



CSE NEWSLETTER: A LOOK INSIDE THE DEPARTMENT

Message from the Chair

While it's true the distinction between spring and winter in San Diego is often subtle, spring is a great metaphor for what's happening in our community right now. With the development and distribution of effective vaccines, we are seeing an ongoing decline in COVID cases in our local community. Renewed hope is in the air.

This is welcome news as we finish the 2020-2021 school year – one of the most challenging on record. However, as difficult as it has been, it has also been rewarding. People throughout UC San Diego stepped up to collaborate and solve problems. As a result, we had another successful year.

This really came home to me as I previewed this newsletter, which is filled with publications, honors and awards. COVID-19 scared us and upended our routines, but it didn't slow us down.

So thank you to everyone – students, faculty and staff – for your hard work and accomplishments. We should all be proud.

On a final note, I cannot end this message without mentioning the first ever **CSE PIXEL ART COMPETITION!** Please put your creative hats on, get inspired and make some Pixel Art. You have until May 30 to enter.

Sorin Lerner, CSE Department Chair



Stay connected with CSE by following our [Twitter](#), [Facebook](#) and [LinkedIn](#) and [Instagram](#) feeds. If you have news to share, story ideas or comments for our CSE Communications Team, please send them to cse-communications@eng.ucsd.edu.

CSE NEWS

Savage Elected to AAAS

Stefan Savage was recently [elected](#) to the American Academy of Arts and Sciences (AAAS) — one of the oldest and most esteemed honorary societies in the country. He is one three UC San Diego faculty to be honored by AAAS this year.

Bandeira Receives Biemann Medal

Nuno Bandeira has been honored with the American Society for Mass Spectrometry's [2021 Biemann Medal](#) for his efforts to create a search engine for mass spec data, which could advance research and drug discovery. The award is given each year to an early career research to recognize their achievements in mass spectrometry.

Understudied Mutations Have Big Impact on Gene Expression

An international team of researchers, including CSE faculty Vineet Bafna and Melissa Gymrek and PhD student Mehrdad Bakhtiani, has identified [163 variable number tandem repeats](#) (VNTRs) that actively regulate gene expression. Published in *Nature Communications* the research provides new insights into this understudied mechanism, how it may drive disease and other traits and the ways it could ultimately impact patient care.

UC San Diego has joined the Bytecode Alliance

UC San Diego [has joined the Bytecode Alliance](#), a nonprofit dedicated to creating new software foundations and building on standards, such as WebAssembly and WebAssembly System Interface. UC San Diego is part of a cross-industry collaboration that supports the alliance, which was incorporated by Fastly, Intel, Mozilla and Microsoft.

Researchers Uncover Spectre Vulnerability

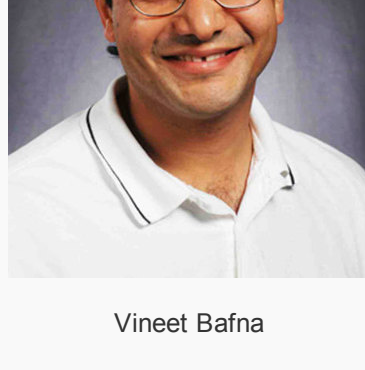
Dean Tullsen and Ph.D. student Mohammadkazem Taram teamed up with University of Virginia computer science researchers to illuminate a line of attack [that breaks current Spectre defenses](#), making billions of computers and other devices vulnerable to attack.

New System Helps Robots Navigate EDs

Laurel Riek, Ph.D. student Angelique Taylor and team have created a [navigation system](#) that helps robots move through busy clinical areas, including emergency departments. The researchers have also developed open source videos to train future robotic navigation systems. The team will present their work at the International Conference on Robotics and Automation.



Nuno Bandeira



Vineet Bafna



Melissa Gymrek

NOTEWORTHY

Jingbo Shang has received an inaugural [Google Research Scholar Award](#) for his project: *Structuring Massive Text Corpora via Extremely Weak Supervision*. The program seeks to foster increased collaboration between Google and the academic community.

Ndapa Nakashole and PhD student Khalil Mrini have received an [Amazon Research Award](#) to develop a voice assistant to improve communication with older adults.

Arun Kumar has also been awarded an Amazon Research Award for his work on [SortingHat](#), which seeks to reduce data preparation times for machine learning applications.

Nearly 20 CSE faculty members and students participated in the recent [SIGCSE conference](#), one of the premier computer science education meetings. CSE reps organized symposia, presented papers and served on panels.

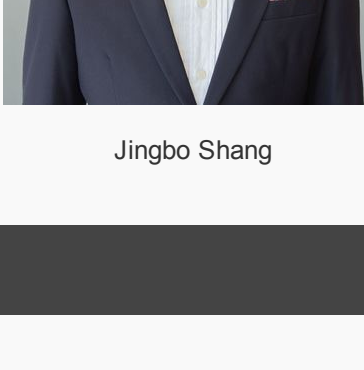
The 2021 [International Conference on Robotics and Automation](#), based in Xi'an, China from May 30 to June 5, has accepted a record number of papers from CSE robotics faculty: Helping robots navigate the ED, making it easier for autonomous drones to fly around obstacles, teaching robots how to suture wounds.

