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engineering news

School of Engineering

SUMMER 17

SANTA CLARA UNIVERSITY

DEAN'S MESSAGE

Recently I presented my annual State of the School Address (scu.edu/engineering/about) at our Senior Design Conference. Outlining not just this year's changes, I also recapped the decade of change the School has experienced during my tenure as dean of engineering and took a look at what's ahead.

Of the many changes we've experienced in the past 10 years—50 percent enrollment growth; 38 new faculty members; 15 new degrees, minors, and certificate programs, to name just a few—what astounds me is the growth of computer engineering and projections for its future. Cloud computing, big data collection and storage, and increased connectivity of everyday objects to the Internet of Things is driving a hiring boom for computer engineers. National employment projections from the Bureau of Labor Statistics predict more jobs generated in computing between 2014 and 2024 than in all other STEM fields combined. As the field explodes, our computer engineering department has doubled its full-time faculty, added 11 new research and teaching areas, and continues to change, as does the rest of the School.

It has been a decade of change and there is more to come. This fall, the School welcomes a new dean, Alfonso Ortega, who will oversee the next era of SCU engineering. Here's wishing him and all of Bronco engineering the very best in the years ahead.

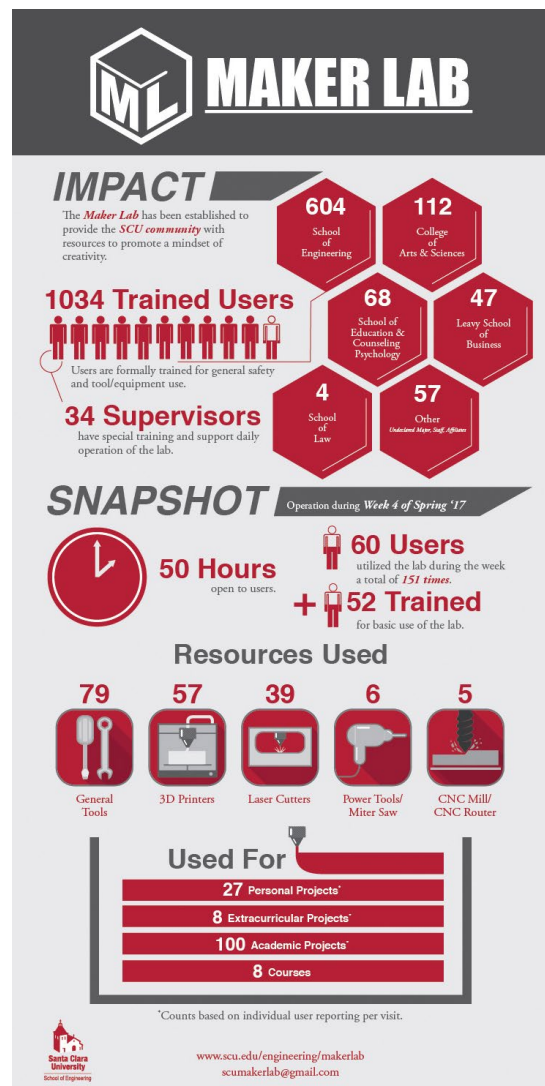
Godfrey Mungal
Dean
School of Engineering

Making the Grade

Pop your head into SCU's Maker Lab and you might see any number of lively activities: a 3D printer training session; IEEE club members working on their entry for the Micromouse Competition; electrical, computer, and mechanical engineering students at open lab hours supporting classwork; credential students from the School of Education gaining new skills and approaches to learning they can take into the classroom as new teachers; individuals, pairs, and teams working on personal projects that just might be "the next big thing"; or a group of middle schoolers being introduced to a whole new world of Making. During Week Ten of the spring quarter, the lab was open 72 hours to students, faculty, and staff across campus, but still couldn't keep up with demand. Repeatedly, dozens were turned away when maximum capacity was met. As a popular campus collaboration space, the Maker Lab is definitely making the grade!

Lab Manager Anne Mahacek '13 M.S., mechanical engineering, loves the collaborative vibe of the Maker Lab. "I like the fact that it's open to the whole university and creates an environment that encourages discussion, trying new things, and just hanging out," she said. "People help each other here. One may know nothing about the actual project another is working on but might have a tip about how to use a tool, or input on how they had worked through a particular problem."

