

## CSE NEWSLETTER: A LOOK INSIDE THE DEPARTMENT

### Message from the Chair

The beginning of the year is upon us, and our UC San Diego community is working gradually towards in-person operations. I have been in the CSE building increasingly often and have seen students, faculty and staff there, face-to-face, or at least masked-face-to-masked-face.

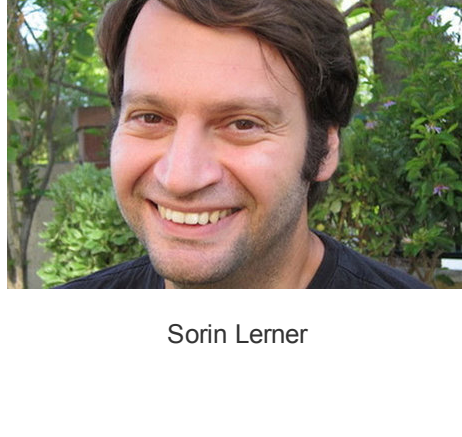
This fall quarter, we are also resuming mostly in-person teaching. Most campus classrooms have been equipped with auto-tracking cameras, so they are Zoom-ready, accommodating students who have to be remote because of COVID (or any other virus – we would all want the cold and flu to be gone but of course they are not). Our outdoor classrooms are in full swing and in high demand. I will make sure to send pictures of them in operation.

My main message is stay engaged with us. We will resume our [CSE Twitch](#) livestreams soon with a new set of guests. You can see the two previous streams on our [YouTube](#) channel, and please follow us on our other social media feeds: [Twitter](#), [Facebook](#), [Instagram](#) and [LinkedIn](#).

Finally, one last comment: email me. Yes, seriously, email me. Tell me where you are now, or tell me your favorite memory or favorite thing about UC San Diego. I will respond, I promise.

Stay strong, stay engaged and do it all with pride and joy.

Sorin Lerner

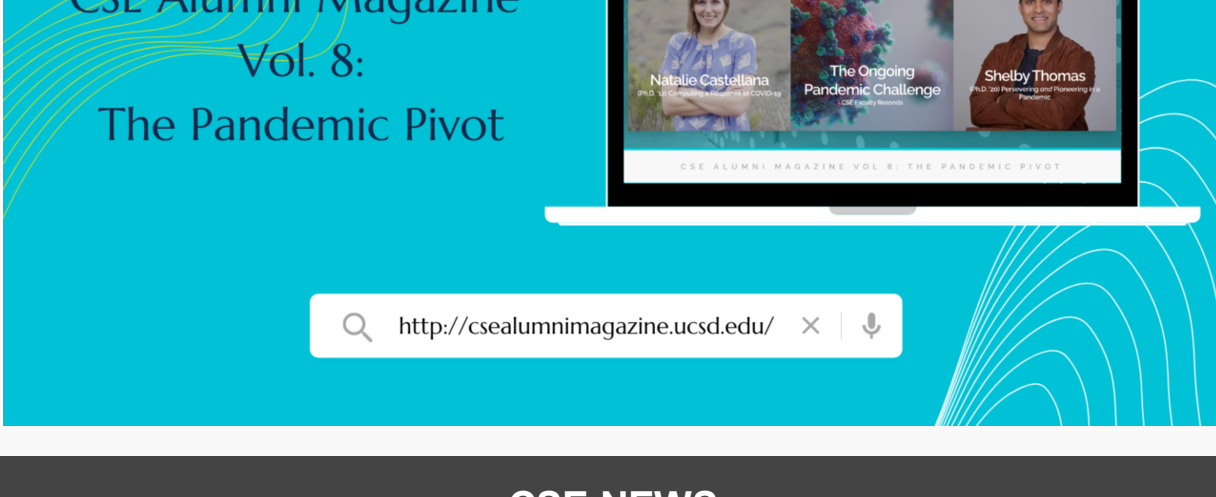


**Sorin Lerner, CSE Department Chair**

### 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](mailto:cse-communications@eng.ucsd.edu).

## CSE Alumni Magazine



CSE Alumni Magazine  
Vol. 8:  
The Pandemic Pivot

<http://csealumnimagazine.ucsd.edu/>

## CSE NEWS

### NSF Invests in AI Research Institute

The National Science Foundation is [contributing \\$20 million](#) to the UC San Diego-based Institute for Learning-enabled Optimization at Scale (TILOS). Located at the Halicioglu Data Science Institute, TILOS will investigate self-driving cars, energy-efficient wireless networks and other AI challenges. Andrew Kahng is PI.

