By Daniel Kane   Jun 06, 2013

Behind the Scenes: Computer Science and Engineering at UC San Diego

Photos by Erik Jepsen/UC San Diego Publications

Barely 25 years old, the department of computer science and engineering is driven by young and forward-thinking faculty. Computer science research strengths at UC San Diego include machine learning, databases, graphics and vision, systems and networking, security and cryptography, software engineering, bioinformatics, computer architecture, embedded systems and theoretical computer science. Many current computer science and engineering projects are highlighted in the computer science and engineering brochure (PDF).

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According to a recent Microsoft Academic Search ranking, computer science and engineering at UC San Diego is ranked No. 6 among U.S. universities. The department ranked No. 4 in

bioinformatics, No. 7 for network & communication and No. 5 for systems over the last five years, according to the same survey. See more computer science and engineering rankings here.

"Our donor is explicitly calling on us in computer science and engineering to get to the next level, to outperform our previous achievements," said Gupta. "This is exactly what we are doing. This gift is not for what we are, but for what we are going to be."

The computer science and engineering department (CSE) is global in its outlook and impact while being deeply rooted within research, innovation and industry groups on campus, on the Torrey Pines Mesa, and in San Diego, the state of California and beyond.

CSE faculty and students study and work within a rich ecosystem of academic centers and research institutes at UC San Diego including:

- The Center for Networked Systems (CNS)

- The Center for Wireless Communications (CWC)

- The Qualcomm Institute—the UC San Diego division of the California Institute for Telecommunications and Information Technology (Calit2)

- The San Diego Supercomputer Center (SDSC)

Through these organizations and collaborations with industry partners and with the Jacobs School of Engineering's five other departments, and much of the rest of campus, CSE researchers conduct large-scale, interdisciplinary research projects that are shaping the future of computing and society. Ongoing large-scale, multi-institution federal awards won by computer science and engineering faculty include:

- The Center for Evidence-based Security Research, an NSF Frontiers project to map out the illicit activities taking place in the cybersecurity underworld and understand how the mind of a cybercriminal works.

- The Temporal Dynamics of Learning Center, an NSF project focused on unraveling the mysteries of learning.

- The Variability Expedition, an NSF initiative aimed at changing the way software interacts with hardware in order to make computing systems more robust and reliable.

- The Center for Computational Mass Spectrometry, an NIH project to develop algorithms and software for deciphering all the proteins present in biological samples to improve vaccine
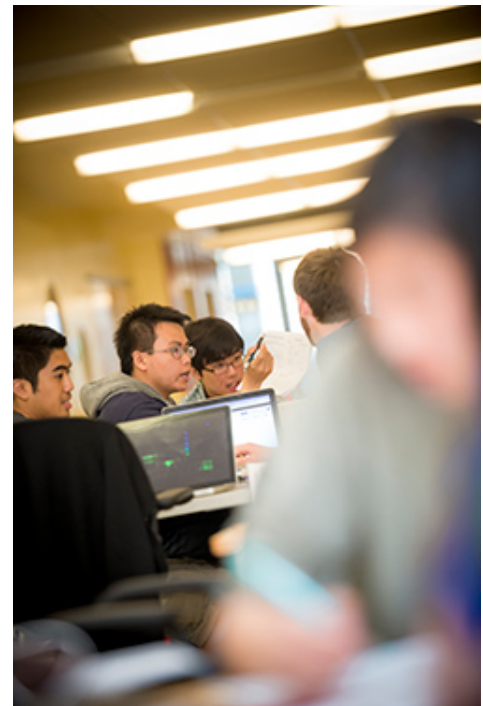
development, cancer diagnostics and more.

- The storage thrust of the Center for Future Architectures Research, and the SmartCities theme of the TerraSwarm Research Center. Both centers are supported by the STARnet phase of the Focus Center Research Program (FCRP), a Semiconductor Research Corporation program sponsored by MARCO and DARPA.

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