

# CSE QUBITS

Computer Science and Engineering Newsletter

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## Greetings from the Chair

Happy Holidays! As the semester comes to an end in the next month, I want to remind you of the resources provided in F232 help lab for extra assistance in your classes and for your finals.

Spring enrollment has started so please be sure to register for the courses you need! Delaying could mean you miss out on a class you want or a course may even be dropped from the schedule due to low enrollment!



CSE and EE hosted the Southwest Electrical and Computer Engineering Department Heads Association (SWECEDHA) conference here at Discovery Park, you can read all about in this month's edition under Department News. We rely on generous donations to fund conferences, host events, and student travel. Please consider passing our donation information on to your friends and family so we can continue our practice of supporting student opportunity through travel.

We'd also like to encourage our students to take advantage of the unique clubs and student organizations available. Please check out current and upcoming events for more information.

## Donors/Gifts

Thanks to generous donor gifts, the CSE department is able to fund student travel, student organization special projects, department remodeling and overhaul, and put valuable resources into other student centric activities. Please remember that we depend on donations to keep activities and events alive. Many employers offer a donor match, so please encourage your family to consider donating and to check with their employer to see if they match! You can even designate what you want your donation used for!

If you would like to contribute and make a gift, contact [Diana.Bergeman@unt.edu](mailto:Diana.Bergeman@unt.edu).

## Connect With Us



# Department News

## SWECEDHA

On November 8-9, the UNT Departments of Electrical Engineering (EE) and Computer Science and Engineering (CSE) hosted the annual meeting of Southwest Electrical and Computer Engineering Departments Heads Association (SWECEDHA) at Discovery Park. The leadership of 13 departments of electrical and/or computer engineering from Texas and New Mexico held discussions about a number of issues affecting their departments. Provost Jennifer Cowley and Dean of Engineering Hanchen Huang each welcomed the group to UNT. A separate meeting was held for Ph. D. students from the SWECEDHA departments, including Zhaochen Gu and Belei Jiang of CSE, about academic and industry careers. Dr. Armin Mikler of CSE and Dr. Murali Varanasi of EE were among the speakers to the students. The meeting concluded with a poster session for the students to present their Ph. D. work to the department chairs and associate chairs in attendance, and a tour of Discovery Park. The participants appeared to enjoy their visit to UNT very much and the self driving car of the Autonomous Vehicle Laboratory got a lot of attention.



The attendees of the SWECEDHA conference

## 2019 UNT AI & Data Science Summit



The UNT AI & Data Science Summit was held October 11, 2019, at the Hall Park campus in Frisco. This summit highlighted the importance of the analytics ecosystem, comprised of large companies, government agencies, entrepreneurs, and universities, in working together to sustain innovation and profitable applications of AI and data science.

Dr. Mark Albert of UNT CSE was the moderator for the "Advancing Healthcare through Analytics and AI" panel session. Dr. Albert discussed how advanced analytics and AI are changing healthcare, data security, privacy challenges, and the skillsets that will allow Summit attendees to participate in the healthcare analytics revolution. Dr. Eduardo Blanco of UNT CSE was the moderator for the "AI/Machine Learning Application in Cybersecurity," and this panel included Dr. Ram Dantu of UNT CSE, Director of the Center for Information and Cybersecurity.

## UNT CSE hosts Distinguished Speaker

Dr. Mahesh Mehendale of Texas Instruments will be the College of Engineering Distinguished Lecturer for the CSE department on Wednesday, December 4, 11:30 A.M., in F285 (CSE conference room). He will talk about "Machine Learning at the Edge of 'Always-On' Intelligent Sensor Networks." Dr. Mehendale is a TI Fellow and leads the Nano-power Foundational Technology at Kilby Labs, Texas Instruments. Further details of this talk may be found [HERE](#).



Dr. Mahesh Mehendale

# Lab News

## CSRL News

Computer Systems Research Lab has some exciting news to share. We welcome Dr. Nagendra Gulur as a new faculty member of CSRL team. A proposal submitted by Dr. Krishna Kavi and Dr. Nagendra Gulur to the Semiconductor Research Corporation (SRC) in August 2019, is selected for funding at \$240,000 for three years, starting on January 1, 2020. The project involves developing specialized instruction set extensions to RISC V architectures, to develop efficient deep learning applications on edge devices.

