



Tennessee Technological University

BITS & BYTES

The Department of Computer Science Newsletter
Spring 2020

Department Update

Over the past 34-years in the department of computer science and we hope to continue with this growth. Our hope with 2020 is to start expanding our communication and getting faculty, staff, students and alumni more involved with our department. With this new quarterly newsletter, you'll get a chance to read about what we are doing as a department, what the faculty is up to, student spotlights and more.

The department has experienced record growth in enrollment and degrees conferred, with approximately 580 students spread across bachelor's, master's and P.H.D. programs. Currently, the computer science department has 19 faculty members with research interests, ranging from cybersecuri-

ty, machine learning, high-performance computing to software engineering. In the fall of 2019, an expansion of faculty members occurred by adding seven new faculty positions.

Our department's goal is to be widely recognized to enable students to have a global impact through innovation, quality programs and research with collaborative partnerships to improve the success of a diverse community both on campus and off. Our graduates are prepared to compete in the job market and contribute to the economic, scientific and social development of the nation.

If you are interested in keeping up with the department on social media please follow us on Facebook, Instagram and Twitter @tntechcsc.

How COVID-19 Has Affected The CSC Department

As you may know, our community has had to live through some very trying times this semester. The university decided to extend Spring Break, following classes would resume in an online form the remainder of the semester. All campus activities were canceled and graduation postponed. At the end of all of this, it was just an opportunity for our department to demonstrate our resilience. In addition to a webpage the department with the help of Student Advisory Council, created a discord server to remain connected and to be a launchpad for accessing other discord servers being maintained by CS-related student groups the server can be found at <https://bit.ly/tntechcsc>.

Students may be missing out on some memories that everyone that has come before them has been able to experience. However, this is an opportunity to demonstrate what makes a TNTech graduate so special. Over the past few weeks, we have seen our students volunteer to help with the tornado that blew through our town, help with getting connected via the discord server so we can meet each other's needs, and so on. So, it is okay to grieve - we all need that time to reflect and come to terms with this - but its time to be prepared to lead our communities in ways that we know you all can.

Thank you to all faculty, staff and students for sticking with us through this challenging time.



Newsletter created by Jamie Sauve

CSC Diversity Committee

The computer science department aims to be the leaders at Tech for diversity. We strive to be known as a place where diverse students and faculty are celebrated and encouraged. With this purpose in mind, the department created the Computer Science Diversity Committee to aim for this accomplishment. The committee is comprised

of faculty members and students : April Crockett (chairwoman), Ania Jennings, Travis Brummett, Dr. Mohammad Alam, Nicholas Maldonado, Shaydrian Marshall, Omari Smith and Marena Soulet. The committee strives to follow these guiding principles :

- We are committed to **advocate** for the full engagement, empowerment, and within the local community underrepresented groups in the computer science department and within the local community.
- We **support** a diverse and inclusive culture and community.
- We actively **recruit** underrepresented, diverse students and faculty.
- We **celebrate** a diverse and inclusive culture and community.
- We provide **outreach** to underrepresented groups in regional, national and global communities.
- We continually **reflect** on our successes and failures, and to **identify and adopt** the best practices for creating a diverse and inclusive environment.

Please take the short survey to the right for the Computer Science Diversity Committee. The survey is only 11 questions and the results will help the committee identify department strengths and weaknesses with respect to diversity and inclusion. Any questions about the survey or the committee can be emailed to acrockett@tntech.edu.



Cybersecurity Education, Research, Outreach Center Update

Submitted by Eric Brown

CEROC has continued its core missions of education, research and outreach throughout the Spring semester in person and now socially-distanced. The center's cybersecurity interest groups in capture the flag (CTF), defense, and offense have been busy in various competitions. In addition to our CTF group members (many of them CyberCorps SFS or DoD CySP students) successful 2nd place finish in SFSCon, students have individually scored among the top 10 in the nation in the National Cyber League Spring League. The center's Cyber Patriot outreach student group has helped multiple

schools during the recent Cyber Patriot competition series with local schools achieving national rankings.

On the research front, faculty and student collaborations have yielded five accepted conference publications. Additionally, center director, Dr. Ambareen Siraj, has presented at multiple, high-profile venues discussing topics ranging from cybersecurity education to diversity concerns with the field of cyber.

Dr. Siraj has presented to the Cybersecurity Workforce Committee of the Federal Aviation Administration, presented testimony to the US House of Representatives Subcom-

mittee on Research and Technology as part of a cybersecurity education and diversity panel, served as an invited speaker of the king at the Global CyberSecurity Forum in Riyadh, Saudi Arabia, and a variety of other panel presentations.

