton, Jason McCullough, and Ryan Radloff

The COVID Response—Winner of MLH Best UiPath Automation Hack
Created by Cameron Brill, Nathan R, Anthony Teo, and Samarth Dave.

Memory Notes— Winner of MLH Best Use of Google Cloud and Best Use of Twilio Challenge
Created by Prasann Singhal, Lucas Cai, Samuel Yuan

Corona Shuffle v2 Electric-Boogaloo—Winner of Best Domain Registered with Domain.com
Created by Steven Smith, Alex Day, Sean Kempf, and Sebastian Aguilar

Tank Mensional—Winner of Best use of MongoDB Atlas
Created by Carlos Martin Leon, Alex Parraga Ferrer, Clara Rull, and Toti Moragas

SLAVIN RECEIVES NATIONAL SCIENCE FOUNDATION CRII GRANT AWARD

Written by Kimberly Ward,

Assistant Professor in Practice Rocky Slavin received the National Science Foundation's (NSF) Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII) grant. Referred to as the "Mini CAREER Award", the goal of the NSF's CRII program is to encourage research independence early in a faculty member's career.

Slavin received the $175,000 award for his proposal titled "Automatic Generation of API to Natural Language Data Type Mappings for Developer and End User Privacy Risk Mitigation." The project aims to use machine-learning to produce an automated, generalizable model for generating relationships between code-level application program interfaces and natural language data types. These relationships can then be used to detect and mitigate privacy threats in mobile applications. The long-term goal of the work is to enable and implement various practical, publicly available tools for app developers and end users.

The CRII program is part of CISE's strategy to increase its investments in the development and growth of the research capabilities of future generations of computer and information scientists and engineers, including computational and data scientists and engineers. This grant provides the opportunity for early-career faculty support to jumpstart their research career. Slavin and his team plan to use this project to help bridge previous research in mobile privacy into new fields and techniques such as IoT security and deep learning.

The CRII award was Slavin's first grant solicitation to apply to as the principle investigator (PI). Slavin is also the first non-tenured track Assistant Professor of Practice at UTSA to receive this CRII award.

For more information about Slavin's project and his research lab, please visit http://cs.utsa.edu/~rslavin

UTSA SOFTWARE TO HELP PATIENTS RECEIVE FASTER POSTPANDEMIC CARE

Reprinted by UTSA Today

Many patients had to wait for lifesaving surgeries, such organ transplants, due to the heavy burden COVID-19 caused for hospitals. Now, UTSA computer science seniors have built a software program that assists doctors in prioritizing medical procedures and treat people more efficiently.

The program, called ESCal, can organize almost three months of surgeries in a few minutes by simply working within a hospital's existing system.

"For the past nine months we were working on another project for Amita Shah at UT Health San Antonio, but once the outbreak struck, we had to pivot," said Mark Robinson, an assistant professor in practice in UTSA's Department of Computer Science.

"The challenge we had was to build a surgery-scheduling application where Dr. Shah and her team could store information about postponed elective surgeries," Robinson said. "The hospital's existing software created lots of problems during the pandemic."

The team delivered a computer program that permitted a physician to retrieve a list of surgeries scheduled for the next two months in less than five minutes. This is a huge time-saving measure. As businesses ease restrictions, many patients are eager to reschedule elective operations that were postponed.

As of May 1, approximately 20 states across the country had resumed some elective surgeries, with only a few more planning to do so later in the month. It's expected that hospitals will face looming bottlenecks and patients who need procedures such as tumor removals will experience long waits.

"We had months [of appointments] already scheduled. As all this was happening we realized that, when this is over, we would have to reschedule everybody," said Shah. "But not everybody's condition is of the same acuity, and with hundreds of surgeries being canceled

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"UTSA Software Helps Patients Receive Postpandemic Care Cont'd"

RECENT CS GRANTS AND AWARDS SPRING 2020

Explore STEM! for Students with Disabilities at UTSA

Sponsor: *Texas Workforce Commission*

Amount: $33,119 **Start Date:** 2020-03-25 **End Date:** 2020-06-13

PI: Wei Wang (Professor) **Co-PI:** Kathleen Ewoldt (Assistant Professor)

Abstract Overview: The goal of this summer camp is to provide students with disabilities the opportunity to learn about STEM occupations through instruction and hands-on activities. In particular, this camp will provide hands-on activities to build autonomous driving robots. The students will learn basic computer programming concepts, programming skills, robotic assembly with microcontrollers and sensors. Through these activities, we expect the students to gain the experience of working in two STEM fields: software engineering and electronic engineering. In addition to the above hands-on activities, speakers working in other STEM fields will be invited to interact with the students to learn more about working in STEM.

