

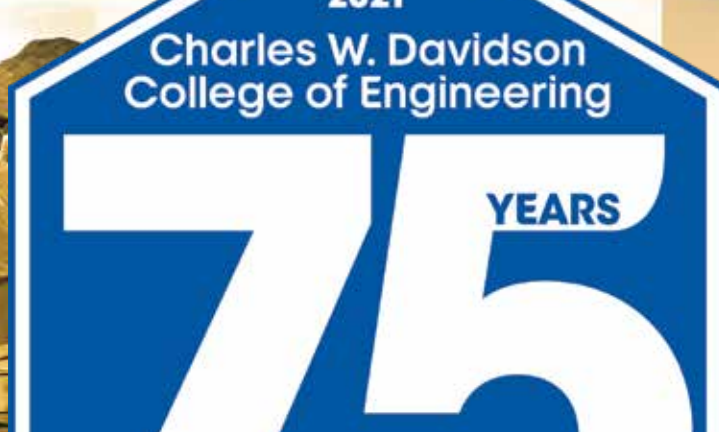
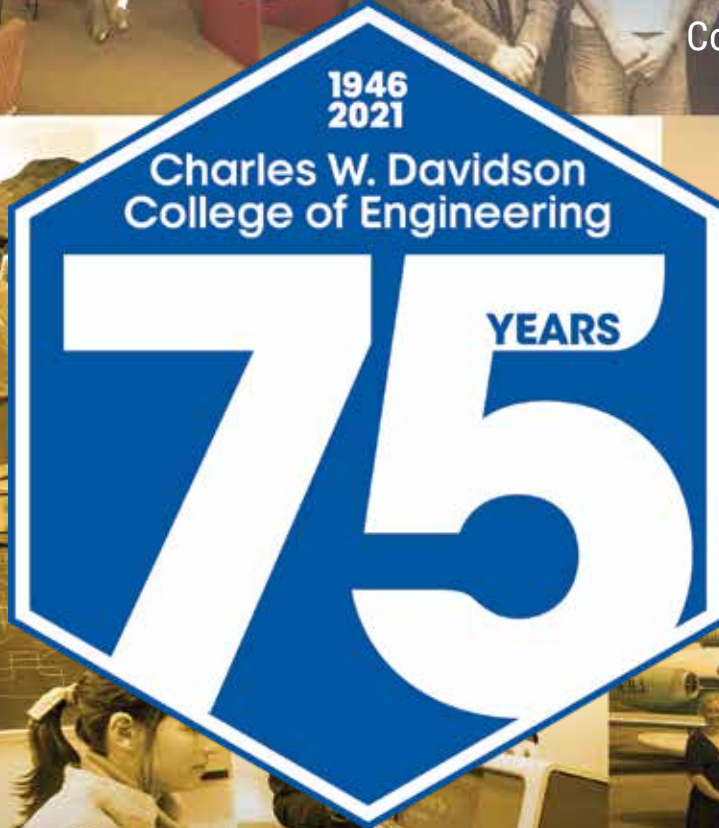
Spring 2021

# engineering

at San José State

## Transforming Silicon Valley

College Celebrates 75 years of History and Innovation



### Ingenious Design

Students Solve Pressure Issues for Ventilator Producer

### Remembering Charles Davidson

Developer, Philanthropist, Affordable Housing Activist

### Data Detective

Tech Professor Collaborates Across Disciplines to Save Lives

**THIS SPRING, AS BLOSSOMS BLOOM**

and leaves unfurl, our society is slowly re-opening and emerging from the COVID pandemic.

Faculty, lecturers, staff and I are wrestling with big questions: what have we learned from our pivot to mostly online teaching? What is worth keeping as we go forward to both hybrid and in-person teaching this fall? How will engineering colleges look different as a result of this pandemic and its many, multilayered effects on our students, families and community? What will the workplace be like for our graduates and how can we help them to be ready?



**“Our wish is to continue changing lives for the better.”**

We are both sober and grateful to present this celebratory issue marking 75 years as the College of Engineering at San José State. We have been transforming student lives since 1946, and their success has in turn transformed their families. Furthermore, our alumni have literally and digitally been transforming Silicon Valley into the globally acknowledged powerhouse it is today.

