2019 State of the School

Ron Danielson, Ph.D.

Interim Dean School of Engineering

Only at Santa Clara: What Makes Us Different

- **We educate, collaborate, innovate**
    - In service of humanity
    - Built on Jesuit values
    - To solve the world's most pressing problems
- **Now and for the future**

Bronco Engineering: Our Vision

- Educate the whole person to solve society's most complex problems

- Educate entrepreneurial thinkers who will build a more just, humane, and sustainable world
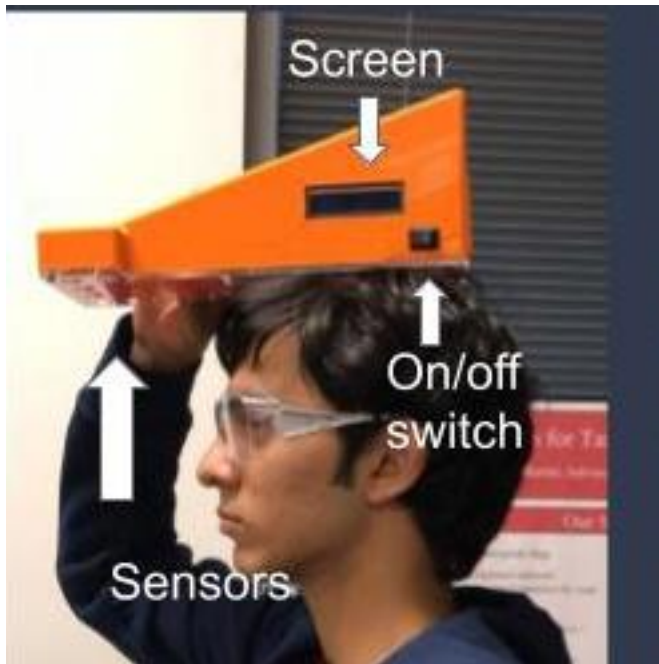
ENGR 110: Portable stadiometer to record height quickly for Pediatric Wellness Group, Redwood City


Engineers Without Borders: Multiple-year projects for female-led tile making cooperative, Rwanda

Bronco Engineering: Our Mission

Prepare diverse students for professional excellence, responsible citizenship, and service to society through:

- distinctive academic programs
- broadly educated faculty
- scholarly activities that create new knowledge and advance the state of the art of technology
- interactions with professional societies and companies in Silicon Valley and beyond
- service activities that benefit diverse constituencies
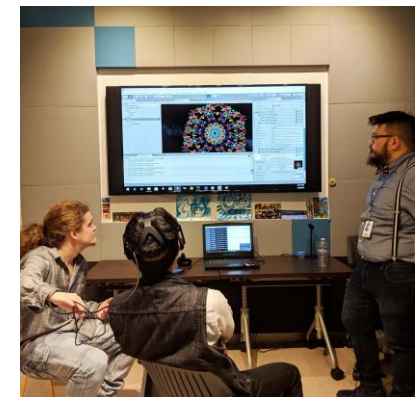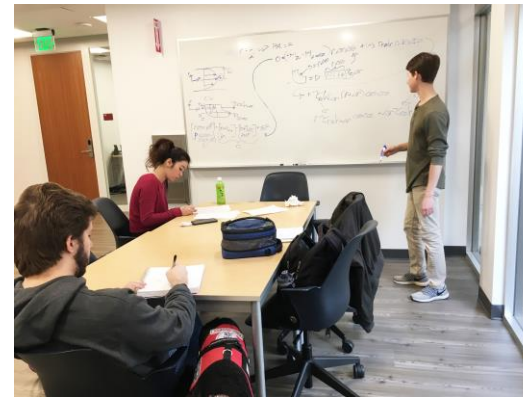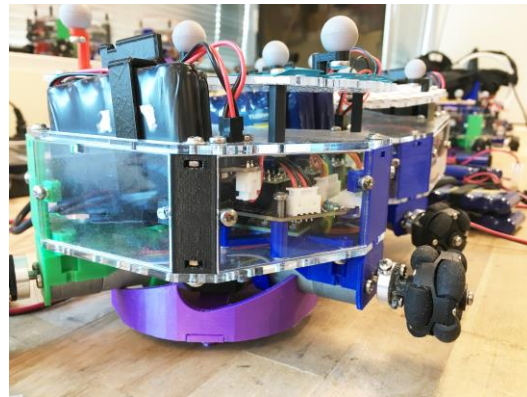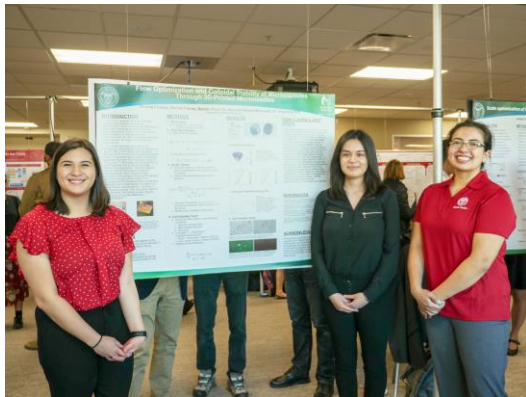
Diversity and Inclusion

Committed to recruiting, retaining, and supporting a diverse community of students, faculty, and staff to foster an environment that:

- fuels intellectual growth
- stimulates creative and critical thinking
- nurtures empathy and respect
- enhances growth
- prepares students for future personal and professional growth

New undergraduate class:

Diversity and Innovation in STEM

Story DeWeese '19 and Mariah Manzano '20 co-chair SWE++, a program introducing computer science and coding to girls from nearby middle schools every Saturday in spring

Shani Williams, Allen Shelton, Amritpal Singh, Mai Sinada, and Lavelle Simmons were awarded the **DeNovo Fellowship**, encouraging underrepresented students to participate in research projects

Our Students

- ~950 undergraduate students

- 19% of total undergraduate population

- 270 women students; 29%

- 290 underrepresented minorities; 30%

- ~840 graduate students

- Master's & Ph.D. programs

- 5 year BS/MS program option

- New Master's in Aerospace Engineering

Undergraduate Degrees

- Bioengineering
- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Engineering
- Mechanical Engineering
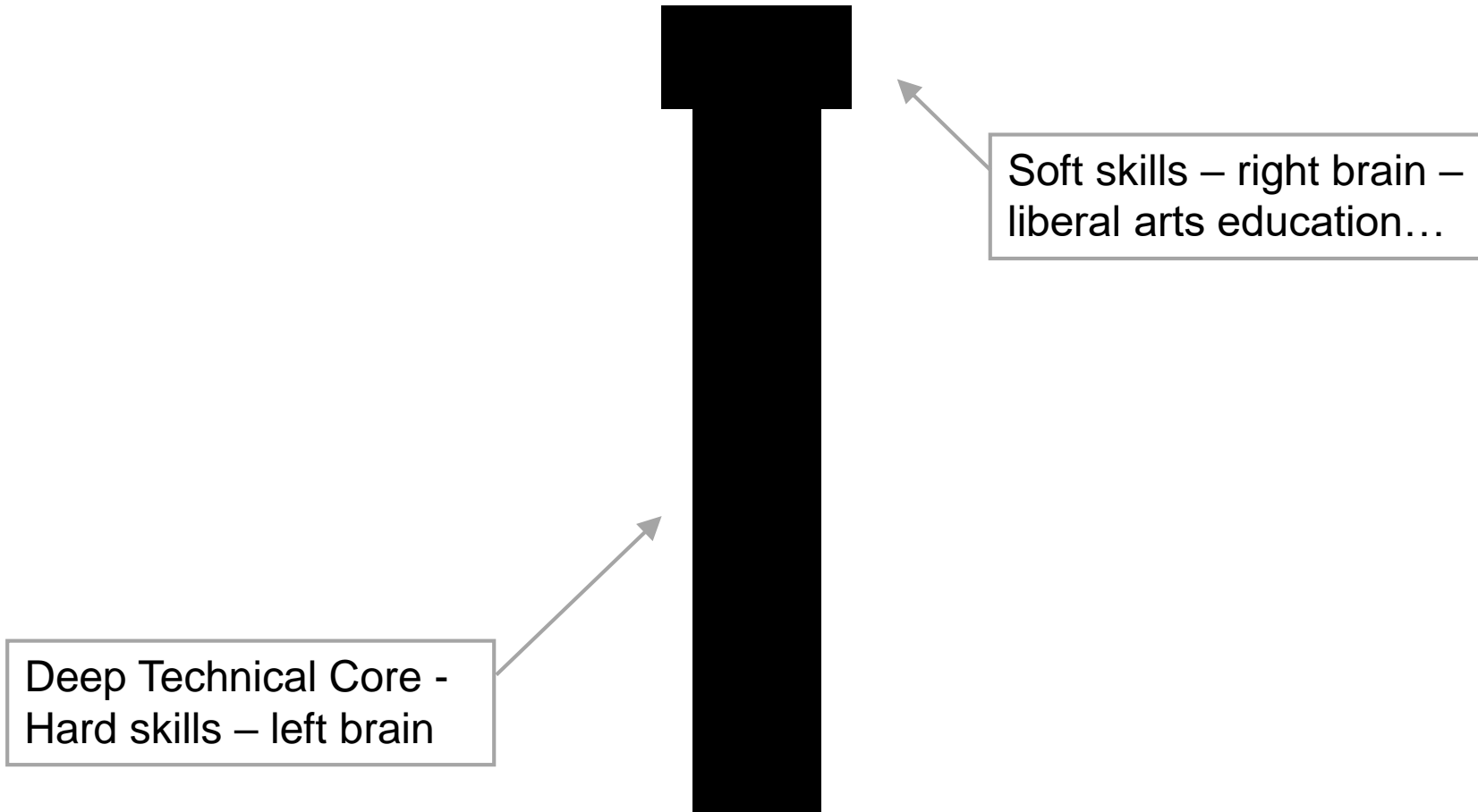- Web Design and Engineering