### Savage Brings Home Golden Goose

Stefan Savage has received a [2021 AAAS Golden Goose Award](#), which honors researchers for work that benefits society. In this case, Savage and Tadayoshi Kohno, a researcher at the University of Washington, showed that hackers could disable cars. The award was also covered by the [SDUT](#).

### NSF Grant Supports Data-Friendly Research Platform

The San Diego Supercomputer Center (SDSC) has received a [\\$5 million grant](#) from the National Science Foundation's Office of Advanced Cyberinfrastructure to prototype the National Research Platform (NRP), an actual information superhighway. Tajana Rosing is co-PI.

### Undergrad Bioinformatics Ranks First in the U.S.

[Three undergraduate academic programs](#) at the Jacobs School of Engineering were ranked in the top 10 for undergraduates by *U.S. News and World Report*. The biocomputing, bioinformatics and biotechnology program ranked first in the nation.

### Machine Learning Translates Musical Compositions Between Styles

Shlomo Dubnov and high school student Conan Lu have developed [ChordGAN](#), a conditional generative adversarial network architecture that translates music to different styles. Over the summer, the co-authors presented their work to the Second Conference on AI Music Creativity.

### OpenRooms Scales 3D Image Simulations

Manmohan Chandraker and colleagues have released a new framework called [OpenRooms](#). Freely available to everyone, this new dataset and tools will help users manipulate objects, materials, lighting and other properties for indoor 3D scenes to advance augmented reality and robotics.

### Welcoming Mai ElSherief to CSE

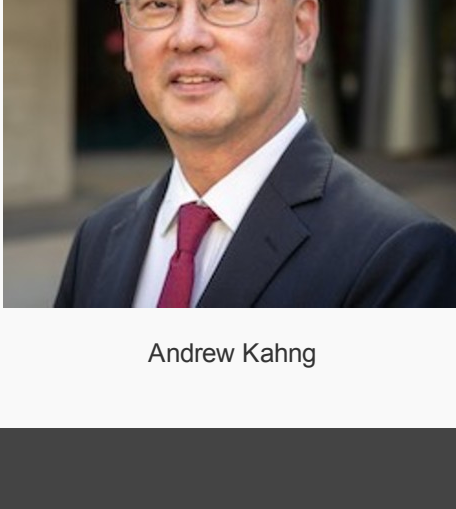
Be positive. Be confident. Be adventurous. And be yourself – all while helping others do the same. This is the mindset new Assistant Teaching Professor [Mai ElSherief](#) brings to CSE. ElSherief arrived in San Diego in June after completing a postdoctoral fellowship at the Georgia Institute of Technology.

### Meet Jingbo Shang

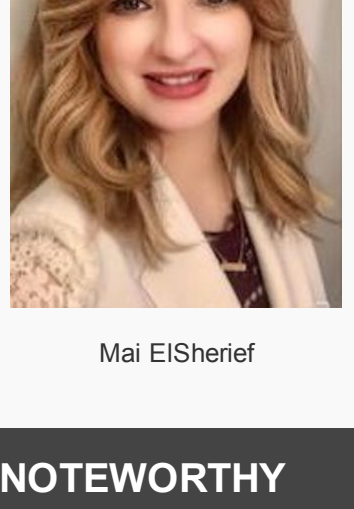
When new Assistant Professor [Jingbo Shang](#) was in fifth grade, he entered a computer programming competition in his hometown, his first foray into computer science. He was using Pascal, a computer language co-developed in the 1970s by former UC San Diego Professor Kenneth Bowles. Foreshadowing?

### CSE Team Qualifies for ICPC World Finals

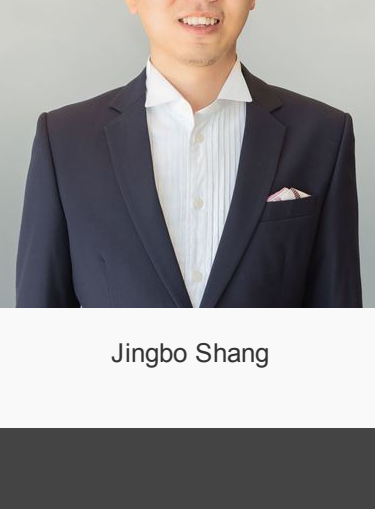
Led by Jingbo Shang, [the CSE team](#) of Zihan Wang, Haihao Sun and Shuxin Chen came in sixth place at the International Collegiate Programming Contest's (ICPC's) North American Championships. The team will now compete in the ICPC World Finals.