Santa Clara isn't the only community benefiting from this spirit of collaboration. Recently, Christopher Kitts, lab director and associate professor of mechanical engineering, hosted faculty and administrators from 18 fellow institutions for a University Maker Workshop. Participants brainstormed ways to better use makerspaces to advance innovation and



entrepreneurially minded learning. "The creation of physical prototype is critical to communicating ideas, engaging those you are trying to serve, and fostering discovery and innovation," said Kitts.

Discovery and innovation. The Maker Lab is making it happen!

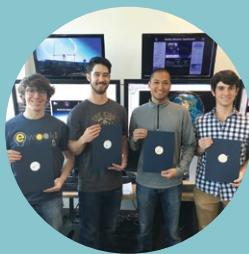
HIGHLIGHTS FROM AY 2016–2017

Faculty



Hisham Said (civil engineering) Outstanding Reviewer Award for ASCE's Journal of Computing in Civil Engineering

Students



Robotics Systems Laboratory students received a NASA Group Achievement Award, conducted mission operations for 2 NASA satellites, and were selected to control NASA's EcAMSat spacecraft launching in September

Alumni



Matthew Blanco '12, MS '15, MBA '16 (bioengineering) was an invited speaker at the XXIV Annual Pacific Voice Conference



Hohyun Lee (mechanical engineering) spent his sabbatical as program manager for National Institute of Standards and Technology's Smart Grid Program Office

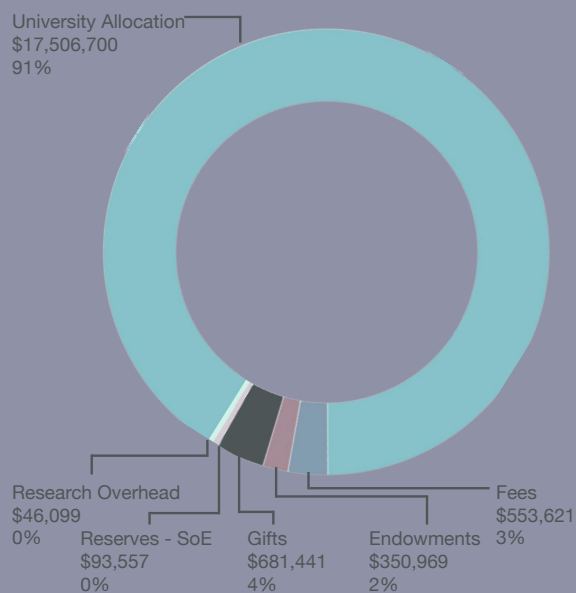


Peter P. Nghiem (computer engineering Ph.D. candidate) had one of the top 5 most downloaded articles in the *Journal of Parallel and Distributed Computing*

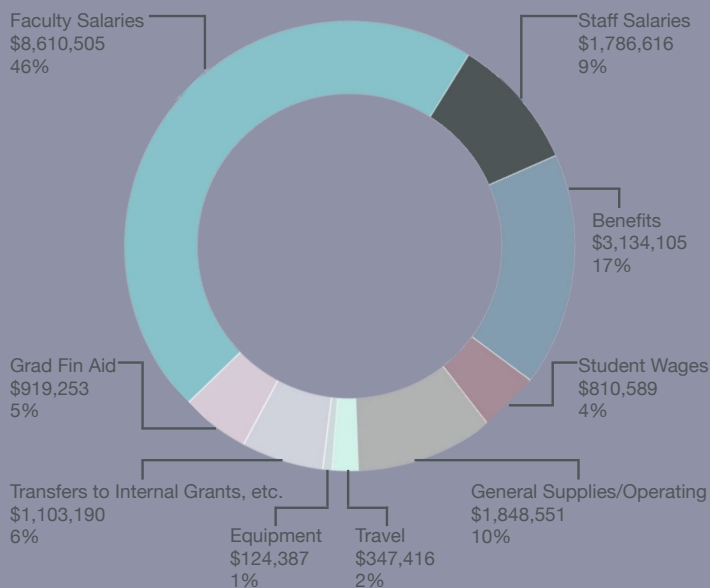


Victoria K. Teng MS '99 (engineering management and leadership) awarded patent for cloud systems security