The following TAMS and CSE undergraduate students are currently working with CSRL faculty and graduate students on various research projects: Nathaniel Brown, Pranoy Dutta, Vishok Jonnalagadda, Rishin Kesarla, John Li, Pranav Logan, Namitha Madireddi, Rohan Maheswhari, Robert Moore, Elijah Nacar, Reema Sharma, Daniel Ting, Benjamin Wang

Current graduate students in CSRL include: Shashank Adavally (PhD), Craig Carlson (PhD), David James (PhD), Fernando Mosquera (PhD), Rohit Yanambaka (PhD), Alex Weaver (MS)

CSRL team also includes post-doctoral researcher: Dr. Charles Shelor and Senior Lecturer Dr. Robin Pottathuparambil.

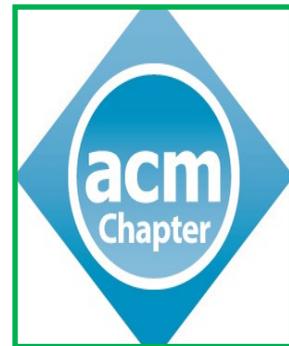
For more information click [here](#).

# Student News

## ACM NEWS:

University of North Texas Association for Computing Machinery Student Chapter (ACM-UNT) is here to unveil the artist inside you to create an innovative and uniquely designed logo for the ACM-UNT student chapter. The logo will be used on ACM-UNT chapter websites, social media sites, business cards, letterheads, posters, flyers, activities, clothing, events, souvenir trinkets, and gifts, or anywhere else the chapter chooses. The selected logo designer will win a Google nest mini.

To apply click [here](#)



ACM's current logo

## Dhivya Chinnappa doctoral dissertation



Please join us in congratulating Dhivya Chinnappa on successfully defending her doctoral dissertation on "Extracting Possessions and their Attributes" on November 15, 2019.

Pictured left to right are Dr. Xiaohui Yuan, Dr. Alexis Palmer, Dhivya Chinnappa, Dr. Eduardo Blanco, and Dr. Rodney Nielsen.

## Biomedical Engineering Society conference



Thasina Tabashum

Thasina Tabashum's work over the summer and early Fall was presented at the Biomedical Engineering Society conference in Philadelphia. She demonstrated how a microprocessor controlled knee led to significantly better outcomes than would be suggested by traditional analyses of individual clinical tests alone. Jung Lee, an undergraduate in Biomedical Engineering, was kind enough to present in her place at the conference. Albert MV, Mummidisetty CK, Tabashum T, Jayaraman A. "PCA Composite Evaluation of Outcomes for Microprocessor Knee versus Mechanical Knee in Individuals with Dysvascular Transfemoral Amputations" Biomedical Engineering Society conference (BMES 2019) Oct 18, 2019.

## Harsha Gwalani doctoral dissertation

Congratulations to Harsha Gwalani on successfully defending her doctoral dissertation on "Spatial Partitioning Algorithms for Solving Location-Allocation Problems" on October 17, 2019.

Pictured left to right are Dr. Robert Renka, major professor  
Dr. Armin Mikler, Harsha Gwalani, Dr. Barrett Bryant, Dr.  
Chetan Tiwari



## Josh Talkington doctoral dissertation

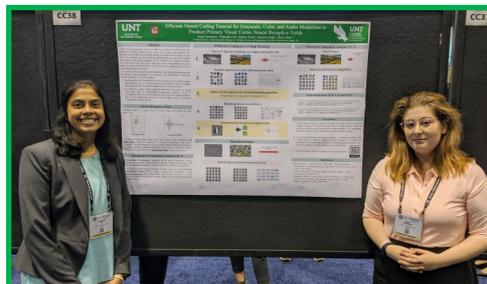


Congratulations to Josh Talkington on successfully defending his doctoral dissertation on "Sheparding Network Security Protocols as They Transition to new Atmospheres; a New Paradigm in Network Protocol Analysis." on October 25, 2019.

Pictured left to right are Dr. Mark Thompson, Dr.  
Eduardo Blanco, Josh Talkington, Dr. Ram Dantu, and  
Dr. Kirill Morozov.

## Society for Neuroscience Conference

Namratha Urs presented at the Society for Neuroscience Conference in Chicago. She helped create a user-friendly Jupyter notebook making computational neuroscience principles related to efficient coding readily accessible to anyone interested in neuroscience! She's a Ph.D. Student advised by Rodney Nielsen but she worked with Dr. Mark Albert and is a co-author on the following poster: Georgaras AG, Urs N, Nolan P, Singh H, Albert MV. "Efficient visual neural coding tutorial for grayscale, color, binocular, and video to produce primary visual cortex neural receptive fields" Society for Neuroscience conference (SfN 2019) Oct 19, 2019.



