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, 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!”

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

Learn more about SCU Engineering’s Innovation and Entrepreneurship programs: 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

- **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

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

What We Do

- Curricula/Co-Curricula
- Discovery/Research
- Innovation and Entrepreneurship
- Humanitarian Engineering/Service
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
Ph.D. Degrees Conferred in 2017-18

Computer Engineering:

Yogesh Jhamb
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

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