This issue features a timeline with highlights of our history. You can find more information and photos, many of which were contributed by our alumni, on our website at <https://www.sjsu.edu/engineering75>. Please take a look.

Our wish is to continue changing lives for the better, whether it be through the Davidson College of Engineering’s memorably empowering professors, by encouraging our students’ networking with professionals at conferences, or by providing rich opportunities for our students to conduct research and contribute directly to Silicon Valley’s innovation ecosystem.

Here’s to the next 75 years!

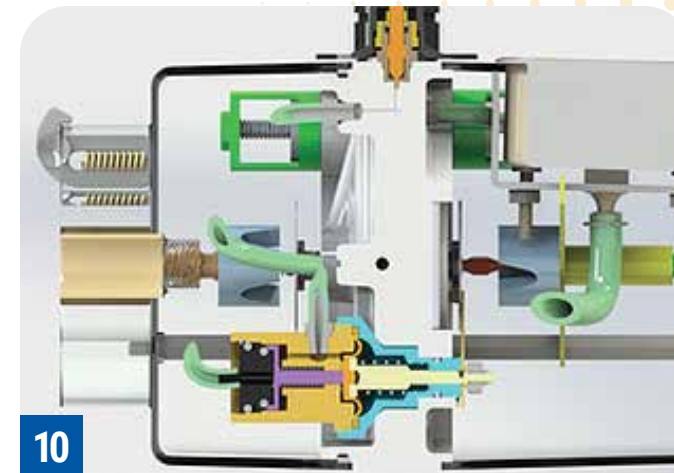
Sincerely,

**Dean Sheryl Ehrman**  
 Don Beall Dean of Engineering,  
 Charles W. Davidson College of Engineering  
 at San José State University



## In This Issue

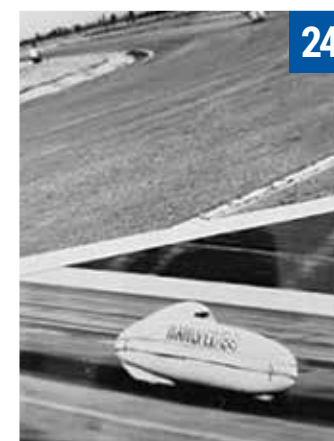
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## NSF HONOR

**Hiu-Yung Wong**, assistant professor of electrical engineering at San José State University, has received a Faculty Early Career Development Program (CAREER) award, a prestigious honor bestowed by the National Science Foundation. The award supports his research of cryogenic electronics—electrical systems that operate at extremely cold temperatures—as well as his project to expand education and research opportunities while building a diverse workforce in the field. Wong will receive about \$500,000 over five years to implement his project, "Understanding and Modeling of Cryogenic Semiconductor Device Physics down to 4.2K" 🍷



## NEW LABS AND EQUIPMENT

**Keysight Technologies** has generously gifted the college the KT Mechatronics Lab and the KT Radio Frequency Equipment Station.

**Omron** has generously supported the College with a new Hornet robot, a gantry-mounted device that can "see" items, reach for them, grab them (with suction or grippers) and move them to another location. 🍷

## MATHEMATICS AND POETRY

Engineers often get stereotyped as focusing too much on the technical and not enough on the human aspect of problems. **Mechanical Engineering Lecturer, Kedar Hardikar**, breaks that stereotype with the publication of his book, *Abstract Intersections: A Poetic Journey Through Mathematics*. The publication has earned him five-star reviews from international scholars and laypeople. 🍷



## FACULTY GRANTS

- Anand Ramasubramanian, John Lee, and Wendy Lee (Computer Science), "Thrombosis in Microgravity," NASA, 2020-21
- Vimal Viswanathan, "Collaborative Research: Empowering and Inspiring Confident, Collaborative, and Creative Engineers through an Intelligent Tutoring System," NSF, 2021-24
- Ozgur Keles, "Scalable Ceramic Alignment for Electro-Active Structures," Palo Alto Research Center, 2020-21
- Hongrui Liu, "Proposal to Test/Research Market Clearing Systems For ISO New England," ISO New England, 2021
- Ron Mak, "Intelligent Systems Research and Development Support-3," NASA
- Patricia Backer, "Grant Management for Pioneer Pathways Project," CSU East Bay, 2020-21 🍷

