

## Santa Clara University Scholar Commons

---

Engineering News

SCU Publications

---

Summer 2018

# Engineering News, Summer 2018

School of Engineering

Follow this and additional works at: [https://scholarcommons.scu.edu/eng\\_news](https://scholarcommons.scu.edu/eng_news)

 Part of the [Engineering Commons](#)

---

### Recommended Citation

School of Engineering, "Engineering News, Summer 2018" (2018). *Engineering News*. 42.  
[https://scholarcommons.scu.edu/eng\\_news/42](https://scholarcommons.scu.edu/eng_news/42)

This Book is brought to you for free and open access by the SCU Publications at Scholar Commons. It has been accepted for inclusion in Engineering News by an authorized administrator of Scholar Commons. For more information, please contact [rscroggin@scu.edu](mailto:rscroggin@scu.edu).



# engineering news

School of Engineering

SUMMER 18

## SANTA CLARA UNIVERSITY

### DEAN'S MESSAGE

As we wrap up Academic Year 2017-2018, it is a good time to take stock.

From my first days as Dean of the School of Engineering, I believed that a vision of SCU Engineering would evolve from a focus on four distinct areas, or pillars, of our program: Curricula/Co-Curricula, Discovery/Research, Innovation/Entrepreneurship, and Humanitarian Engineering/Service (see page 2). Working with students and faculty over the past year, I am further convinced that these pillars are the support structure upon which we will build a stronger brand for Santa Clara Engineering, which in turn will lead to increased engagement with Silicon Valley partners for educational, research, and philanthropic advancement.

We look forward to seeing a number of initiatives that arose this year fleshed out—among them, the Community for Innovation and Entrepreneurship—and determining how to institutionalize and scale curricular and co-curricular programs in that arena. Our focus is on developing an entrepreneurial mindset which will serve our students well whether they launch their own companies, become innovative “intrapreneurs” within large corporations, or bring creative engineering solutions to needy communities. And the goal is to see that each engineering student experiences the startup process realistically, taking a concept through fully funded channels—an idea incubator, a mentored accelerator, and eventually to a pitch in front of Silicon Valley entrepreneurs.

Our shared vision for SCU Engineering will evolve over the next year, and we look forward to every minute of it!

Alfonso (Al) Ortega, Ph.D.  
Dean  
School of Engineering

### Jumpstarting a Startup

On a spring weekend, when undergraduates and graduate students might have been catching up on sleep or homework, or binge-watching the latest Netflix series, 75 intrepid entrepreneurs dove into SCU's Startup Weekend, working nearly nonstop for 55 hours to help a handful of hopefuls get their ideas off the ground.

Patterned after a similar program at CalPoly, the cross-disciplinary event was created by the student organization BroncoDesign, in collaboration with other campus groups. “We had about 50/50 representation from engineering and business,” said engineering junior Will McMullen, University Innovation Fellow and BroncoDesign President. Professional mentoring from deep tech VC firm Propel(x) was available. Sponsors included Dolby, OneWorkplace (an SCU-founded company), Autodesk, KEEN (a network of faculty transforming engineering education together), and uBridge, an SCU-launched social networking app for entrepreneurial business and engineering students. Silicon Valley VC associates, product designers, and startup founders were recruited to serve as judges.

Beginning with 30-second idea pitches from budding entrepreneurs, the top 10 ideas were selected, and individuals rallied around the various projects. McMullen explained that to help guide the process, the organizers held “half-hour workshops interstitially throughout the weekend pertaining to the various aspects of starting a company—team formation, customer validation, rapid prototyping, and user experience—to get teams involved in learning while also doing.” On Day Two, teams ventured out to local restaurants, malls, and across campus to conduct interviews, gaining invaluable customer insight to improve their ideas.

Sunday morning began with a Pitch Workshop in preparation for later presentations before the judges. Awards were presented for most innovative,



Photo: BroncoDesign

SCU event helps entrepreneurial hopefuls get their ideas off the ground.

best business model, and best overall. Taking the best overall prize was Firetrack, a vital signs sensor designed to alert firefighters to dangerous stress levels that can affect coherent decision making. “Their challenge was figuring out the tech and packaging the sensors and communication devices at a competitive price point. They came up with a compact and elegant package—a Bluetooth earbud to fit with standard helmets,” said McMullen.

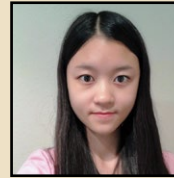
“There are so many great outcomes from the Startup Weekend,” he continued. “Two of the teams that pitched are still together, grinding it out to make their ideas reality. We plan to make this a regular thing at SCU, and BroncoDesign will hold a designathon in the fall, as well. It’s really cool to see what can happen when you pair the go-getter attitude of engineering students with the go-getters from the business school. It’s amazing how far that collaboration can go!”