CRII:SaTC: Automatic Generation of API to Natural Language Data Type Mappings for Developer and End User Privacy Risk Mitigation

Sponsor: *National Science Foundation (NSF)*

Amount: $175,000 **Start Date:** 2020-03-25 **End Date:** 2021-01-04

PI: Rocky Slavin (Assistant Professor in Practice)

Abstract Overview: The PI proposes a research project to improve the accessibility of privacy risk tools for mobile applications through the automation of existing manual techniques for generating the mappings necessary for policy-code misalignment detection. The current state of detection of misalignments between privacy policy and app code requires the production of mappings from code-level API methods and GUI constructs to policy-oriented natural language data types. Even for small app categories, this process can require a human to review of thousands of methods and hundreds of annotations resulting in potential for inaccuracies due to fatigue and incomplete domain knowledge. Furthermore, as new app categories are taken into account, different data types must be incorporated requiring such mappings to be regenerated. APIs also change continually as methods are introduced and deprecated resulting in outdated mappings.

T2: Towards Statistical and Adaptive Learning in Edges for Smart Health Applications in Connected Communities with Security and Privacy Enforcement

Sponsor: *UTSA VPR Office*

Amount: $50,000

Start Date: 2020-05-11 **End Date:** 2021-04-30

PI: Dakai Zhu (Professor)

Co-PI: John Prevost (Assistant Professor)

Co-PI: Keying Ye (Professor)

Co-PI: Amanda Fernandez (Assistant Professor)

Co-PI: Wei Wang (Assistant Professor)

Co-PI: Xiaoyin Wang (Associate Professor)

Abstract Overview: Connected communities, powered with advanced technologies, are expected to have profound impacts on our daily lives. To exploit the rich set of digitized sensing data from IoT-enabled devices and to provide access of the various smart applications to a large number of mixed-communities with potentially different socio-economic status, we propose to design and develop a micro-service based intelligent Edge computing framework. Here, our propose framework would engage digitized information from IoT devices such as smart thermometers and motion sensors in conjunction with smart applications such as assistive living and pandemic flu status. Such a framework is expected to facilitate easy access to the advanced technologies through the IoT-Edge-Cloud computing paradigm as well as to enable flexible services that ensure computing resource usage efficiency, security protection, and privacy enforcement.

CAREER: A Holistics Context-based Approach for Security and Privacy in the Era of Ubiquitous Sensing and Computing

Sponsor: *National Science Foundation (NSF)*

Amount: $499,512 **Start Date:** 2020-03-12 **End Date:** 2025-01-31

PI: Murtuza Jadliwala (Assistant Professor)

Abstract Overview: Ubiquitous sensing and computing technologies such as smartphones, wearables and Internet-of-Things (IoT) devices enable exciting new applications, but also expose an additional threat surface that can be exploited to infer users private information or to compromise their safety and (cyber) security. Continued progress in hardware, sensor and software (including, machine learning and cloud) technology have caused new threats to emerge which current access-control models and protection mechanisms are unable to address. One significant shortcoming of existing protection models and mechanisms is that they do not work across all the different types of sensors, applications and autonomous devices housing these sensors and applications. For instance, mechanisms designed to protect against inadvertent information leakage from user-facing sensors that rely on explicit user input/event and user-permissions (e.g. camera) do not protect against information leakage from motion sensors that are sampled continuously without any explicit user inputs or permissions. A positive aspect of this sensor heterogeneity is that different types of sensors can measure different, often non-overlapping, contextual and activity-related information about users and their surroundings, thereby providing a more holistic contextual view of the user(s). However, as current applications often operate in functional and data-flow isolation, they are generally unaware of this holistic (or complete) user-context which is one of the main reasons for the security/privacy threats enabled by these applications. This project proposes a promising new approach to expose and harness holistic user-context at the device and network level to protect against security and privacy threats due to uncoordinated and unregulated sensing and actuation in modern mobile and IoT applications.

CS STUDENT SPOTLIGHT: COMPUTER SCIENCE GRADUATE BUILT HIS FUTURE — VIRTUALLY — AS A STUDENT

Reprinted by UTSA Today

Spring 2020 graduating senior of Computer Science Matt Moore helps build our community—with software. As a spring 2020 graduate of UTSA with his bachelor's degree in computer science, this software engineer will help build H-E-B's proprietary delivery service.