*Errata: Melissa Pardo was an Aerospace Engineering major, not Mechanical Engineering as stated. The Spartan Racing team was one of 12 winning teams for the business presentation. It was their first win in business presentation.*

## Points for Prizes and Career-Preparedness

*Students continue to grow with GO program*



**THE DAVIDSON COLLEGE OF ENGINEERING GO** Program encourages students to take an active role in preparing for their engineering career. Current engineering students can earn points by participating in career-preparedness activities such as attending non-academic lectures, joining clubs or finessing their LinkedIn profiles. They cash out their points for prizes, and there is no limit to how many activities they can undertake.

The program has quietly been countering what one student referred to as "the go HOME program." Dean Sheryl Ehrman began GO in 2017 when she saw that between studies, jobs, family care and commuting, students were not particularly aware of or motivated to grab opportunities that were available to help them better prepare for life after graduation.

Prizes like water bottles and t-shirts helped to popularize the GO program, but even when campus shut down during the pandemic, students continued to attend Zoom speaker events and participate in other activities that earned them school gift cards, customized business cards and, for students with more than 100 points, a LinkedIn endorsement from the dean.

Since 2019, Computer Engineering senior project teams have been creating an app so students can track their own points and even compete with each other. Interim Computer Engineering Chair Rod Fatoohi presented a paper about our seniors building the GO Program app at the MIPRO 2020 conference. Once the app is fully functioning, the college plans to scale up the program. 🍷

## HERE ARE FALL 2020'S TOP POINT EARNERS, ALL OF WHOM EXCEEDED 100 POINTS

**Andrea Shteynberg**  
Human Factors MS

**130**

**Jumana Nadir**  
Software Engr MS

**150**

**Alexander Shapiro**  
Computer Engineering '23

**155**

**Akansha Jajodia**  
Computer Engr MS

**280**

**Charlie Nino**  
Mechanical Engr '23

**460**

**Dawei Wang**  
Industrial & Systems Engr '21

**A jaw-dropping 1,720 points!**



# Student-Designed Satellites Assist Scientists on the Ground

*Initiative empowers four generations of Aerospace Engineering students*

## THE TECHEDSAT IS A JOINT PROJECT OF

Aerospace students, faculty and alumni at SJSU and NASA Ames. Costing about \$50,000 to build, inexpensive by NASA standards, the satellites in this series have carried state-of-the-art technologies that allow scientists on the ground to process satellite data more efficiently.

In 2013, Aerospace Engineering Professor Periklis Papadopoulos established an integrated space systems engineering curriculum, connecting his senior design classes to real flight deployment and operations. He called the initiative Technology Educational Satellites, which became the acronym TES.



**“We co-authored the safety and system reqs for such missions with NASA.”**

“We founded and initiated the TechEdSat series of flights from its inception at SJSU in collaboration with NASA’s Chief Technologist Officer at the time, Dr. John Hines,” said Papadopoulos.

This initiative was the first-ever successful deployment of a spacecraft from the International Space Station (ISS) and has been recognized as such nationally and internationally. The initial team established first-of-its-kind space qualification requirements that meet ISS safety standards. “We literally co-authored the safety and system requirements for such missions with NASA,” said Papadopoulos. To this day the TES initiative has launched 12 successful missions, empowering four generations of student educational experience in space systems engineering and advancing their post-graduation aerospace careers.

Called CubeSats, the TechEd satellites look like rectangular boxes, roughly 2.5 feet long and weigh fifteen pounds. Inside of the boxes are layers of circuit boards that direct electrical charges, allowing the satellite to function. The circuit boards in TechEdSat are made to endure the harsh conditions of outer space. In parallel to the TES ongoing flights, Dr. Papadopoulos and his SJSU team have integrated an astronomical payload to perform spectrometric measurements in a small form factor to take advantage of one of the first available flight opportunities of the maiden flights of Blue Origin. The senior design students engaged and successfully delivered the payload.