3 Cs*, 3 Hs, 1 T

- **3 Cs**
  - Competence
  - Conscience
  - Compassion
- **3Hs**
  - Head
  - Heart
  - Hands
- **1 T**
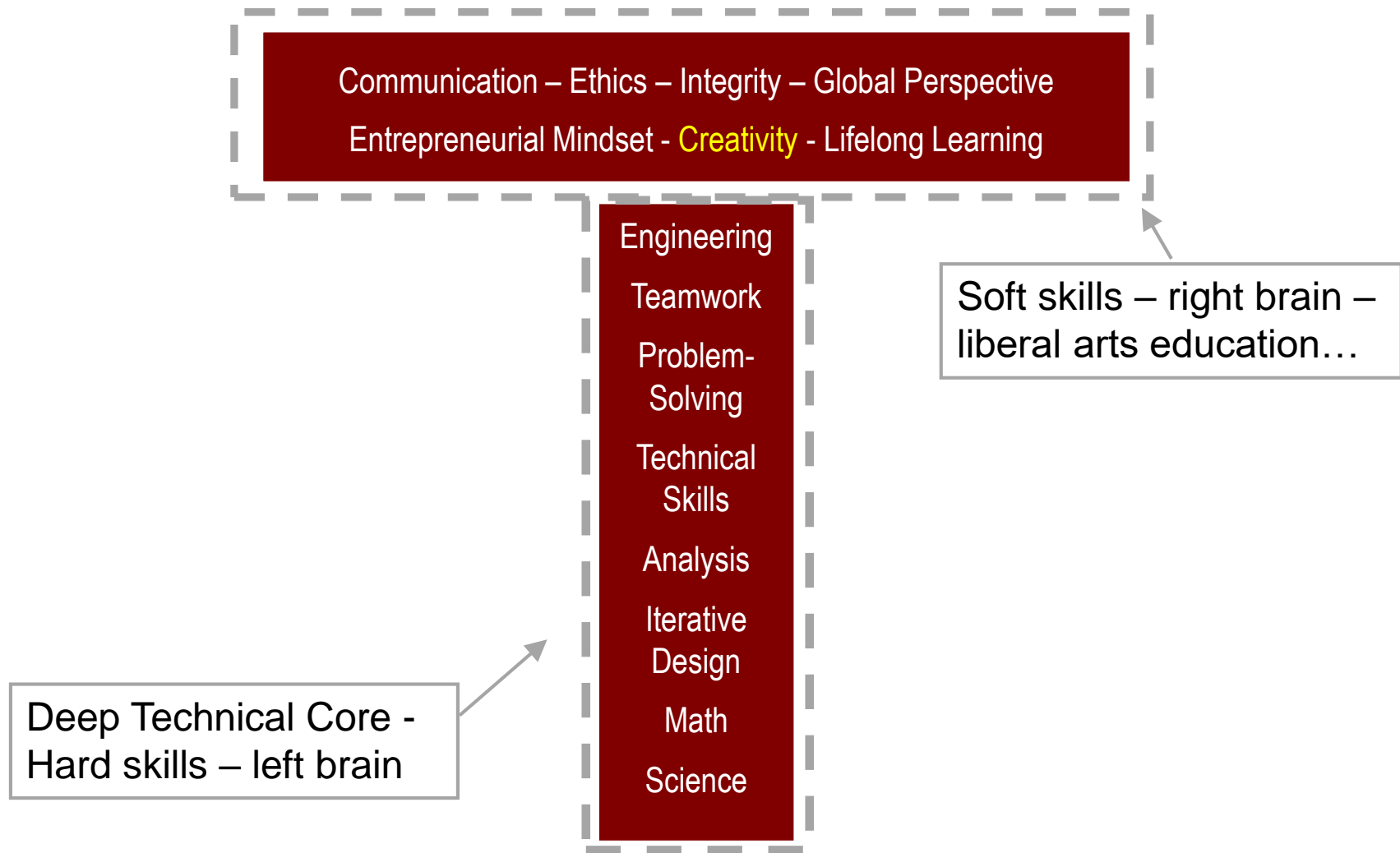 - Models technical depth and educational breadth

*Full disclosure: 3 more Cs ahead!

Most Engineering Schools' T Model

Soft skills – right brain – liberal arts education…

Deep Technical Core - Hard skills – left brain

Santa Clara's T Model: Jesuit education of the "whole person"

Communication – Ethics – Integrity – Global Perspective

Entrepreneurial Mindset - Creativity - Lifelong Learning

Engineering

Teamwork

Problem-Solving

Technical Skills

Analysis

Iterative Design

Math

Science

Soft skills – right brain – liberal arts education…

Deep Technical Core - Hard skills – left brain

Santa Clara University

*3 more Cs: The Entrepreneurial Mindset

- Curiosity
- Connections
- Creating Value

Fostering an *Entrepreneurial Mindset*

Chris Kitts

Entrepreneurial mindset – engineering not just to solve a problem but to do so in order to create real value

Current state:

- Design Thinking Core Curriculum Pathway and a Technical Innovation Minor
- Technical elective, core curriculum, and 1-unit "bite-sized" courses
- Robust extra-curricular and faculty development programs

2018-19 Update

- ~45% of undergraduates in the University are in the Design Thinking Pathway
- 8 students will graduate with the Minor – first full year it has been offered
- New undergrad course in "innovation theology"
- 4 faculty presented work at the 2019 National KEEN Conference

New in 2019-20:

- Integration of activities with the revamped Center for Innovation and Entrepreneurship as well as the new SCU Technology Innovation Center

KEEN
KERN ENTREPRENEURIAL
ENGINEERING NETWORK

2019 Senior Design Projects
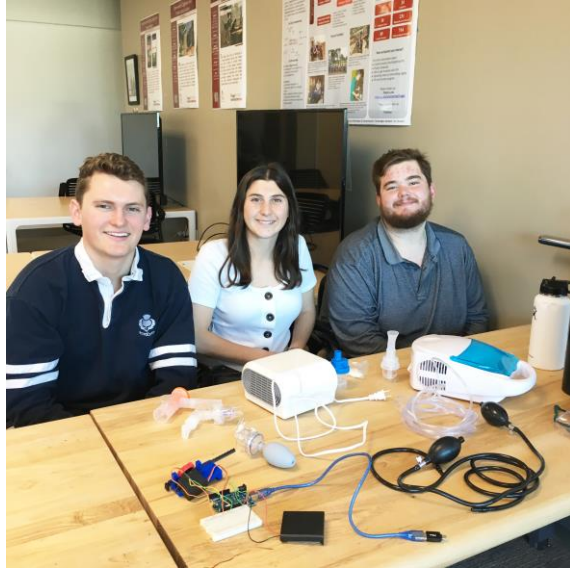
Improving pediatric patient compliance with nebulizer use

Fire resilient housing and town-wide measures for Paradise, CA

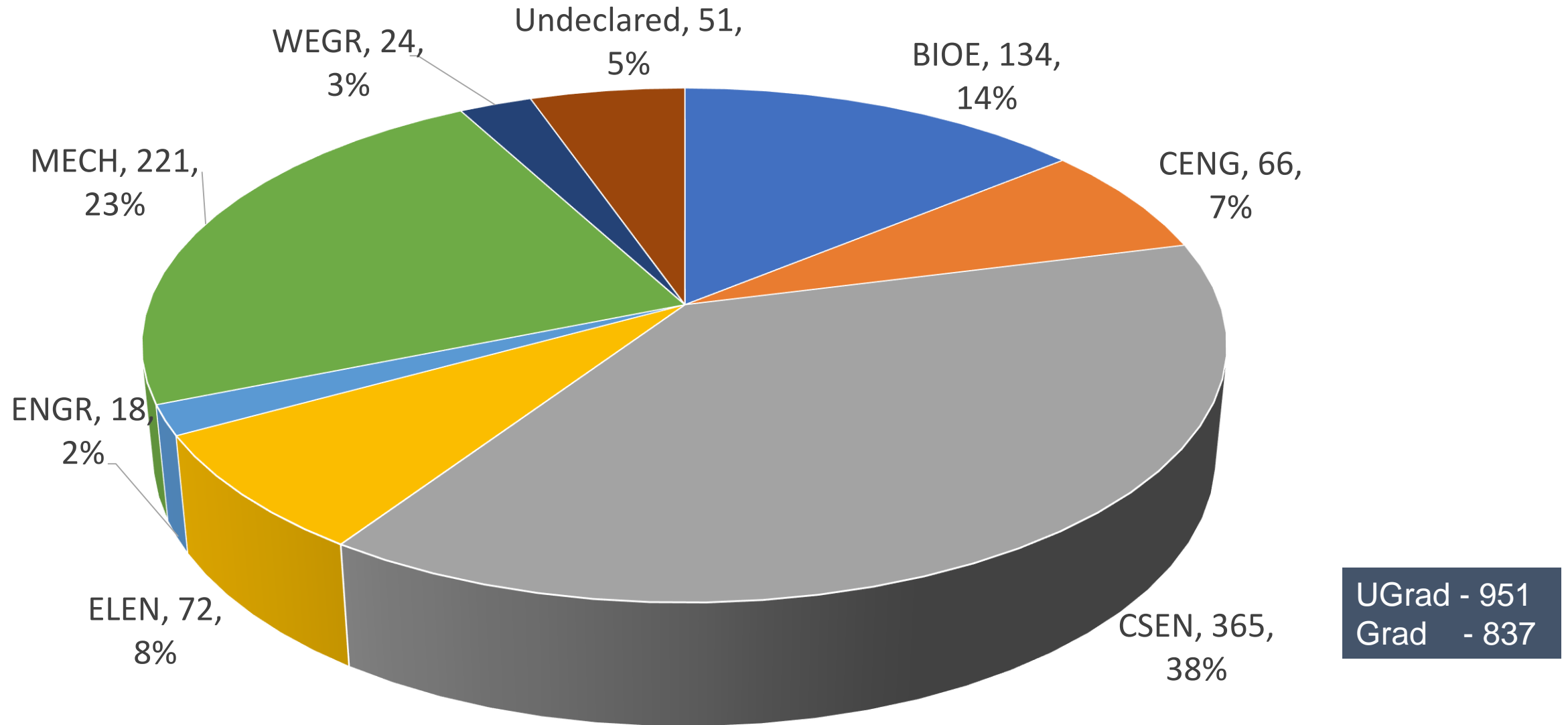**Using EEG technology and improv software to create music**