Namratha Urs presents Efficient visual neural coding tutorial for grayscale, color, binocular, and video to produce primary visual cortex neural receptive fields

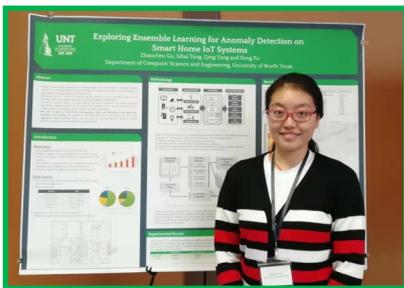
## CSRL newest co-chair



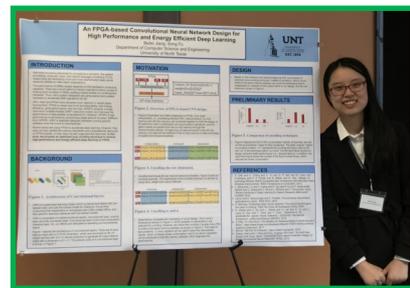
Rohith Yanambaka Venkata

Rohith Yanambaka Venkata, a PhD student in the Computer Systems Research Lab (CSRL) recently became a co-chair for the IEEE P2733 Security sub-group. The Standard for Clinical Internet of Things (IoT) Data and Device Interoperability with Trust, Identity, Privacy, Protection, Safety, Security (TIPPSS) establishes a framework with TIPPSS principles for clinical Internet of Things (IoT) data and device validation and interoperability. This includes wearable clinical IoT and interoperability with healthcare systems including Electronic Health Records (EHR), Electronic Medical Records (EMR), other clinical IoT devices, in-hospital devices, future devices and connected healthcare systems. The purpose of this project is to enable secured data sharing in connected healthcare to improve healthcare outcomes and protect patient privacy and security. Stakeholders in this working group include medical device manufacturers, hardware, software and service developers, users for connected healthcare, payers, providers, patients, patient advocates and regulatory agencies.

**Congratulations to the students who were selected to present their projects at SWECEDHA conference:**



Zhaochen Gu presented her project about the Exploring Ensemble Learning for Anomaly Detection on Smart Home IoT Systems.



Beilei Jiang presented her project about An FPGA-based Convolutional Neural Network Design for High Performance and Energy Efficient Deep Learning.

## The Eye- Current Events

- Be sure to stop by our help lab in F232 - you'll find TA's and peer mentors available to assist on projects, assignments, etc.
- The ACM Club meeting will be held on Dec 3 at 5:30pm in Discovery Park room B155.
- The next Robotics Club meeting will be Nov 20, at 7pm in Discovery Park room

## “Git” Informed- Did You Know?

- In Windows 98, minimized windows are actually moved far away outside the average monitor's resolution.
- It took Pixar 29 hours to render a single frame from Monster's University. If done on a single CPU it would have taken 10,000 years to finish.
- UNT's Computer Science and Engineering is ranked 16th in the nation for enrolling and graduating women!

# Faculty News

## Dr. Yang and Qi Chen win best paper award

Dr. Qing Yang and Qi Chen's paper, "F-Cooper: Feature based Cooperative Perception for Autonomous Vehicle Edge Computing System Using 3D Point Clouds" just won the best paper award from the ACM/IEEE Symposium on Edge Computing (SEC), Washington DC, November 7-9, 2019. SEC is a premier symposium with a highly selective single-track technical program, dedicated to addressing the challenges in edge computing. SEC is orchestrated to provide a unique platform for researchers and practitioners to exchange ideas and demonstrate the most recent advances in research and development on edge computing.



Dr. Qing Yang and Qi Chen

## ACM Distinguished Member and 10-years Impact paper award.



Dr. Yan Huang

Congratulations to Professor Yan Huang, as she was recognized by the Association for Computing Machinery (ACM) as a Distinguished Member for her outstanding scientific contribution to the computing field. ACM recognized 62 Distinguished Members this year from leading universities, corporations and research institutions around the world based on significant achievements in the computing field. The cohort signifies the global reach as well as the breath of the range of subdisciplines of the field of computing. Dr. Huang was cited for the development of the theoretical foundations as well as novel and fast query processing and mining algorithms for large scale geospatial computations ubiquitous in physical, earth, space, biological, social sciences, and engineering disciplines. The citation for her award succinctly states, "For contributions in the areas of spatial databases and spatial data mining." Dr. Huang stated that she was honored to be selected by ACM for this recognition, joining Dr. Ian Parberry in the department who was selected

previously. She appreciates Dr. Bill Buckles for the nomination and the strong supporting letters from scientists across North America. She looks forward to others in the Department and College being acknowledged in a comparable manner for their contributions.