On the recommendation of the San José City Councilmember Raul Peralez, San José Mayor Sam Liccardo presented a commendation in 2019 to the Technology Educational Satellite team for their achievements. 🌟

# From Flying 20 to Precision Flight, and Beyond!

*History of San José State’s plucky aviation clubs*

## THE FLYING 20 WAS ONE OF THE FIRST SJSU

Engineering clubs, founded in 1936 by a group of flight enthusiasts, and a number of similar aviation clubs followed in its wake. One of these clubs, the SJSU Precision Flight Team, formed out of a difficult situation for campus flight programs, and then took its reputation to new heights. Now, this resilient and driven team is using technology to practice together even as the COVID-19 pandemic keeps them apart.

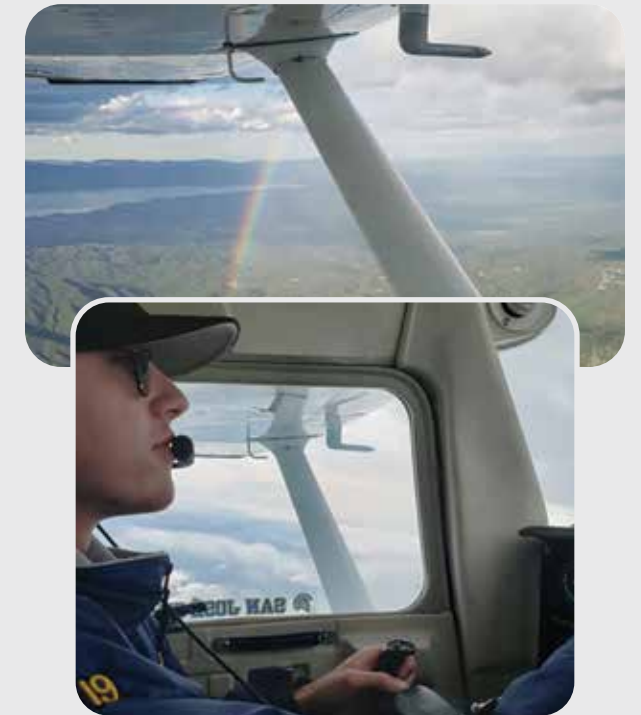
On a foggy October night in 1960, a chartered plane carrying the Cal Poly Mustang football team crashed on takeoff in Toledo, Ohio, killing 22 of its passengers. This tragedy shocked the nation, and led to new regulations for the FAA. Once, pilots could use their own discretion to take off in bad weather, and could not be prevented by airport control towers. After the crash, regulations ordered that only air traffic controllers could authorize departures. The tragedy also led to some serious restrictions for university aviation groups. Even before California Executive Order 82 (1969) prohibited university students from using non-commercial carriers for university-related activities, our San José State flight clubs lost university funding and were forced off campus.

But even with more risk management concerns, insurance and regulations facing them, the club officers persevered. In 1966, they created the SJSU Precision Flight Team, a competitive branch of student flight clubs. The success was immediate, as they won the National Intercollegiate Flying Association (NIFA) competition in 1966, 1968 and 1969. In the seventies, they had some of their best triumphs, notably a 14-trophy, first-overall victory sweep in the 1974 NIFA Safety Conference regionals.

The current Precision Flight students still face the same regulatory and financial challenges, made more complex by the shifting of aviation instruction sites from the main San José Airport to the Reid-Hillview facility. Now the future of Reid-Hillview is uncertain. To this day, club funds come out of student pockets or online donation drives. Despite these limitations, Precision Flight was able to win second place in the 2018 regional NIFA Safety Conference,

and 17th place overall in the 2018 NIFA Nationals. In 2019 they won second place overall in the NIFA Regional Competition, held in Prescott, Arizona.