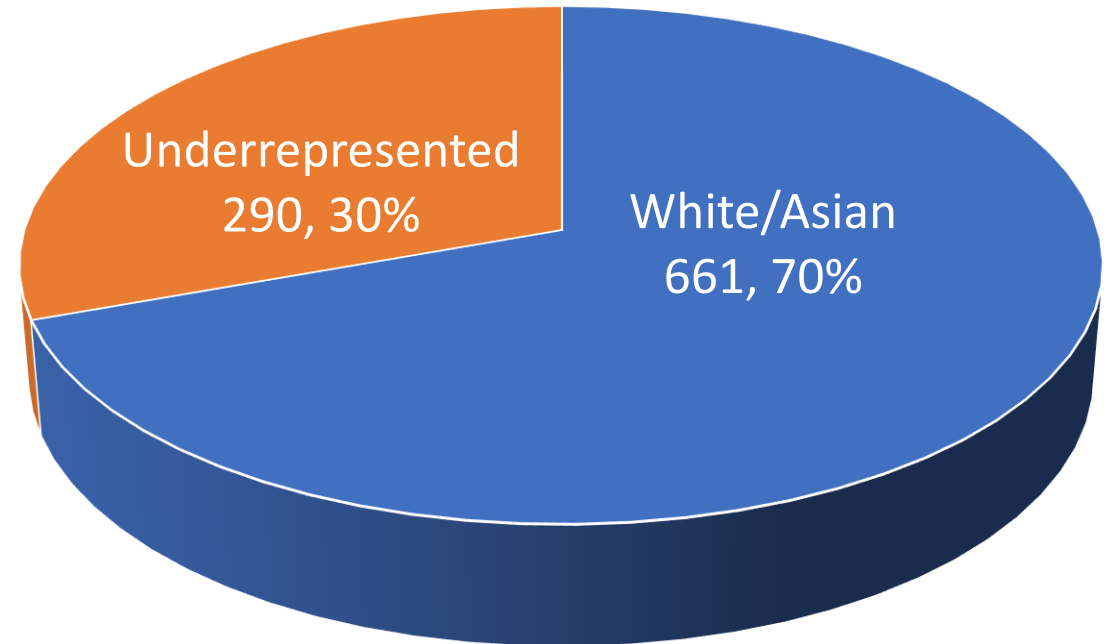**204** students   **71** teams   **35** engineering faculty advisors   **8** non-engineering faculty advisors
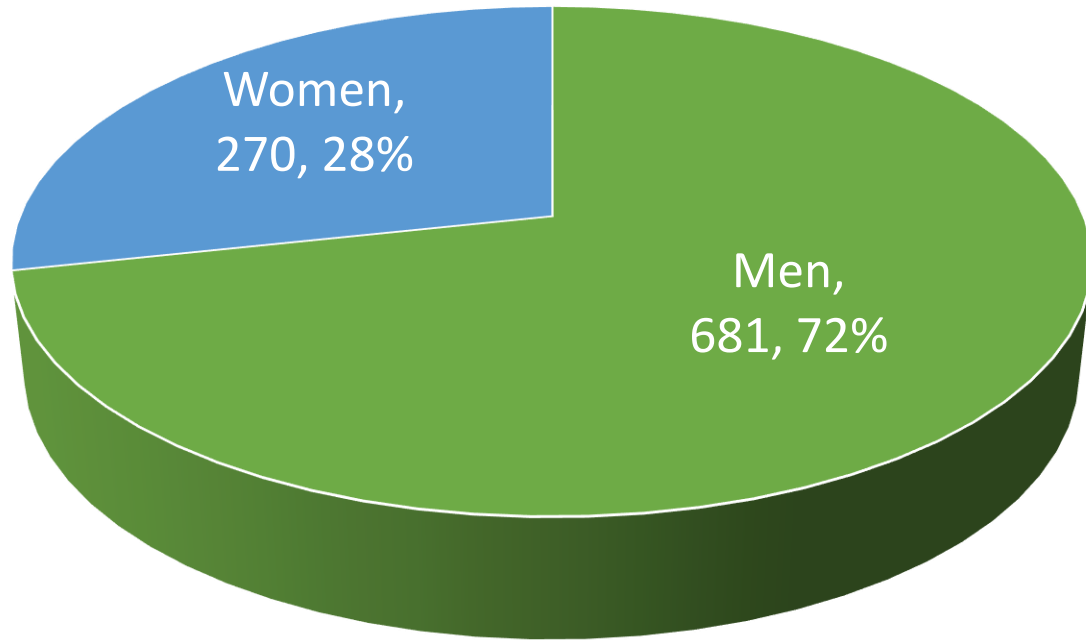
Santa Clara University

2018-19 Undergraduate Enrollment, Fall 2018: 951

- Undeclared, 51, 5%
- WEGR, 24, 3%
- MECH, 221, 23%
- ENGR, 18, 2%
- ELEN, 72, 8%
- BIOE, 134, 14%
- CENG, 66, 7%
- CSEN, 365, 38%

UGrad - 951
Grad   - 837

Women in Undergraduate Engineering: 270 - 28%
Underrepresented Minorities: 290 – 30%

Graduate Degrees

- Aerospace Engineering – MS
- Applied Mathematics – MS
- Bioengineering – MS
- Civil Engineering – MS
- Computer Science and Engineering – MS, PhD
- Electrical Engineering – MS, PhD
- Engineering Management – MS
- Mechanical Engineering – MS, PhD
- Power Systems and Sustainable Energy – MS
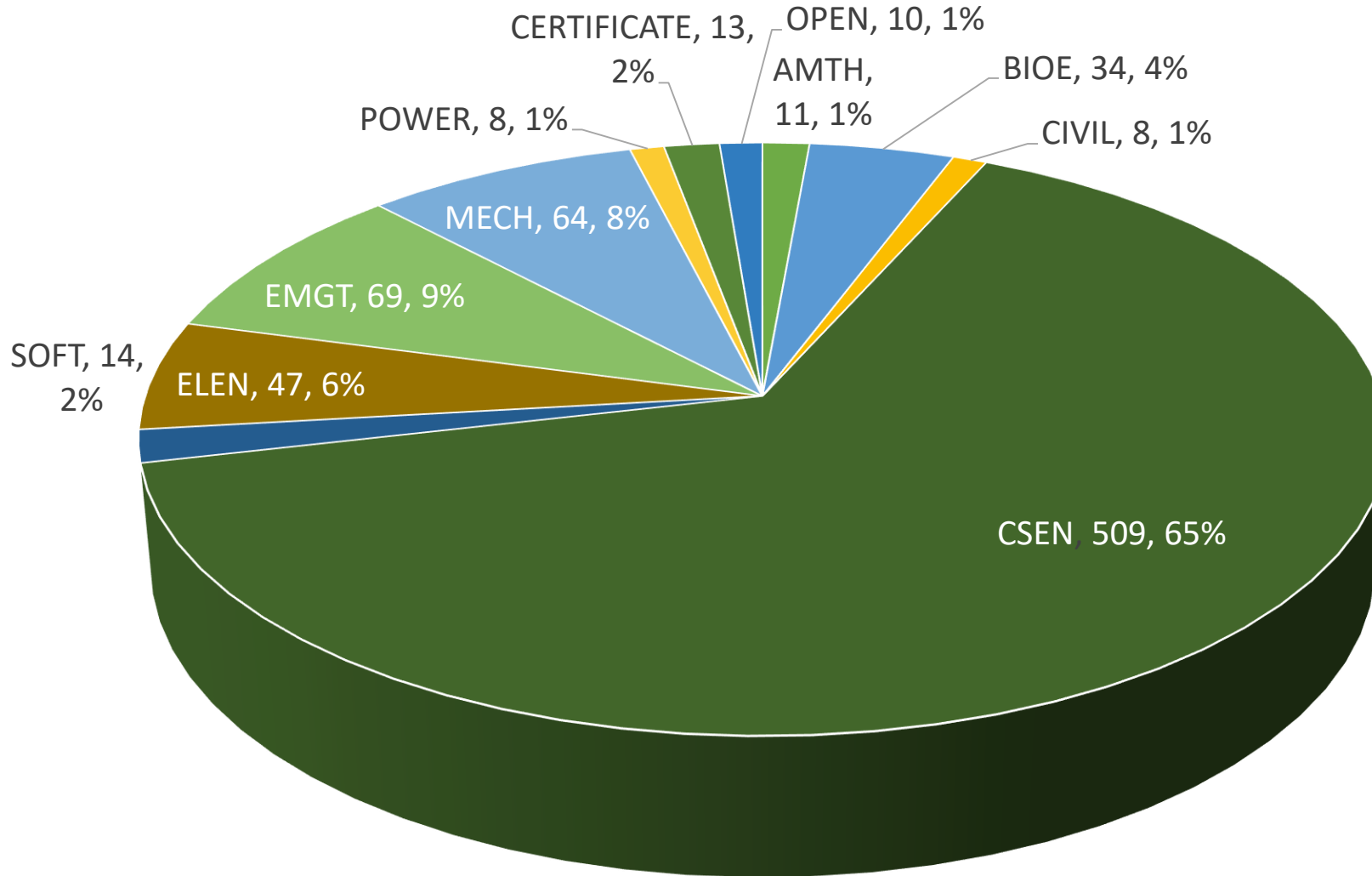- Software Engineering – MS
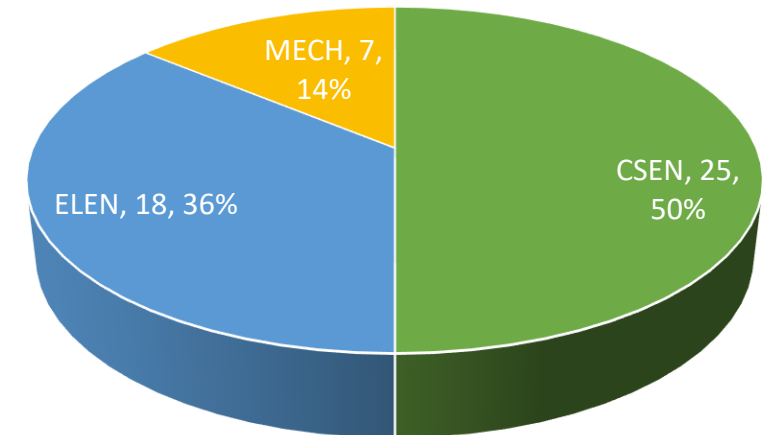