Our Ph.D. alumnus Dr. Chengyang Zhang and CSE Professor Dr. Yan Huang are co-authors of the 2009 ACM SIGSPATIAL paper "Map-Matching for Low-Sampling-Rate GPS Trajectories". The paper has been selected as 2019 winner of 10-year impact award by ACM SIGSPATIAL. This is a collaborative work with Microsoft Research Asia and Fudan University. Dr. Chengyang Zhang now works at Amazon.

## Eagle Call - Upcoming Events

- Natural Language Processing Graduate Merit Scholarship. For more information, please visit <https://computerscience.engineering.unt.edu/news/natural-language-processing-graduate-merit-scholarship>
- The UNT Robotics group will meet every other week in Discovery Park room K150.
- The CSE Cybersecurity Club meets on Thursdays. Check the bulletin board for more information.
- Dr. Kavi is a Keynote speaker at the 14th International Conference on Software Engineering Advances, Nov 24-28, 2019, in Valencia, Spain.

# Puzzle Column

Find out Cheryl's Birthday. This puzzle appeared in the Singapore and Asian Schools Math Olympiad and went viral in 2015. The puzzle is:

Albert and Bernhard become friends with Cheryl and want to know when her birthday is. Cheryl, however, simply provides the month to Albert and the day of the month to Bernhard from a possible list of 10 dates shown below:

|        |    |    |    |    |    |    |
|--------|----|----|----|----|----|----|
| May    |    | 15 | 16 |    |    | 19 |
| June   |    |    |    | 17 | 18 |    |
| July   | 14 |    | 16 |    |    |    |
| August | 14 | 15 |    | 17 |    |    |

(Albert does not know day of the month and Bernhard does not know the month)

Albert: I don't know when Cheryl's birthday is, but I know that Bernhard doesn't know too.

Bernhard: At first I don't know when Cheryl's birthday is, but I know now.

Albert: Then I also know when Cheryl's birthday is.

So when is Cheryl's birthday?

(Solve this on your own, there are solutions posted on the web that you do not want to consider before you have attempted to solve this by yourself.)

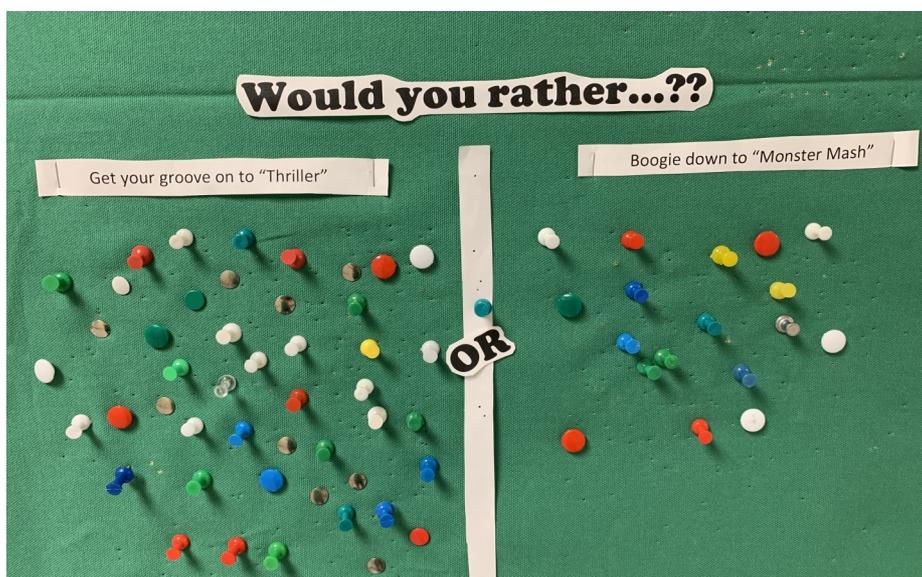
As a bonus: extend Cheryl's birthday puzzle on the 3<sup>rd</sup> dimension – year she was born. Consider a 3<sup>rd</sup> friend David who has been told only the year she was born. Change the above table in order to make everything work in the 3-dimensional setting

Please email [Nagendra.gulur@unt.edu](mailto:Nagendra.gulur@unt.edu) for puzzle ideas and solutions to posted puzzles. Please start the subject line of your email with "PUZZLE:". We will post the names of the first 10 students who provide correct solutions in the next month's newsletter.

\*\* The first one to successfully solve the puzzle will receive a FREE swag bag 😊

## Would You Rather?

The October 2019 winner is:



Don't forget to stop by the bulletin board located in Route 66 and cast your vote for November's Would You Rather: eat pumpkin pie with jalapenos or apple pie with beans?