The road to Moore's H-E-B career opportunity was built both virtually and onsite. He participated in university STEM fairs and was an active member of the UTSA chapter for the Association for Computer Machinery. In ACM he worked through the ranks to eventually become its president.

"For me, the career fair was a foot in the door to obtain work at H-E-B, and ACM held the door open," said Moore.

He didn't just focus on himself, though, once he secured an internship with H-E-B last year. His home is Castroville, a small town outside San Antonio where unity is everything. He therefore set out, with other members, to use the organization as a bridge to employers. H-E-B and other members of the local business community were invited to participate in tech talks and workshops.

"Going to class and getting good grades is important, but it's not everything. Participating in events outside of class, joining student organizations and building relationships with others is a huge part of the college experience," said Moore.

Despite the COVID-19 lockdown, this year's ACM's signature event, RowdyHacks, had close to 400 online participants and received 75 project submissions—doubled from last year.

Many of the hacks addressed the immediate needs that COVID-19 exposed in San Antonio. For example, one of the winning apps, Quaranteemed took the online match-making service model and proposed connecting citizens that had extra supplies with those that desperately needed them.

"I am constantly humbled and encouraged by my peers," Moore said about fellow Roadrunners. "The real credit for the success of the event goes to this year's executive director and the rest of the RowdyHacks team. Their contributions affected me and the legacy of our organization."

Moore has put a lot of effort into his education and UTSA faculty has responded in kind. The ACM has been supported by UTSA's Department of Computer Science, in particular faculty advisor Mark Robinson and Jianwei Niu. ACM-W, an additional group within ACM that focuses on the issues women and students of color face in entering the tech field, is mentored by Niu.

Some people would be surprised to learn that Moore completed one prior bachelor's degree. Yet his previous college experience didn't involve any community building. He promised himself that if he ever returned to college, it would be different the second time around.

"If I had any advice to offer the incoming class, it would be 'never stop finding ways to invest in yourself.' Volunteer your time, connect with people, make the effort, be part of something bigger," said Moore. "Your education is an investment, so if you're going to invest, go all in!"

UTSA SOFTWARE HELPS PATIENTS RECEIVE POSTPANDEMIC CARE CONT'D

Continued from Page 5

and needing to be rescheduled, we needed a way to triage things when we start operating again."

In less than six weeks the UTSA students were able build the software program, which allows Shah to fetch a list of cases. The program relies on surgery information, such as date of surgery, urgency, authorization to perform surgery, patient readiness, cancelations or other criteria. The retrieved data is then reported on a spreadsheet prioritizing current or upcoming procedures for the week.

The system also complies with the hospital's strict security standards and integrates seamlessly with its security infrastructure. This allows patients to obtain speedier care as physicians spend more face-to-face time with patients—and less time struggling with their software.

Since May 4 the new software has already been deployed and rescheduled 50 surgeries. There are plans to make use of this program for the entire surgery department, which typically has 250 to 300 surgeries scheduled per day.

"Students don't always have these real-life and critical problems to solve," Shah said. "But what they are doing really matters, and they are doing it very fast. I'm impressed with how they've come together to help us out. This is very, very valuable and a huge help for our practice."

Besides the transfer of academic knowledge to solve grand challenges, projects such as these provide tremendous real-world experience for students as well as considerable value to their résumés.

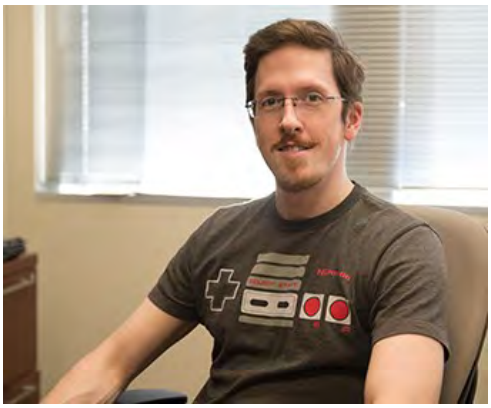
In the meantime, Shah is onboarding other surgery departments within UT Health to adopt the software.

The UTSA students who collaborated on this software program are Jaime Messinger, Andrew Noe, Sam Carey and Tyler Mitchell.

"Now we can say that we contributed to the COVID recovery effort," said Robinson. "We are also ready, should a second COVID wave occur."