Plus: certificate programs

2018-19 Graduate Enrollment: 837

787 - Reflects 764 enrolled and 23 non-matriculating students

CERTIFICATE, 13, 2%
OPEN, 10, 1%
AMTH, 11, 1%
BIOE, 34, 4%
POWER, 8, 1%
CIVIL, 8, 1%
MECH, 64, 8%
EMGT, 69, 9%
SOFT, 14, 2%
ELEN, 47, 6%
CSEN, 509, 65%

50 Total PhD - Reflects enrolled students only

MECH, 7, 14%
ELEN, 18, 36%
CSEN, 25, 50%

Santa Clara University

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Graduate Core

- Awareness of global and social elements
- Emerging Topics
- Engineering and Business/Entrepreneurship
- Engineering and Society

# Departments

Applied Mathematics

Steve Chiappari

What has changed in 2018-19:

- Increasing interest in BS/MS program by students in mathematics and in physics

- Dr. Magda Metwally and Dr. Bob Kleinhenz have begun new four-year teaching appointments

- Dr. Aaron Melman published four journal articles, had three more articles accepted for publication in journals, submitted three other articles to journals for review, and made several presentations at university colloquia and professional conferences

Upcoming in 2019-20: continued support of undergraduate and graduate programs throughout the School of Engineering
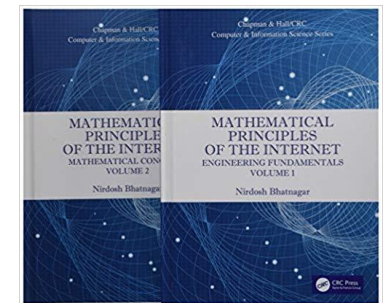
**Adjunct Professor Nirdosh Bhatnagar** has two volumes published

Bioengineering

Jonathan Zhang

Current State

- Three undergraduate tracks – Biomolecular Engineering/Biotechnology; Biodevice Engineering; Pre-med

- Five graduate focus areas – Biomolecular Engineering/Biotechnology; Biomaterials and Tissue Engineering; Microfluidics/Biosensors and Imaging; Computational Bioengineering (BIOAI); Translational Bioengineering

- Bioengineering soft skill areas: management, leadership, legal/IP, entrepreneurship mindset, biodesign and control, regulations and bioethics

- Fall 2018 Undergraduate enrollment 134; Graduate enrollment: 34

- Six tenured and tenure-track faculty and one Renewable Term Lecturer

- Research expertise: biomolecular engineering, drug discovery, drug delivery, tissue engineering, regenerative medicine, microfluidics, biosensors, biowearables, bioAI, bioprocess engineering, biostatics, etc.

- External funding: NIH, NSF, private foundations, and industrial research grants

- More than 50 corporate partners from Bay Area

- Excellent Student Employment (Bachelor): ~80%

- Students are accepted to PhD programs in top institutes such as U. Washington, UC Berkeley, UC Davis, John Hopkins University, Cornell University, etc.

- Students are accepted into MD programs
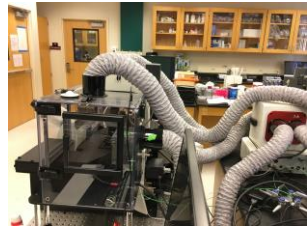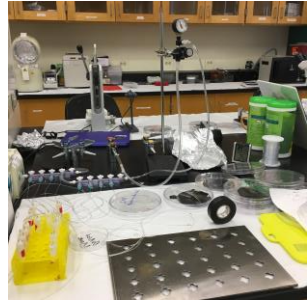
Bioengineering

**What has changed in 2018-19**

- New location for department offices (900 Lafayette Street)

- Relocated Bioengineering research labs (Alumni Science Building)

- Centralized faculty research labs

- STEM collaboration with adjacent departments such as Chemistry, Biology and Physics

- New Department Chair – Dr. Zhiwen (Jonathan) Zhang

- Newly re-organized industrial advisory board and new chair of the board (Dr. Helena Mancebo)

- Launched two new graduate focus areas: Translational Bioengineering and Computational Bioengineering (BIOAI)

- New BIOAI courses in upper division teaching curriculum

- Long-term collaboration with Bay Area companies for internships, jobs, faculty research grants that are tailored to Translational Bioengineering and BIOAI programs
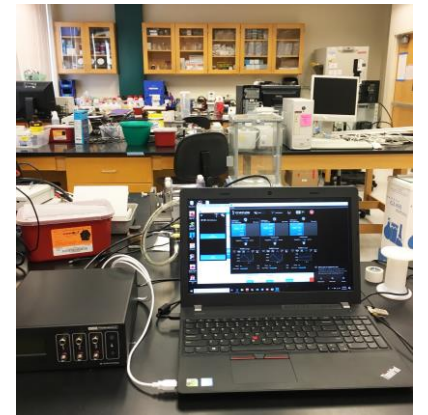
Bioengineering

Upcoming in 2019-20

- New four-year plan focusing on teaching engineering principles to Bioengineering students at first and sophomore years

- Increasing the courses in BIOAI (computational bioengineering) sector

- Initiative for PhD in Bioengineering
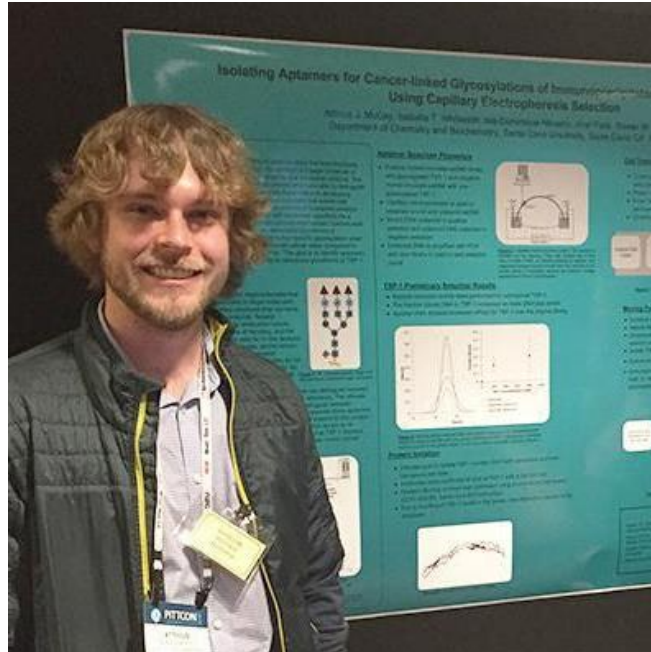
Civil, Environmental, and Sustainable Engineering

Reynaud Serrette

Current State

- Active ASCE and AGC student chapters
- Advisory Board actively involved in department marketing and student recruitment
- Gary Walz (adjunct lecturer and Advisory Board member) gave lectures in Argentina on sustainable construction
- Needs for infrastructure bode well for student employment in the foreseeable future

ASC Heavy Civil Competition Team

Civil, Environmental, and Sustainable Engineering

What has changed in 2018-19

- New offices (Bergin Hall) and new labs (Alameda Hall)
- Student recruitment activities

Major publications

- Mark Aschheim co-authored a new textbook on earthquake-resistant design of reinforced concrete buildings
- Hisham Said received $41,255 for his ELECTRI International project "Data-Driven Strategies to Increase the Market Share of the Union Inside Electrical Contractors"

Upcoming in 2019-20

- Tracy Abbott (Structural Engineering) and Laura Doyle (Environmental Engineering) were appointed to three-year terms
- Ed Maurer to lead the department
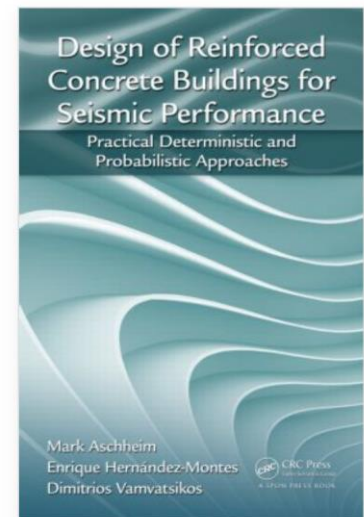
Computer Engineering

Nam Ling

Current state:

- 21 full-time faculty (14 TT, 3 RTL, 4 AYAL)

- 20 – 25 part-time faculty

- 2 staff: Pei-Min (Pam) Lin, Senior Administrative Assistant; Danny Steyer, Administrative Assistant (50%)

- About 950 students (400 undergrads, 550 grads) – largest in SCU

- Industrial and International Collaboration
    - Beijing University of Posts & Telecommunications, China
    - Central University of Finance and Economics, China
    - Cypress Semiconductor
    - DOCOMO
    - Fuzhou University, China
    - Santa Clara Valley Water District
    - Shenzhen University, China
    - Tianjin University, China
    - Xi'an University of Posts & Telecommunications, China

Web Design and Engineering program was ranked #1 by 10 Best Design, the premier source for reviews and rankings in design

Computer Engineering

What changed in 2018-19:

- Silvia Figueira promoted to professor
- New AYAL: Salem Al-Agtash
- Yi Fang – delivered invited talk on deep learning to an audience of 300 (Bay Area Machine Learning Meetup)
- Dan Lewis – new edition of book: 4th ed*., ARM Assembly for Embedded Applications*
- Nam Ling and Video Coding Team: 3 new U.S. patents granted
- JoAnne Holliday, Associate Professor of Computer Engineering, passed away in February 2019
- Hosted Conferences at SCU
  - Ahmed Amer (Conference Co-Chair), with Y. Liu (Local Chair), B. Dezfouli (Reg. Chair): MSST 2018 and MSST 2019
  - Yuhong Liu (Program Co-Chair), Nam Ling (General Co-Chair), with A. Amer (Finance Chair), S. Figueira, Y. Fang, X. Li (presenters): SocialSec 2018
  - Yi Fang (General Chair): ACM SIGIR 2019
- Other Conference Leadership
  - Nam Ling (General Co-Chair) and Yuhong Liu (Program Co-Chair): Umedia 2018 and Umedia 2019

Computer Engineering

Upcoming in 2019-20

- **New name: Department of Computer Science and Engineering**
- New assistant professor to start Fall '19: David Anastasiu
- New visiting research scholars:
  - Yang Li, Peng Zhang, and Lin Zhang, with Yuhong Liu
  - Yixao Li (renewed), with Nam Ling

Electrical Engineering

Shoba Krishnan

New full-time faculty member in the area of Digital Systems (to start Fall '19)

- Dr. Fatemeh Tehranipoor, Assistant Professor

Department name change –

- *Electrical and Computer Engineering*

Program highlights

- New undergraduate degree in electrical and computer engineering
- Building expertise in digital architectures, embedded systems and hardware security
- Growth in course offerings in machine learning and autonomous systems
- Continued growth in power and controls for the energy sector

- Enrollment holding steady

- New course this year EMGT 324 Engineering Leadership

- 15 instructors in the department from Silicon Valley companies such as Intel, Lockheed, and Xilinx

- Chair Frank Barone is retiring after teaching at SCU for 13 years and serving as department chair for 10 years

- Search for new chair is underway
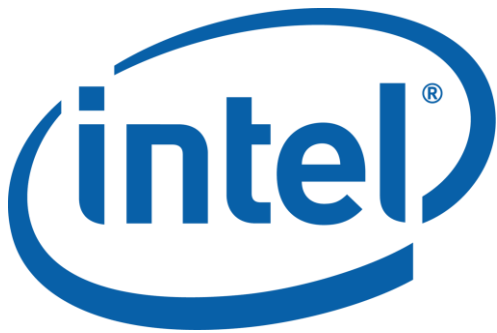
- Students
  - 14 majors, 1 GENG minor, 11 Technical Innovation, Design Thinking, and Entrepreneurial Mindset (DT) minors
- Faculty
  - 3 full-time faculty; 14 QPT faculty offering courses as part of the Design Thinking minor or other upper division coursework
  - Matt Gaudet is new RTL for teaching Ethics in Technology, ENGR 19
  - Faculty research in the area of Community Engagement and Design in Engineering
- Courses
  - Most courses offered to enhance interdisciplinary knowledge and gain communication, teamwork, and project management skills
  - ENGR 1L Robot Show continues to be successful with creative, open-ended team problem solving

General Engineering

What has changed in 2018-19

- New Senior Design Sequence ENGR 194-196

- New course, ENGR 163, to be taken along with senior design [for Design Thinking minors] to relate elements of the capstone experience to themes fundamental to entrepreneurial thinking

- BioInnovation and Design track within Design Thinking minor

Upcoming in 2019-20

- Grand Challenge Scholars Program

NAE GRAND CHALLENGES SCHOLARS PROGRAM

Advance Personalized Learning

Secure Cyberspace

Make Solar Energy Economical

Provide Access to Clean Water

Enhance Virtual Reality

Provide Energy from Fusion

Reverse-Engineer the Brain

Prevent Nuclear Terror

Engineer Better Medicines

Manage the Nitrogen Cycle

Advance Health Informatics

Develop Carbon Sequestration Methods

Restore, Improve Urban Infrastructure

Engineer Tools of Scientific Discovery

Mechanical Engineering

Drazen Fabris

Current State

- ~220 Undergraduate, 70 graduate students—enrollment stable and growth potential in the graduate areas

- New shop and project space; all other labs moved

- Research—16 journal, 9 conference papers, $4.3M in research funding

What has changed in 2018-19

- Addition of Godfrey Mungal—Full Professor, expert in combustion and fluid mechanics

- Chris Kitts Promoted to Full Professor

- New grant "EFRI C3 SoRo: Magneto-electroactive Soft, Continuum, Compliant, Configurable (MESo-C3) Robots for Medical Application Across Scales" $338,440 sub-award from the University of Utah (funds originated with the National Science Foundation), On Shun Pak

- Mohammad Ayoubi sabbatical with NASA Ames and U. of Washington on multiagent control

Upcoming in 2019-20

- Master of Science in Aerospace Engineering added—includes planned growth in programs and faculty

- Terry Shoup retiring after 30 years of service

- Al Rahimi retiring, 36 years of service as an adjunct

Santa Clara University

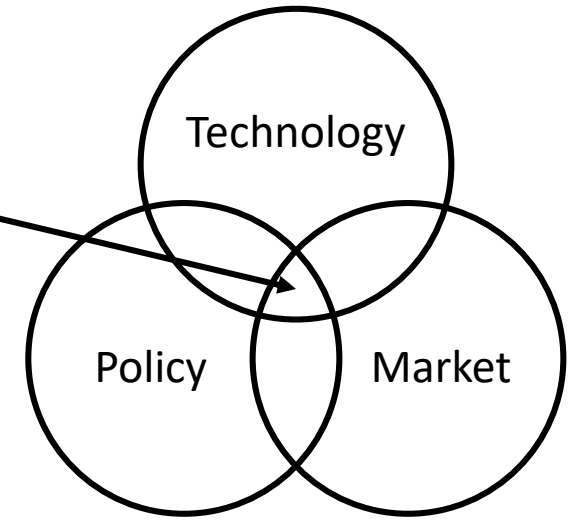# Power Systems & Sustainable Energy
Building the Next Generation of Engineers

Maryam Khanbaghi

Current State

- Unique program at the intersection of technology, policy, and market
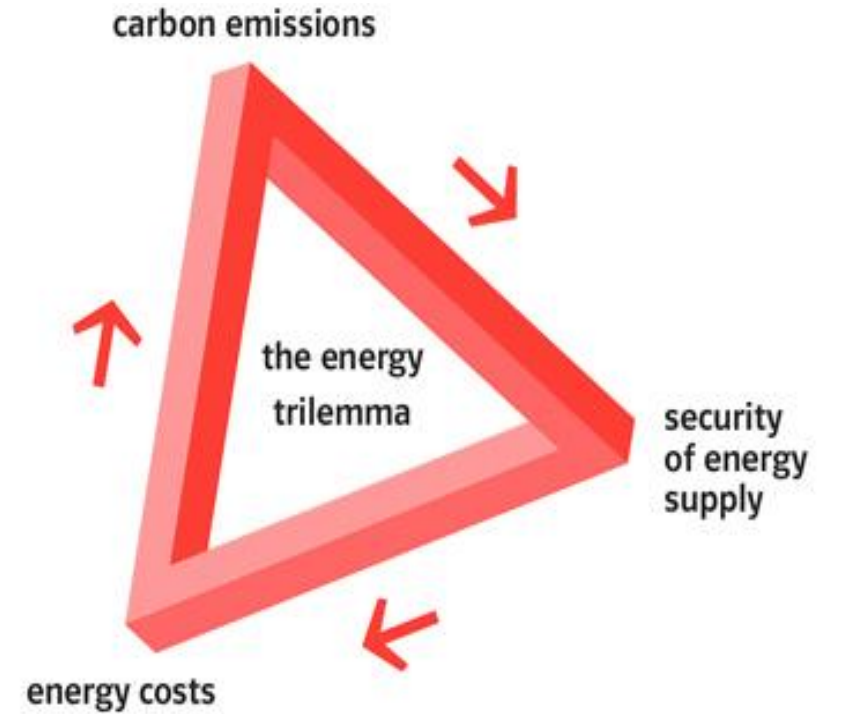- Vital student-led Energy Club: training, speakers

Where our students work and industry partners:

Technology

Policy   Market

Power Systems & Sustainable Energy

Upcoming in 2019-20:

- Revitalizing Power and Energy Curriculum: New course—Economics of Energy

carbon emissions

the energy trilemma

security of energy supply

energy costs

Research Laboratories

# BioInnovation and Design Laboratory

Partnering with industry to create new biomedical solutions that transform domestic and global health
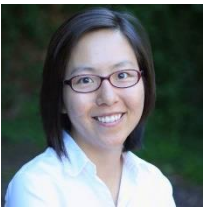
Prashanth Asuri

Current State

- 5 external project partners; 7 industry sponsored, interdisciplinary student projects (60+ students and 10 faculty mentors from engineering, sciences, and business)

- Corporate sponsorship of $70,000 and $195,000 gift funds in support of the student projects

- Projects selected to present at the Global Health and Innovation Conference at Yale and the Night of Ideas San Francisco (in partnership with the Asian Art Museum)

Upcoming in 2019-20: Three new industry partners in the pipeline and partnership with LEAD Scholars Program to offer fellowships for talented sophomores interested in healthcare innovation and biodesign
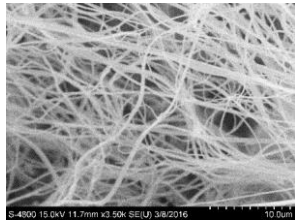
External partners