FY 2015-16 Revenue Sources – \$19,232,388



FY 2015-16 Expense Categories – \$18,684,612



Undergraduate Enrollment

992



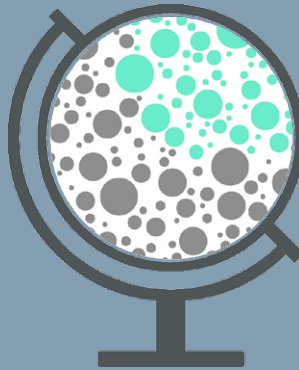
Graduate Enrollment

981



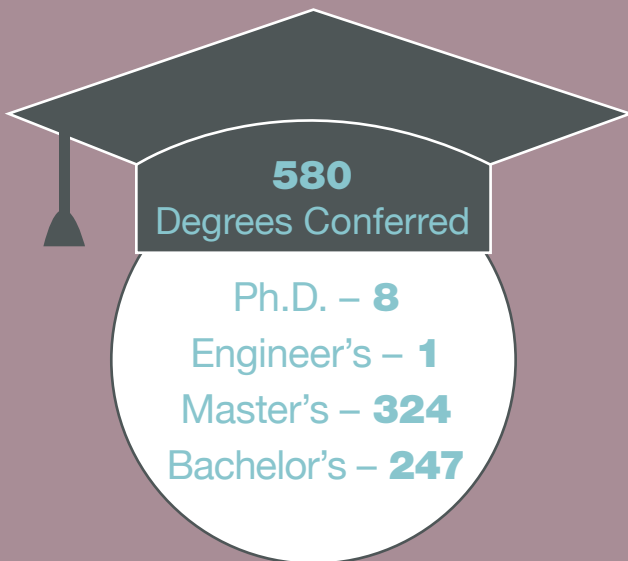
28%

Underrepresented Minorities in Undergraduate Programs



8%

Underrepresented Minorities in Graduate Programs



<https://www.scu.edu/engineering/2016-17> for additional facts and figures from AY 2016-2017



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The Jesuit University in Silicon Valley



Photo: Heidi Williams

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Doctor of Philosophy Degrees Conferred in 2016-17

Computer Engineering:

Yong Chen

Thesis: *Supernode Transformation on Parallel Systems with Distributed Memory – An Analytical Approach*

Prior Degree: M.S., San Francisco State University

Advisor: Weijia Shang, Ph.D.

Vishnu S. Pendyala

Thesis: *Evolving a Truthful World Wide Web: Establishing the Veracity of Information on the Web for Humanitarian Causes*

Prior Degree: M.S., San Jose State University

Advisor: Silvia Figueira, Ph.D.

Computer Science and Engineering:

Peter Phung Phu Nghiem

Thesis: *Towards Efficient Resource Provisioning in Hadoop*

Prior Degree: M.S., Santa Clara University

Advisor: Silvia M. Figueira, Ph.D.

Electrical Engineering:

Antonis Avgoustinos Orphanou

Thesis: *Carbon Nanotube Untracpacitor Characteristics and Cell Design*

Prior Degree: M.S., University of Arizona, Tucson

Advisor: Cary Y. Yang, Ph.D.

Electrical Engineering - Cont.

Anshul Ashok Vyas

Thesis: *Carbon Nanotube Vias for End-of-Roadmap Technology Nodes*

Prior Degree: M.S., Santa Clara University

Advisor: Cary Y. Yang, Ph.D.

Mechanical Engineering:

Jasmine L. Cashbaugh

Thesis: *Cluster Control of a Multi-Robot Tracking Network and Tracking Geometry Optimization*

Prior Degree: M.S., Purdue University

Advisor: Christopher Kitts, Ph.D.

Michael Alan Neumann

Thesis: *Hybrid Force Position Control Architecture for Object Transportation by Mobile Robot Formations*

Prior Degree: M.S., Santa Clara University

Advisor: Christopher Kitts, Ph.D.

John T. Shepard

Thesis: *A Framework for Collaborative Multi-Task, Multi-Robot Missions*

Prior Degree: M.S., Santa Clara University

Advisor: Christopher Kitts, Ph.D.