RESEARCHERS SEEK NEXT GENERATION OF VR FOR GAMERS WITH DISABILITIES

Reprinted from UTSA Today



Dr. John Quarles, Professor of Computer Science and director of the San Antonio Virtual Environments (SAVE) Lab at UTSA.

Eric Nave, a student in UTSA's Department of Computer Science, and John Quarles, computer science professor and director of the San Antonio Virtual Environments Lab at UTSA, have launched the first worldwide Accessibility VR Game Jam.

The project's mission is to raise awareness and educate future game industry professionals about the need for making virtual reality gaming entertainment accessible to gamers with disabilities. But as the project's inaugural competition approached, the UTSA team hit a major obstacle: the COVID-19 pandemic. So they worked to quickly migrate the game jam to an online-only environment.

Quarles shared the lessons his team learned in the process and about the future direction virtual reality needs to take to be more inclusive.

You organized the nation's first Accessibility VR Game Jam. Can you describe the event?

"Stairs are always my enemy, but I can fly over them in VR," said Eric Nave, the UTSA software engineering senior who was co-lead with Quarles on the game jam project to make devices more accessible. "When I first got my Oculus Rift, I couldn't play many games. I would get stuck on menus saying 'Reach the start button in front of you.'"

This is an open competition where teams of computer programmers, artists and sound engineers created accessible VR games in 48 hours. We provided the perspective of a gamer in need of adaptive/accessible games as the focus topic for the jam. Jammers didn't know what disabilities the gamer had until the start of the actual competition.

Can you describe an example of how the electronic game industry needs to be accessible or more adaptive for a person with disabilities?

Many people with disabilities have a strong desire to play VR games, but they cannot play them due to physical or cognitive barriers introduced by the interface design. Many of these barriers could be broken with some minor changes—for example, enabling one-handed mode for games that currently require both hands.

What were the challenges that the participants faced?

We gave the gamers the added challenge to develop the game's software for a fictional user called Johnny Boy who was diagnosed with Duchenne muscular dystrophy. This disease causes Johnny Boy to have minimal motor control, which makes him use a motorized wheelchair to move around. His chair can raise and lower if need be. Also to make it extra challenging, Johnny Boy gets tired easily and his head moves barely left and right by only 30 degrees.

Which was the VR game that took the top prize?

The top winner was a game called Intrepid Intents. The player can be seated and can play with two or one motion controllers. There is the option to manipulate the game using your gaze as an alternative. Also, the analogue sticks' movement or teleport function can be optimized for positions. Button presses are also not required but can be used to speed up selections.

Historically, game jams involve strong face-to-face collaboration between teammates. However, with COVID-19 you had to convince participants to organize and develop a game while working remotely. What surprised you the most about the participants' ability to adapt?

Communication and collaboration is hard online. It is hard enough to do this in person, especially when designing physical interactions for VR games. However, you could tell that some teams really took the time to think and plan potential accessibility solutions for VR, regardless of the limitations of online collaborative work.

Why should the electronic game industry pay attention to UTSA's first Accessibility Virtual Reality Game Jam efforts?

There are many reasons. For one, this event allowed thinkers from different disciplines to get hands-on training on how to approach problem-solving to find a solution to develop forward-looking VR games and applications. The next generation of VR developers will be required to innovate and this requires addressing needs of as many gamers as possible.

Also you'd be surprised what impacts one "small" group could actually improve the application for the "larger" group. If we include disability gamers and their needs in the development conversation, we may actually have better games overall.

You also opened the game jam to include artists from UTSA's Department of Music. Why?

Good games can elicit emotional response from the player. Music and art is a huge part of that. Game innovation requires a diverse set of skills and a multidisciplinary team. For this reason the game jam also gave artists and sound engineers the ability to transfer their education to different industries beyond the traditional.

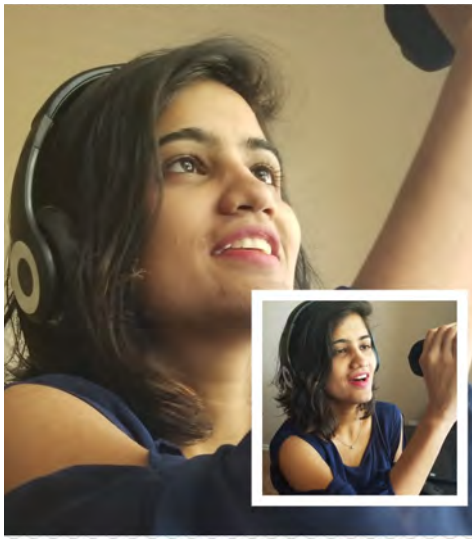
We as gamers require more and more sophistication in the games. For this to happen, virtual reality needs to sound and look good as well.