Cepheid

JAIPURFOOT

proteus
DIGITAL HEALTH

pediatric wellness group

VARIAN
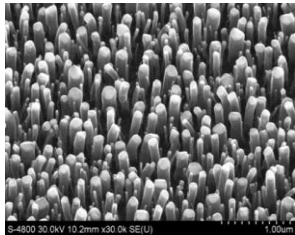medical systems
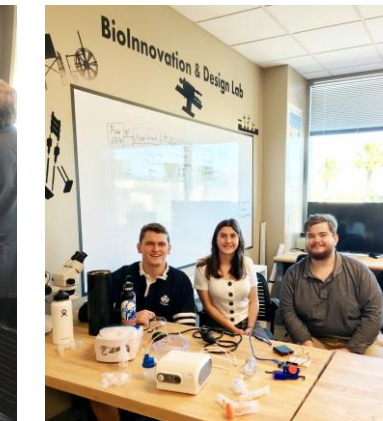
Center for Nanostructures

Ashley Kim

microfluidic devices

insect (embiid) silk

carbon nanostructures

Supports nano-science/technology research and teaching in fabrication and analysis

- SCU Arts & Sciences and Engineering Faculty and Students

- Curriculum Support (MECH, ELEN, BIOE hands-on lab courses)

- Faculty Research and Capstone Projects (BIOL, CHEM, PHYS, BIOE, MECH, ELEN)

- Student Internship/Job Placement with Silicon Valley Partners

New permanent location in Daly Science

- Characterization Room: SEM, AFM, Probe Station, EDX

- Photolithography Room: Class 100,000 with Mask Aligner and Spin Coater

- Soft Lithography Room: Equipment for PDMS Mold/Chip Fabrication

- Newly Added Equipment: Parylene Coater, Air Plasma System, Oven, Desiccator, Spin Coater

Engineering Computing

Supporting graduate and undergraduate student learning and faculty research
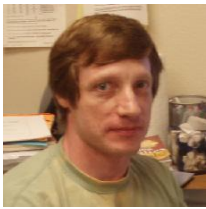
Lantz Johnson

Current State

- 14 computer labs (general, bioe, civil, ee), 7 Lexmark printers (2 color, 5 b&w), HP Plotter, > 200 professional software, 3 platforms – Windows, Linux, Mac; Apache web servers, Oracle database, Hadoop cluster, file sharing, data backup, remote access, +30 virtual servers

What has changed in 2018-19

- New bioe computer lab – 25 Dell Precisions with 27 in. Displays
- New backup server, network monitoring server and implementation of Virtual desktop Infrastructure – VDI (a new kind of remote access)

Upcoming in 2019-20

- Possibly new Mac systems
- Increased storage

Allan Baéz

Silvia Figueira

Frugal Innovation Hub

Engaging students and faculty in technological and humanitarian projects through partnerships and programs

Humanitarian Projects

- 18 senior projects + 8 general projects
- 88 graduate and undergraduate students
- Locations: Bay Area, Mexico, Guatemala, Ecuador, India, Peru, and Liberia
- Deployments: Guatemala, Liberia, Ecuador, and Mexico
- External Funding: $100,000

Presence

- 10 conferences, 9 papers at IEEE GHTC
- IEEE EPICS Showcase: 10 projects
- Latin America Frugal Innovation Network
- 15 Universities, 9 countries, 44 faculty members
- Leaders of the Jesuit Humanitarian and Frugal Innovation Task Force
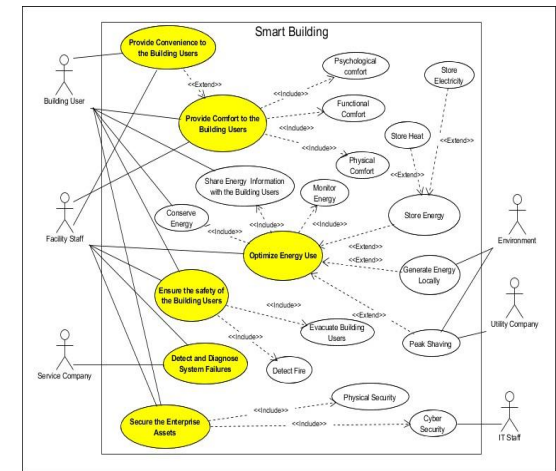
Latimer Energy Laboratory

Maryam Khanbaghi

Summer and on-going projects 2018-19:

- NanoGrid Control (ELEN – Khanbaghi)

- Towards Enabling Machine Learning on Solar-Powered IoT Edge Devices (COEN – Dezfouli)

- Technology Taxonomy of the IoT-based Net-Zero Energy Smart Buildings (CENG – Said)

Residential Load Data
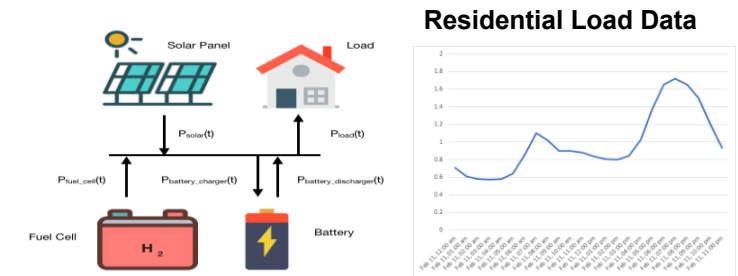
Solar Regatta Competition May 2018

Anne Mahacek

Maker Lab

Easy-access, hands-on prototyping for the SCU community

Chris Kitts

- 1500 sq. ft. lab in Guadalupe Hall with 3D printers, laser cutters, electronic prototyping machines, bio-processing equipment, and a wide range of power/hand tools

- 28 ft. trailer equipped for outreach with local schools plus a hands-on program for exposing students to STEM topics

- **2018-19:**

  - Scaled up to 1500+ registered users across university

  - Supported labs/projects for ~30 course sections, 6 clubs, dozens of capstone and graduate research projects, numerous open houses, events, competitions, etc.

  - Active programs for outreach, adult education and industry engagement

  - Supported multiple K-12 teacher training and SCU faculty development events

  - 1,000+ local K-12 students served via site visits and tours

- **Upcoming in 2019-20**

  - New alumni program in development

Robotics Systems Laboratory

A world-class field robotics program for land, sea, air, and space

Chris Kitts

~100 students across all departments working on robotic and automation technology for land/sea/air/space systems

2018-19 Update

- New equipment: 2 new robotic manipulators, an indoor multi-robot testbed, and a pontoon boat for marine operations

- New grants: NSF grant for development of a deep sea sampling system, and a Navy grant to develop a hybrid UAV/AUV system

- Lab completes mission control operations for the successful NASA EcAMSat Mission, which studied microgravity effect on E. coli resistance to antibiotics

- Kitts and Rasay receive NASA Group Achievement Award for EcAMSat Mission

Upcoming in 2019-20:

- On-orbit operation of a new industry satellite and initiation of a new solar sail project with NASA

- New work in agricultural harvesting and automation

- Expanded work in collaborative robotic systems
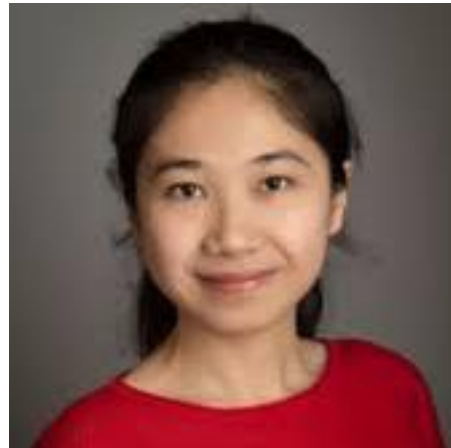
Faculty

An Eminent Faculty

~75 Full Time Teaching Faculty
About 33% Women Faculty
(4th highest in the nation)

Part Time Faculty hail from cutting-edge industries in Silicon Valley

New Faculty

Dr. Xiang Li
Computer Engineering
Optimization, Cyber Security, Big Data, Cyber Physical Systems

Dr. Ying Liu
Computer Engineering
Computer Vision, Machine Learning & Signal Processing

Dr. Kurt Schab
Electrical Engineering
Electromagnetics

PhDs Awarded from:
- Cal Tech
- Cornell
- Purdue
- M.I.T.
- Stanford
- Tokyo Institute of Technology
- And more…

School of Engineering Faculty Award Recipients

Hisham Said
Civil, Environmental, and
Sustainable Engineering

Teacher
of the Year

Yuhong Liu
Computer Engineering

Researcher
of the Year

Ramin Moazzeni
Computer Engineering
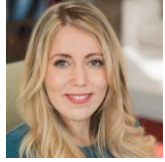
Adjunct Lecturer
of the Year

Magda Metwally
Applied Mathematics

Gerald E. Markle
Award

Faculty Journal Editors

Maya Ackerman (computer engineering)
Associate Editor
Journal of Computational Creativity

Mohammad Ayoubi (mechanical engineering)
Associate Editor
*AIAA Journal of Spacecraft and Rockets;
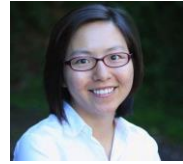ASME Journal of Dynamic Systems,
Measurement, and Control*

Behnam Dezfouli (computer engineering**)**
Associate Editor
IEEE Communications Letters

Silvia Figueira (computer engineering)
Contributing Editor
Engineering for Change News and Insights

Matt Gaudet (engineering)
Editor, Editorial Board
Journal of Moral Theology

Unyoung (Ashley) Kim (bioengineering)
Associate Editor
*IEEE Journal of Translational Engineering in Health
and Medicine*

Christopher Kitts (mechanical engineering)
Associate Editor
IEEE Access, IEEE Systems Journal
Editorial Board
International Journal of Advanced Robotic Systems

Nam Ling (computer engineering)
Guest Editor
*IEEE Access (Special Issue on Recent Advances in
Video Coding and Security)*

Yuhong Liu (computer engineering)
Associate Editor
IEEE Signal Processing Magazine e-Newsletter

Edwin Maurer (civil, environmental and sustainable
engineering)
Associate Deputy Editor
Climatic Change

Maryam Mobed-Miremadi (bioengineering)
Guest Editor
Bioengineering

Godfrey Mungal (mechanical engineering)
Editorial Advisory Board
Experiments in Fluids