The center has conducted almost 20 different events focused on K12 students this year. Some of the events involved students visiting the center as part of a tour while others were on-site events at the school. The center has presented talks or delivered training via the Tennessee Tech STEMmobile to almost 3,000 middle and high school students in Tennessee.



WELCOME OUR SEVEN NEW FACULTY

Travis Brummett

Lecturer

“Computer Science is a science of abstraction - creating the right model for a problem and devising the appropriate mechanizable techniques to solve it ”

- Alfred Aho



Maanak Gupta
Assistant Professor

“Computer science is the future, and the demand will always be increasing.”



Muhammad
Ismail

Assistant Professor

“Never lose passion to learn more.”



Ania Jennings

Lecturer

“Don’t be afraid to fail, part of computer science and programming is failing and learning from failure.”



Akond Rahman
Assistant Professor

“Design and programming are human activities; forget that and all is lost.”

- Bjarne Stroustrup



Susmit Shannigrahi
Assistant Professor

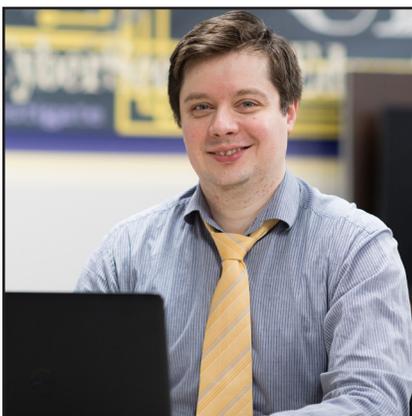
“If you can imagine it, you can build it using software (and some cheap hardware)”



Denis Ulybyshev
Assistant Professor

“The only constant in life is change”

- Heraclitus



Global Game Jam 2020

This year the Game Development Club and Tech students participated in the world's largest game jam event (game creation). A 48-hour development cycle where teams are given a secret theme where they are then challenged to make a game based on that theme. This year the students were challenged with the theme "Repair". SAIC and Knighthood Games sponsored the event and provided all meals for the 3-day event and prizes. Roughly 30 students competed and 5 teams lasted the entire 48-hours to present their games Valerie Hubert president of the club said.

The club designated rooms for work, sleep-

ing, food and when things were slower they hosted minigames.

"There was an atmosphere of friendly competition, everyone wanted to learn, do their best, and have fun," she said.

Hubert said most of the students that participated had never made a game before but within 48 hours they had rough drafts or completely playable games. The students were able to learn how to use Git, Unity, Unreal Blender and other various art programs. A few of the games created are "Going Home", "Trapped" and "Junk Space."

"I'm really excited for any upcoming jams we may have because now the club has more people

in the art departments to recruit for us," Hubert said. "Our events

keep getting bigger and we keep making more games."



Top Photo : (left to right) Brandon Vandergriff, Justin Humphrey, Garret Siedlecki, Peyton Johnson, Valerie Hubert.

Left Photo : Justin Holt and Emily Willems creators of "Plan Creatures, Great and Small."

NEW CLUB : DATA SPORTS ANALYTICS

Interested in Sports Analytics? Do you like playing in fantasy sports leagues? Trying to figure out who to pick in your March Madness brackets? Fascinated by sports statistics? Money-ball? This club is for any students and faculty that are interested in learning about sports analyt-

ics, competing in sports analytics competitions, hearing from professionals in the field, doing research in sports analytics and many other exciting things in the world of sports! Everyone is welcome - no experience needed! Some of the objectives of the organization will be to :

- Hear talks from people in the field of sports analytics
- Compete in sports analytics competitions
- Hold training sessions on how to do sport analytics
- Conduct research (faculty and students) in sports analytics
- Attend sports analytics conferences (like the MIT Sloan Sports Conference)

We will be holding another kick-off information meeting in the Fall. If you have any question please contact Bill Eberle at WEberle@tntech.edu.

Awards in 2019-2020 include:

- Dr. Akond Rahman received the CSC Outstanding Dissertation Award from his alma mater NC State University.
- ACM SIGSOFT Distinguished Paper Award to Dr. Akond Rahman for the following paper :
Rahman, A., Parnin, C., and Williams, L. (2019). The Seven Sins : Security Smells in Infrastructure as Code Scripts. In proceedings of the 2019 IEEE/ACM 41st International Conference on Software Engineering (ICSE).
- Institute on Aging 2019 Innovation Research on Aging Awards (Silver) awarded to Dr. Gerald C. Gannod and colleagues for the following paper:
Gerald C. Gannod, Katherine M. Abbott, Kimberly Van Haitma, Nathan Martindale, Alexandra Heppner (2019), A Machine Learning Recommender System to Tailor Preference Assessments to Ehanceeson-Centered Care Among Nursing Home Residents, The Gerontologist, 59(1), Pages 167-176, <https://doi.org/10.1093/geront/gny056>