Andrew Kahng



Mai ElSherief



Jingbo Shang

## NOTEWORTHY

[Intel Labs](#) has selected [Daniele Micciancio](#) and [Farinaz Koushanfar](#) to lead research teams for their new [Crypto Frontiers Research Center](#).

Recent CSE PhD graduate [Jeremy Blackstone](#) is now an assistant professor at Howard University, where he earned his undergraduate degree. Congratulations Dr. Blackstone.

[Henrik Christensen](#) spoke to [Robo Global](#) about the future of robotics.

Testifying before the [House Committee on Energy and Commerce](#), [Christian Dameff](#), Medical Director of Cybersecurity at UC San Diego, [urged Congress](#) to do more to prevent cyber attacks.

CSE alum [Lewis Anderson's](#) company, Traptic, has developed a [strawberry-picking robot](#) that could help reduce food waste.

Abterra Bio, which was founded by CSE alum [Natalie Castellana](#), uses machine learning to find antibodies with therapeutic potential. The company was recently honored by [Connect](#).

[İlkay Altıntaş](#) is chief data science officer at SDSC and founder and director of UC San Diego's WIFIRE Lab, which applies data science to help fight wildfires. Her work was profiled in the [New York Times](#).

[Rose Yu](#) and [Yian Ma](#) recently won the [Facebook](#) sample-efficient sequential Bayesian decision-making RFP.

[Rob Knight's](#) lab has been using sewage [to detect COVID](#).

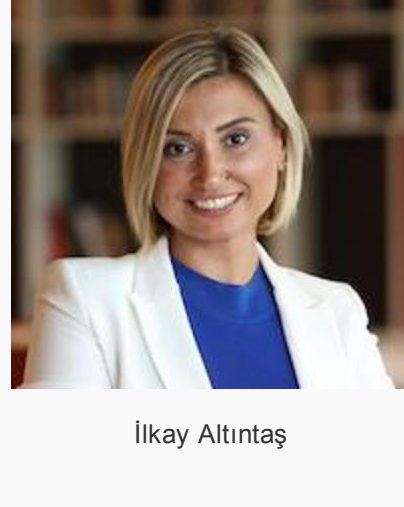
[The Graduate Women in Computing Program](#) has received a \$25,000 Xilinx WIT University Grant, which will support outreach and other efforts.



Stefan Savage



Dr. Jeremy Blackstone and fam



İlkay Altıntaş

## CENTER FOR NETWORKED SYSTEMS

### Improving Algorithms for Side-Channel Cryptanalysis

In side-channel attacks, attackers learn protected information by measuring an external hardware or software artifact, such as execution time or electromagnetic radiation. In cryptographic implementations, side-channel attacks can reveal secret keys and other sensitive information. However, an attacker's measurements may be noisy or imperfect, and they might learn only a few bits of secret information.

But even this small leak can break some cryptographic algorithms. With the DSA and ECDSA digital signature algorithms, an attacker can compute a secret signing key with only a handful of bits leaked each time the victim computes a digital signature. In a beautiful turn of mathematics, this key recovery calculation can be carried out by finding a short vector in an algebraic lattice.

In [On Bounded Distance Decoding with Predicate: Breaking the "Lattice Barrier" for the Hidden Number Problem](#), UC San Diego [CSE/CNS](#) faculty member [Nadia Heninger](#) and Martin R. Albrecht, from Information Security Group, Royal Holloway and the University of London, show how to recover secret keys by providing an algorithm to search the lattice for the key with less information and fewer signatures than was thought possible. Their paper will be presented on October 19 at the Eurocrypt hybrid conference in Zagreb, Croatia.



Nadia Heninger

## BEGINNING OF THE YEAR CELEBRATION



**OCTOBER**

CSE BEGINNING OF THE YEAR CELEBRATION

12:00PM - 2:00PM  
FRIDAY, OCTOBER 1, 2021  
Outside in front of the CSE Building

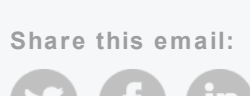
## CSE VIDEO HIGHLIGHT

Check out Sorin Lerner's recent chat with Nadia Polikarpova on our brand new [YouTube](#) channel.



**Let us know what's newsworthy.** We want to hear from you about the projects and people (including students) we should include in newsletters, articles and the CSE website. Let us know what's up at [cse-communications@eng.ucsd.edu](mailto:cse-communications@eng.ucsd.edu).

Share this email:



Manage your preferences | [Opt out](#) using TrueRemove®

Got this as a forward? [Sign up](#) to receive our future emails.

View this email [online](#).

9500 Gilman Dr. MC 0404  
La Jolla, CA | 92093 US

This email was sent to .  
To continue receiving our emails, add us to your address book.