Tokunbo Ogunfunmi (electrical engineering)
Lead Guest Editor
*Circuits, Systems and Signal Processing Journal
Journal of Signal Processing Systems*
Associate Editor
IEEE Transactions on Signal Processing

Sukhmander Singh (civil, environmental, and
sustainable engineering)
Associate Editor
Int'l Journal of Religion and Spirituality in Society

Sally Wood (electrical engineering)
Editorial Board
Proceedings of the IEEE

Yuling Yan (bioengineering)
Guest Editor
Bioengineering

Cary Yang (electrical engineering)
Editor
Journal of Semiconductor Technology and Science

Faculty Achievement Highlights

Behnam Dezfouli (computer engineering): $24.9K grant, Santa Clara Valley Water District – IoT-based flood monitoring

Yi Fang (computer engineering): $71.4K grant, DOCOMO Innovation, Inc. – Computer vision for extracting highlight

Chris Kitts (mechanical engineering): received $430k+ in NSF and industry grants; received NASA Group Achievement Award

Nam Ling (computer engineering): named Guest Professor by Zhongyuan University of Technology, China; received renewal of his Distinguished Professorship (2018-2021) from Xi'an University of Posts and Telecommunications, China; named Minjiang Scholar by Fijian Province for Fuzhou University, China

Laura Doyle and Tonya Nilsson (both civil, environmental, and sustainable engineering): their paper, "Flipping the classroom—do student learning gains and perceptions vary based on gender?" has been nominated for the ASEE Best Diversity Paper for the 2019 American Society for Engineering Education Conference

Maryam Mobed-Miremadi, Matthew Findlay '17, Daniel Freitas '17 (bioengineering) and lead author Korin Wheeler (chemistry, biochemistry): Best Paper in *Environmental Science: Nano* and the Best Overall Paper in 2018 in the Environmental Science family of journals

Tokunbo Ogunfunmi (electrical engineering): awarded the prestigious Carnegie Fellowship for the 2018-2019 year

On Shun Pak (mechanical engineering): received $338,440 in funding as a Co-Principal Investigator on an NSF-funded collaborative project between the University of Utah (the lead institution), University of Minnesota, and Santa Clara University, to design robotic devices that travel along pathways of the human body

Sarah Kate Wilson: received the prestigious IEEE Education Society's Harriett B. Rigas Award for excellence in teaching, development of educational technology which enhances student learning, and active participation in encouraging increased participation of women in electrical and computer engineering

Sally Wood (electrical engineering) was selected as a member of the Committee on Engineering Accreditation Activities (CEAA). The CEAA is responsible for implementing IEEE involvement in the Engineering Accreditation Commission of ABET, Inc.

SCU Award Recipients

- **Tim Healy** (electrical engineering) received the Paul L. Locatelli, S.J. Award in recognition of his distinguished and outstanding service to the Alumni Association and Santa Clara University

- **Christopher Kitts** (mechanical engineering) received SCU's 2018 Brutocao Family Foundation Award for Curriculum Innovation

- **Shoba Krishnan** (electrical engineering): named Outstanding Career Influencer by SCU's Career Center

- **Jes Kuczenski** (general engineering) received a Presidential Special Recognition Award for work on policies and practices impacting lecturers and adjunct faculty

- **Navid Shaghaghi** (computer engineering): named Outstanding Career Influencer by SCU's Career Center

Santa Clara University

Faculty Promotions

Christopher Kitts
Mechanical Engineering
Promoted to Full Professor

Silvia Figueira
Computer Engineering
Promoted to Full Professor

Retiring After 30 Years

Terry Shoup

Dean of Engineering 1989-2002; Mechanical Engineering 1989-2019

- Doubled number of endowed faculty chairs

- Created 27 new endowed undergraduate scholarships; 5 graduate fellowships, 3 funds for replacement and renewal of engineering equipment

- Established pipeline programs for underrepresented students

- Acting Dean, School of Education, Counseling Psychology and Pastoral Ministries 2005-06

- Interim Vice Provost, Enrollment Management, 2006-08

- Interim Executive Director, International Programs, 2009-10

- ASME Fellow, ASME Honorary Member

- Distinguished Service Award, International Federation for the Theory of Machines and Mechanisms

- Silicon Valley Engineering Hall of Fame

Students and Alumni

Santa Clara University

Undergraduate Student Achievement Highlights

Payton Bradsky '19, Anthony Fenzl '20, Ruby Karimjee '21, and Ryan Lund '20 are University Innovation Fellows, advancing campus engagement with innovation, entrepreneurship, creativity, and design thinking

Story DeWeese '19 (computer engineering) and **Mariah Manzano '20** (web design and engineering) are co-chairs of SWE++, a program dedicated to introducing computer science and coding to girls from Buchser Middle School, Downtown College Prep, and Dartmouth Middle School, among others

Shiyin Lim '19 (bioengineering) won second place in the Undergraduate Student Poster Session at the American Society for Gravitational and Space Research Meeting

Mariah Manzano '20 (web design and engineering), School of Engineering digital media assistant, won the SCU Social Media Council's Choice Award for her Day of Giving video, "What does #SCUengineering mean to you?"

Isabella Morales '20, Megan Sauter '20, and Lauren Serfas '20 led a session on applying Human Centered Design Thinking in humanitarian engineering projects at the Engineers Without Borders USA National Conference in San Francisco

Lauren Serfas (bioengineering) and **Rachael Han** (civil, environmental, and sustainable engineering) were recently selected as 2019 Global Social Benefit Fellows; Lauren has a placement in Kenya and Uganda, and Rachel will be working in India
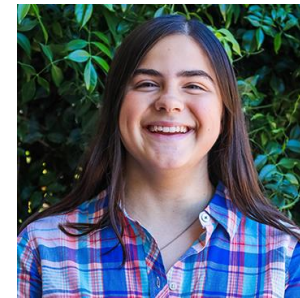
Fulbright Scholar
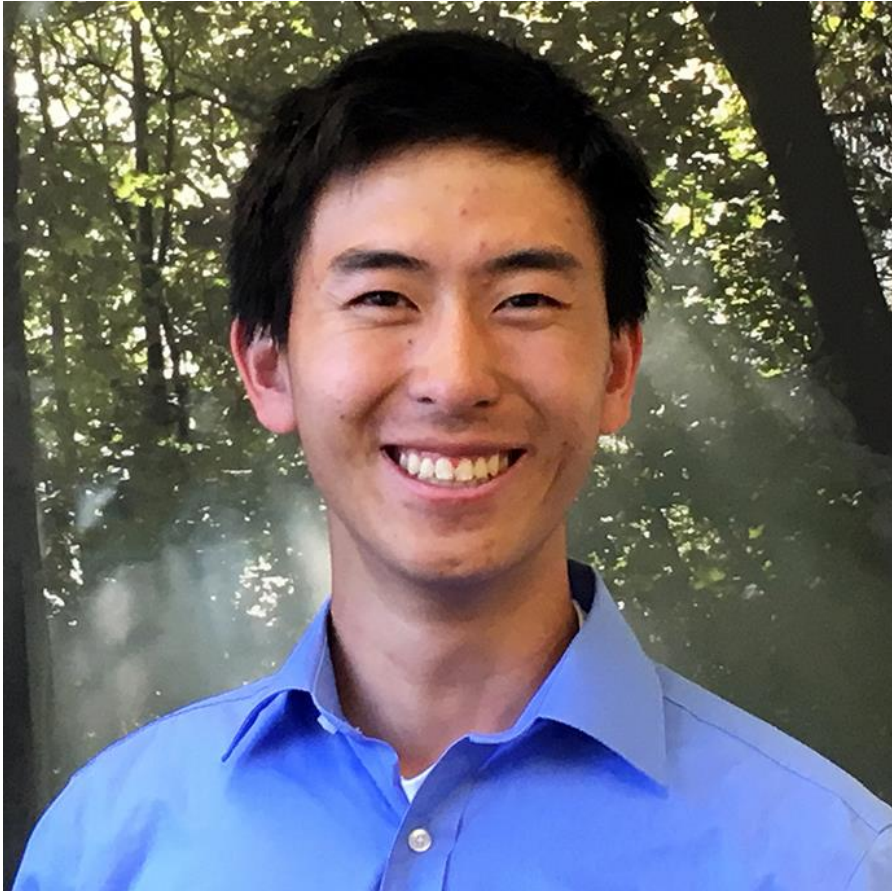
James Wang '19

Electrical Engineering, Environmental Science

Will research "hybrid-supercapacitors"—a new form of energy storage with potential benefits for renewable energy—in the Paris suburb of Cachan in France
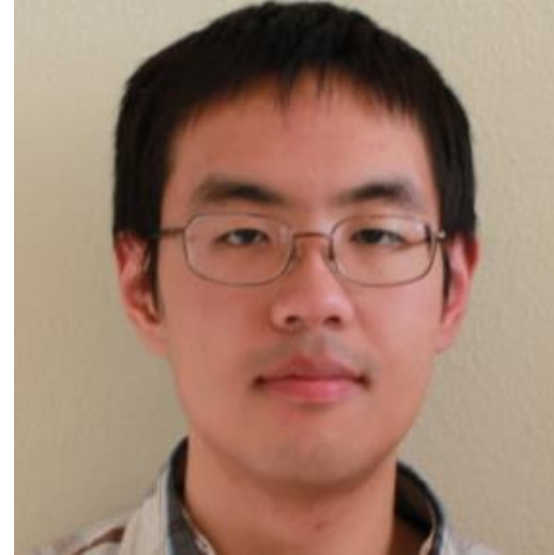
Santa Clara University

Graduate Student Highlights

Bo Cheng, Kurt Sun, and Litong Shen: 2nd Place in the nationwide SDN Throwdown hosted by Juniper Networks and Comcast

Kamak Ebadi, electrical engineering Ph.D. candidate and doctoral research fellow in the Aerial Mobility group at NASA JPL, developed autonomy solutions for the Mars InSight lander