Two UCSD teams placed first and fifth in the recent [ACM/CPC North American Division Championship](#). Both teams will proceed to the next round, based in Orlando.

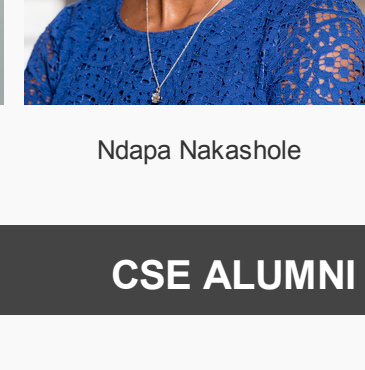
Congratulations to PhD student [Jennifer Chien](#), who has been awarded a six-year [Graduate Fellowship for Stem Diversity](#), which seeks to increase the number of American citizens with STEM graduate degrees.

Additional congrats to PhD student [Alex Gamero-Garrido](#), who has been awarded a [Future Faculty Fellowship](#) at Northeastern University.

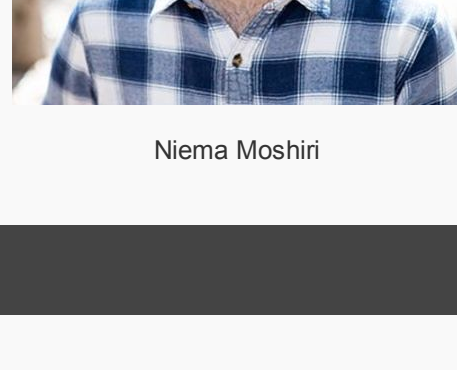
[Vineet Bafna's](#) work on extra-chromosomal DNA and cancer was discussed in a recent article from [The Scientist](#).



Jingbo Shang



Ndapa Nakashole



Niema Moshiri

CSE ALUMNI

Virtual Reunion

The CSE Alumni Virtual Reunion will be held on Saturday, May 22 from 2 to 4 pm. Register [here](#).

Distinguished Alumni Honored at Research Open House

Two alumni were honored at the recent [Research Open House](#) for their contributions to academia and industry. Darrell Long (Ph.D. '88) is a Distinguished Professor of Engineering at the University of California Santa Cruz. Jeff Carter (B.A. '86) is the vice president overseeing relational database services at Amazon.



Darrell Long



Jeff Carter

COMMUNITY IN ACTION



11:59am · 1 Apr 2021 · Twitter Web App

CENTER FOR NETWORKED SYSTEMS

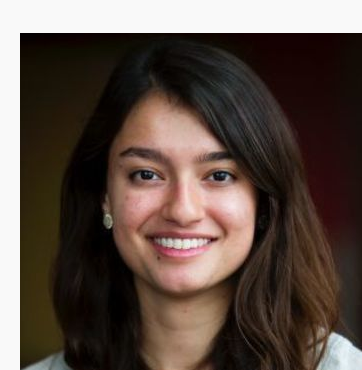
Serverless services, such as AWS lambdas, are a fast-growing part of the cloud market. Their popularity reflects their lightweight nature and scheduling and cost flexibility.

However, serverless computing's security issues are poorly understood. CNS co-Director Stefan Savage, CSE/CNS Ph.D. students Anil Yelam and Ariana Mirian and CSE Alumni Shibani Subbareddy and Keerthana Ganesan explored the feasibility of developing a practical covert channel from lambdas in their paper: [CoResident Evil: Covert Communication In The Cloud With Lambdas](#)

The team established that fast co-residence detection for lambdas is key to enabling a covert channel. Leveraging this knowledge, they developed a reliable and scalable co-residence detector based on the memory bus hardware. This technique enables dynamic discovery for co-resident lambdas and is incredibly fast, executing in a matter of seconds. The researchers can establish hundreds of individual covert channels for every 1000 lambdas deployed, and each of these can send data at 200 bits per second, demonstrating covert communication via lambdas is entirely feasible. The team presented their findings for the [30th Web Conference](#) on April 20.



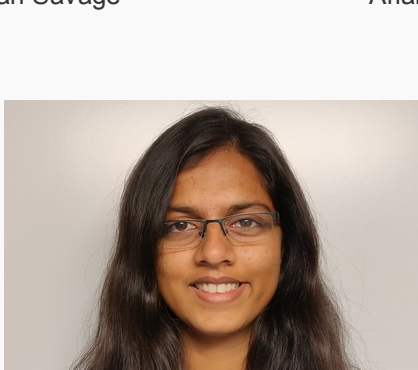
Stefan Savage



Ariana Mirian



Anil Yelam



Keerthana Ganesan



Shibani Subbareddy

CSE VIDEO HIGHLIGHT

Each year, the Scholars Society at UC San Diego holds a [Legacy Lecture](#) to recognize beloved and influential professors. Students are asked to vote for their favorite professor, and the winner gives a lecture from the prompt: *If this were your very last lecture, what would you share with the world?* Niema Moshiri gave the lecture May 1. Check it out below.

Legacy Lecture

If this were your very last lecture, what would you share with the world?

Niema Moshiri
Assistant Teaching Professor
Computer Science & Engineering
UCSD Scholars Society — May 1, 2021

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