FEATURED PHOTOS: QUARANTINE SNAPSHOTS FROM CS FACULTY AND STAFF

With the outbreak of COVID-19, many have found their lives drastically changed. Businesses and schools have been closed, sports events are no more, and social gatherings have been postponed or cancelled. Moreover, as the government issued orders of strict social distancing and quarantine, people have had to adjust their daily routines, in what are strange and unprecedented times. We asked the Computer Science department faculty and staff to show us what they are doing to keep busy and stay positive while social-distancing.

Assistant Professor of Practice Dr. Sam Silvestro has been keeping busy sewing masks for members of his family as well as extras to be given away as donations.

Lecturer III Dr. Dawnlee Roberson doesn't have any pets, but she volunteers at Last Chance Forever where raptors are rehabilitated, including this little guy, where she gets her "pet fix."



Assistant Professor of Practice Dr. Heena Rathore is staying positive through her love of music. Singing is her particular favorite way to pass the time.

Professor Dr. John Quarles is making a synthwave album (1st track - https://carbonrapture.bandcamp.com/track/angelic-distance) and has been 3D printing ear savers for face masks that his wife makes.

Assistant Professor Dr. Murtuza Jadliwala repurposed unused 2x4 wood panels from his garage to build a custom shoe box.

Since working from home, Senior Program Coordinator Kimberly Ward has picked up the hobby of bird-watching, particularly the young family of hummingbirds on her apartment patio. Legends say that when a hummingbird appears, they are reflecting the positive side of life by encouraging one to enjoy the small things and let go of the heavy toxic ones.

Office Manager Pik Chanhom has been enjoying refurbishing furniture and trying out new recipes, like making homemade beef jerky.

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Featured Job Opportunities!

#	Employer	Job Title	Type	Application Deadline	How to Apply
1	PIMCO	Summer 2021 Internship Opportunities	Full Time Internship	June 1st by 10:55PM	Apply via UTSA Handshake
2	EY LLP	Technology Associate Analyst	Full Time Job	June 1st by 10:55PM	Apply via UTSA Handshake
3	Smartworks LLC	Junior .NET Developer	Full Time Job	June 1st at 11:50PM	Apply via UTSA Handshake
4	iDTech Summer Camp	Hiring Summer Camp Directors and Instructors	Full Time Job	June 5th 10:55PM	Apply via UTSA Handshake
5	Xenex	Data Scientist Intern	Full Time Internship	June 6th at 5:00PM	Apply via UTSA Handshake
6	Galaxy Software Solutions	Entry Level JAVA/Devops/UNIX/ Android/Big Data/Engineer	Full Time Job	June 14th at 11:15AM	Apply via UTSA Handshake
7	Oak Ridge Institute for Science and Education	Software Automation Process Developer	Full Time Job	June 17th at 8:00AM	Apply via UTSA Handshake
8	Revature	Entry Level Software Engineer	Full Time Job	June 28th at 11:59PM	Apply via UTSA Handshake
9	Oak Ridge Institute for Science and Education	FDA Research Opportunity in Data Science and Visual Analytics	Full Time Internship	July 7th at 11:59PM	Apply via UTSA Handshake
10	Compunnel Inc	Junior Software Developer	Remote Full Time Job	July 31st at 11:59PM	Apply via UTSA Handshake

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http://careercenter.utsa.edu/

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Virtual Resources for UTSA Students

FOR MORE CS NEWS VISIT CS.UTSA.EDU

UTSA CS Remote Instruction Resources

A webpage dedicated to assist Computer Science students, faculty, and staff academic resources to help facilitate remote learning.

https://cs.utsa.edu/remote_resources

Technology Resources for Remote Working & Learning

For technical help related to UTSA assets and resources.

https://www.utsa.edu/coronavirus/techresources.html

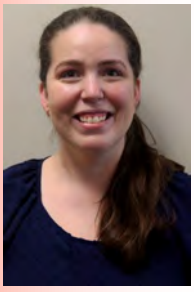
Roadrunner Relief Directory

For information on financial assistance, the Roadrunner Pantry, health and mental counseling, and much more!

https://www.utsa.edu/relief/index.html

Have Questions?
Story Ideas?
Photos?

Email the editor at
cs@utsa.edu



Kimberly Ward