Jonathan T. Lee: Best Academic Poster Presentation at SIMULIA/CST West Regional User Meeting for his master's thesis research

Grant Mishler is assisting with On Shun Pak's research funded by NSF

Distinguished Engineering Alumni Awards

Renee (Bader) Niemi '86
B.S., Electrical Engineering

In recognition of her long and distinguished career leading a wide variety of technical startups and corporations and of her service to the university and to the School of Engineering

Marc van den Berg '83
B.S. Electrical Engineering

For his support of socially-responsible innovation and entrepreneurship and for his service to the university and to the School of Engineering

Alumni Achievement Highlights

Jeff Abercrombie '84 (civil engineering) of Fresno, CA, was a lead engineer on Caltrans' new Big Sur Pfeiffer Canyon Bridge redesign

Todd M. Goolkasian '85, P.E., S.E., M.ASCE won the 2018 ASCE Civil Engineering Entrepreneur of the Year Award

Stephen Hager '87, '89 (BS mathematics, MS computer engineering) was recently promoted from Army Brigadier General to Major General

Allison Kopf '11 (Solar Decathlon), founder and CEO of Agrilyst, was named to Forbes 30 Under 30

Shawn Lange '06, founded L2F, Inc., a local robotics and automation services company named #4 on the "Fast Private" list and #11 on the SF Business Times list

Vijay Janapa Reddi '03 (electrical and computer engineering) has joined the Harvard University faculty as associate professor in electrical engineering

National Academy of Engineering

Hemant Thapar BS '73, MS '75

Electrical Engineering

Elected to the National Academy of Engineering for "contributions to theory and practice of coding and signal processing for high-density magnetic recording"
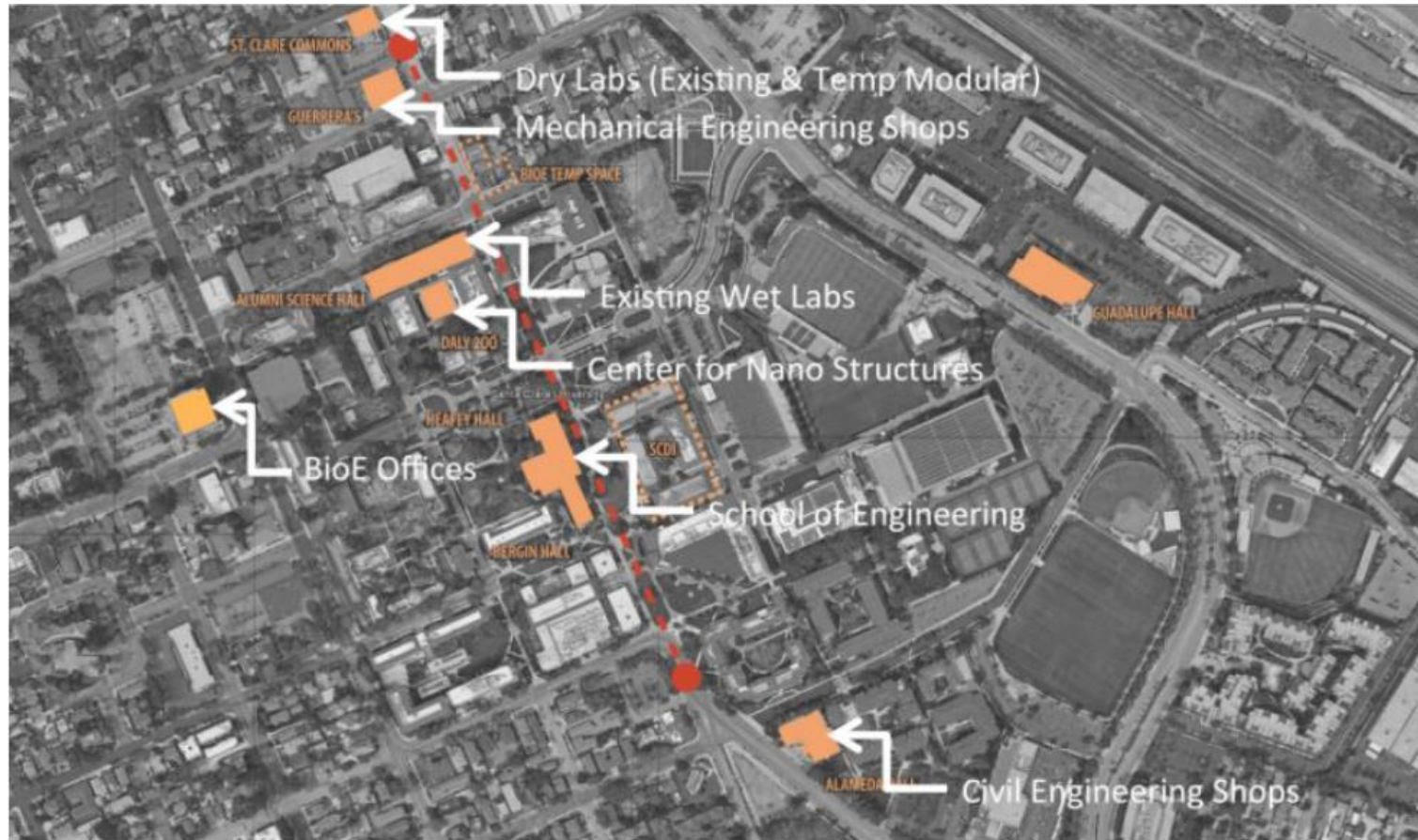
A Bright Future

STEM Facilities

An exciting new future is unfolding!

Sobrato Campus for Discovery and Innovation

STEM Facilities

During construction, the School of Engineering is operating fully in newly constructed and renovated facilities along the Alameda corridor, lining the center of campus.
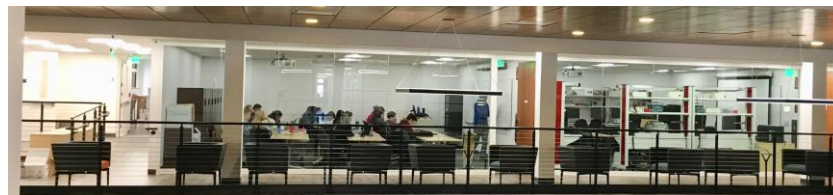
STEM Facilities

Newly Renovated Engineering Facilities

New classrooms, electrical and computing labs, and collaboration areas in Heafey Hall
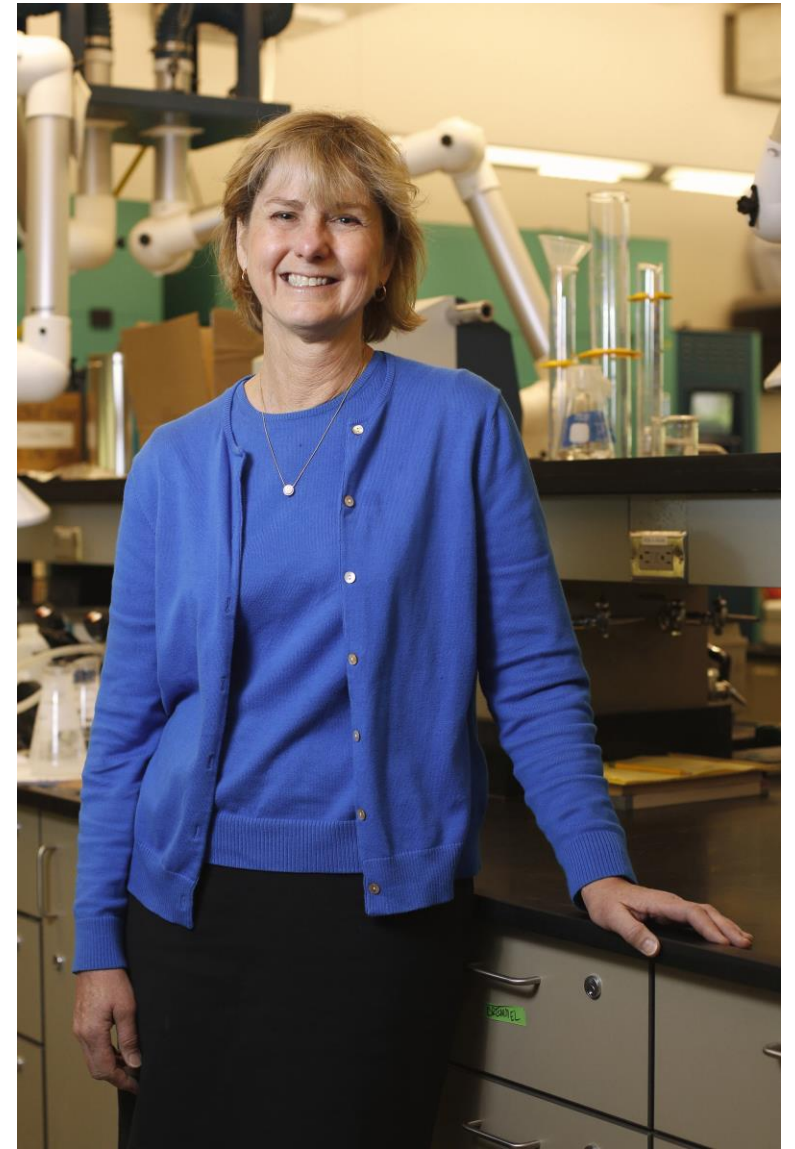

Collaboration areas in Heafey Hall

New Machine Shop and mechanical labs at The Garage

Santa Clara University

Our New Dean!

Elaine Scott, Ph.D.
Sobrato Professor and Dean

- Founding Dean, School of Science, Technology, Engineering and Mathematics, University of Washington in Bothell

- Established the Virginia Tech–Wake Forest School of Biomedical Engineering and Sciences and related graduate degree programs

- B.S. and M.S. in agricultural engineering, UC Davis
- Ph.D. in mechanical engineering, Michigan State University
- Ph.D. in agricultural engineering, Michigan State University

- Beginning August 1

Questions?