Learn more about SCU Engineering's Innovation and Entrepreneurship programs:  
[scu.edu/engineering/about/innovation-and-entrepreneurship/](http://scu.edu/engineering/about/innovation-and-entrepreneurship/)

# Highlights from 2017-2018

## 2018 Kuehler Awards

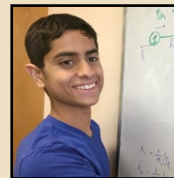
Each summer, a handful of faculty members invite promising undergraduate students to join them as paid researchers, funded by the Kuehler Undergraduate Research Grant. Here are this summer's projects. For more information: [www.scu.edu/research](http://www.scu.edu/research)



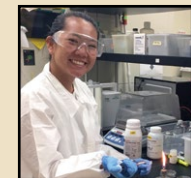
**Dynamic Virtual Machine Allocation Policy to Secure Multi-Tenant Cloud with Resource Optimization**  
Advisor: Yuhong Liu  
Student: Ruiwen Li, Computer Science & Engineering



**Continuous and Integrated Imaging of the Microfluidic Sensors for the Measurement of Physiological Parameters in the Body**  
Advisor: Emre Araci  
Student: Tehmi den Braven, Bioengineering



**Theoretical Modeling of Micro-Swimmers in Complex Media**  
Advisor: On Shun Pak  
Student: Shreyes Nallan, Electrical Engineering



**Microplastics Eating Bacteria**  
Advisor: Jonathan Zhang  
Student: Brie Goo, Bioengineering



**Myoelectric Muscle Sensing and Prosthetic Control**  
Advisor: Christopher Kitts  
Student: Jamie Ferris, Mechanical Engineering



**Wearable Energy Harvester for Self-Powered Prosthesis**  
Advisor: Hohyun Lee  
Student: Joshua Vincent, Bioengineering



**3D Nano-Scale Analysis of Ultrasonic Bonding Interface**  
Advisor: Panthea Sepehrband  
Student: Brandon Vangogh, Mechanical Engineering

## What We Do &

Curricula/  
Co-Curricula

Discovery/  
Research

Innovation and  
Entrepreneurship

Humanitarian  
Engineering/  
Service

## Undergraduate Programs

**967**  
enrollment

Female Enrollment  
**29%**



**B.S. Conferred 273**  
**Retention Rate 96%**

## Graduate Programs

**951**  
enrollment

Female Enrollment  
**38%**

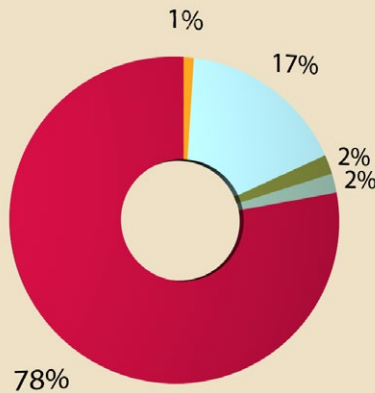


**M.S. Conferred 331**  
**ENGR. Conferred 1**  
**Ph.D. Conferred 5**

## Revenue and Expenses

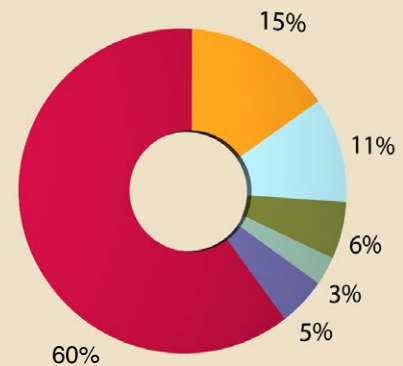
**FY18 Revenue**  
**\$20,202,479**

- Other
- Gifts
- Endowments
- Fees
- University Allocation



**FY18 Expenses**  
**\$18,210,786**

- Benefits
- General Supplies/ Operating
- Other
- Transfers to Internal Grants, etc.
- Grad Financial Aid
- Faculty/Staff Salaries



# Who We Serve

### BS Engineers

Professional engineering path, future engineering management/law medicine

### BS Entrepreneurs

Future entrepreneurs, Engineering/Business/Innovation & Entrepreneurship

### BS Researchers

Graduate school bound, interested in working in R&D

### MS Professional

Mostly part-time working students, goal is to work in Silicon Valley

### Doctoral Researchers

Mostly part-time working students, desire to achieve doctoral status



Santa Clara University  
500 El Camino Real  
Santa Clara, CA 95053

Nonprofit  
Organization  
US Postal  
PAID  
Permit No. 22  
Santa Clara, CA

The Jesuit University in Silicon Valley



Photo: Heidi Williams

**GIVE TO SCU ENGINEERING**  
[scu.edu/engineering/give](http://scu.edu/engineering/give)



## Ph.D. Degrees Conferred in 2017-18

### Computer Engineering:

#### Yogesh Jhamb

Thesis: *Machine Learning Models for Context-Aware Recommender Systems*

Prior Degree: M.S. Computer Engineering, Santa Clara University, 2007  
Advisor: Dr. Yi Fang

#### Olayinka Sylvia N'guessan

Thesis: *Human Attention Regions of Interest in Video Compression*  
Prior Degree: M.S. Computer Science, Texas A&M University, 2006  
Advisor: Dr. Nam Ling

#### Poongovan Ponnavaikko

Thesis: *Delay-Constrained Energy Optimization in High-Latency Sensor Networks*  
Prior Degree: M.S. Telecommunications, University of Colorado, 2002  
Advisors: Dr. Sarah Kate Wilson and Dr. Ahmed Amer

### Computer Science and Engineering:

#### Madhusudan Kalluri

Thesis: *Rate-Distortion Optimization for Sparse Coding in Image Compression*  
Prior Degree: M.S. Electrical Engineering, Villanova University, 1994  
Advisor: Dr. Nam Ling

### Mechanical Engineering:

#### Michael Alan Neumann

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

Prior Degree: M.S. Mechanical Engineering, Santa Clara University, 2008  
Advisor: Dr. Christopher Kitts



Photo: Nicole Morales

From left: Poongovan Ponnavaikko, Michael Alan Neumann, Madhusudan Kalluri, Olayinda Sylvia N'guessan, Yogesh Jhamby