



Student Security Sleuths Finish at the Top of National Competition

Cal State Fullerton is preparing and training — both inside and outside the classroom — the next generation of “penetration testers” that help a company counter external security threats before malicious hackers attack. As cyberattacks are on the rise, so is the need for cybersecurity professionals who can discover security vulnerabilities before hackers do.

A six-member team of computer science majors, all members of the Offensive Security Society student organization, actually got to hack a corporate network — a fictitious self-driving car company. It was all part of the national Collegiate Penetration Testing Competition, where they posed as hackers.

After a rigorous and intense competition last fall at the Rochester Institute of Technology in New York, the team of undergraduates won second place, with Stanford University finishing in first place.



Physics Student’s Research Highlighted in New Gravitational-Wave Detections

Cal State Fullerton undergraduate physics researcher Teresita Ramirez Aguilar is learning to use supercomputers to create and visualize simulations of colliding black holes that produce gravitational waves — and is making waves of her own. Her research appears in a December 3 announcement by LIGO and Virgo of four new gravitational-wave detections from black-hole mergers.

The simulation that Ramirez Aguilar, a junior, created for the announcement, with research adviser Geoffrey Lovelace, associate professor of physics, uses computer calculations to model the gravitational waves LIGO has observed to date, as well as the black holes that emitted the waves. The image shows the horizons, or surfaces, of the black holes above the corresponding gravitational wave.

Researchers Study How Rainfall Triggers Mudslides on Fire-Ravaged Slopes

Civil engineering student Anthony Gonzalez is studying the impacts to soil following rainfall in Southern California areas reduced to ashes by wildfires — and the risks of barren slopes and hillsides in triggering destructive and deadly landslides, mudslides and debris flows.

“The focus of this research is to try to understand how much water it will take for a mudslide to occur in different scenarios,” Gonzalez said. “We’re researching the impacts to different soil conditions, including



plain soil; soil that contains vegetation, such as plants and grass; and soil with fire ash. From this data, we’re able to analyze slope stability, material strength, slope change, water content in soil and vegetation.”

Combat Veteran, ROTC Cadet Honored for Service and Dedication to Program

Cal State Fullerton ROTC Cadet Mayra Bendavid followed her passion in 2011 and joined the U.S. Army at the age of 28. "I'd always wanted to serve but family responsibilities put it on hold, as I did with my education," she says.

As a combat medic, she served with distinction in Operation Enduring Freedom in Afghanistan, receiving commendations throughout her Army career, including the Afghanistan Campaign, Global War on Terrorism Service and NATO medals.

That passion and experience is reflected in all that the cadet has done as part of the Titan ROTC Battalion — and the reason that she was recently honored as Cadet of the Month by the ROTC Cadet Command 8th Brigade, which oversees cadet units throughout the western United States.



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