The Precision Flight team’s drive to compete hasn’t let up during a pandemic-- they have been practicing hard over Zoom for the last 5 months, with the aim to compete in a regional competition without flying events this year. They hope to go on to the Nationals in Oshkosh, Wisconsin in May, once the NIFA makes a decision to host it with measures in place for everyone’s safety. Team President Barrett Conelly says of their club’s current unprecedented challenge, “Despite the separation, we are still producing the best minds SJSU Aviation can offer.” The Precision Flight team’s website at <https://www.sjsupft.com> rounds up the club’s social media presence and fundraising efforts. It also features breathtaking aerial pictures taken by its members, with even more great shots at their Instagram, @sjsupft. 🌟



# Better Every Year: The Bay Area Biomedical Device Conference

*Student-run conference a flagship event for the College of Engineering*

By Rebecca Lee ('22 English)

## THE BAY AREA BIOMEDICAL DEVICE CONFERENCE

(BABMD) is an annual student-run forum for learning about the latest advances in medical device technologies and regulations, as well as an opportunity to hear from industry professionals, engineers, students and executives. It lets students interact with world-class researchers from the Bay Area and beyond.

Biomedical Engineering (BME) Chair Guna Selvaduray is the SJSU BME Society Advisor, assisting students with faculty outreach and connections to the SJSU College of Engineering. BABMD's theme for 2021 is "Technological Responses to Public Health Emergencies," highlighting how different sectors of the biomedical engineering industry, such as healthcare, FDA, business, and research, respond to situations like the COVID-19 pandemic.

This year's conference in late March was held virtually on Gatherly, an online conferencing platform that allows attendees to network through spatial video chat features. Kevin Wiest, 2021 BME Society president, said, "The conference was split over two days this year from 8:00 a.m. - 1:00 p.m. since it would be too much for anyone to sit in front of their computer for 10 consecutive hours. Given the interactive nature of Gatherly, poster sessions, networking, speakers and sponsors still took place!" Presenters ranged from innovators in the medical device industry to government experts involved in pandemic response.

The BABMD conference has brought in more attendees from across the country each year and successfully created a name for itself in the biomedical community. Students organize every aspect of the conference. It's easy to join even if you don't have experience: all volunteers go through training which teaches them

how to converse with the invited speakers, refine their resumes, and ultimately, feel more comfortable around professionals. Students who help organize the conference walk away with valuable skills such as professional networking, collaboration, and project management. Naenedy Lopez, 2021 BABMD marketing lead, said that she's also "learned more about different career paths I can take after graduation and about the importance of networking."

Past volunteers have found jobs and internships through networking with sponsors and industry speakers. Student involvement continues after graduation, as alumni can get involved as industry partners, professional attendees and advisors to student organizers. Alumni said they'd like to see continued success and expanding programs in future years. Master's alumnus, Anesh Tilwani, said he'd like to see the conference attract "maybe even international registrants someday." Wiest said he "would like to see speakers and sponsors bring more of their medical devices with them." They are great conversation starters for students new to networking.

Amanda Abiera, a BME alumna and consistent attendee, said, "The Bay Area Biomedical Device Conference holds a special place in my heart... I literally made my decision to attend San José State for Biomedical Engineering based on my experience at that first conference. I have attended every single conference for the last 10 years and love seeing the progress made each year with increased engagement and attendance from industry leaders and students from other colleges. The conference is a flagship event for the College of Engineering, and I hope to continue seeing this event bring the medical device community together." 🌟



**SAN JOSÉ STATE'S AMERICAN Concrete Institute (ACI) Student Chapter** of the Department of Civil and Environmental Engineering (CEE) has been recognized for more than five years as an Excellent or Outstanding club by the national ACI Organization. This prestigious recognition is awarded only to a select number of universities for their extraordinary activity and participation in ACI events.

Members successfully represented San José State in numerous international competitions organized by ACI, which gave students the opportunity to learn about and experiment with techniques and technologies related to concrete. Deliverables included a fiber-reinforced concrete bowling ball and beam: a new mix design to showcase mortar workability. This year's competition team, led by CEE student Zhixian Chen ('22), will participate virtually

# Advancing Concrete Knowledge and Understanding

*Student chapter recognized as Excellent for 5+ years*

By Professor Akthem Al-Manaseer, ACI Faculty Advisor

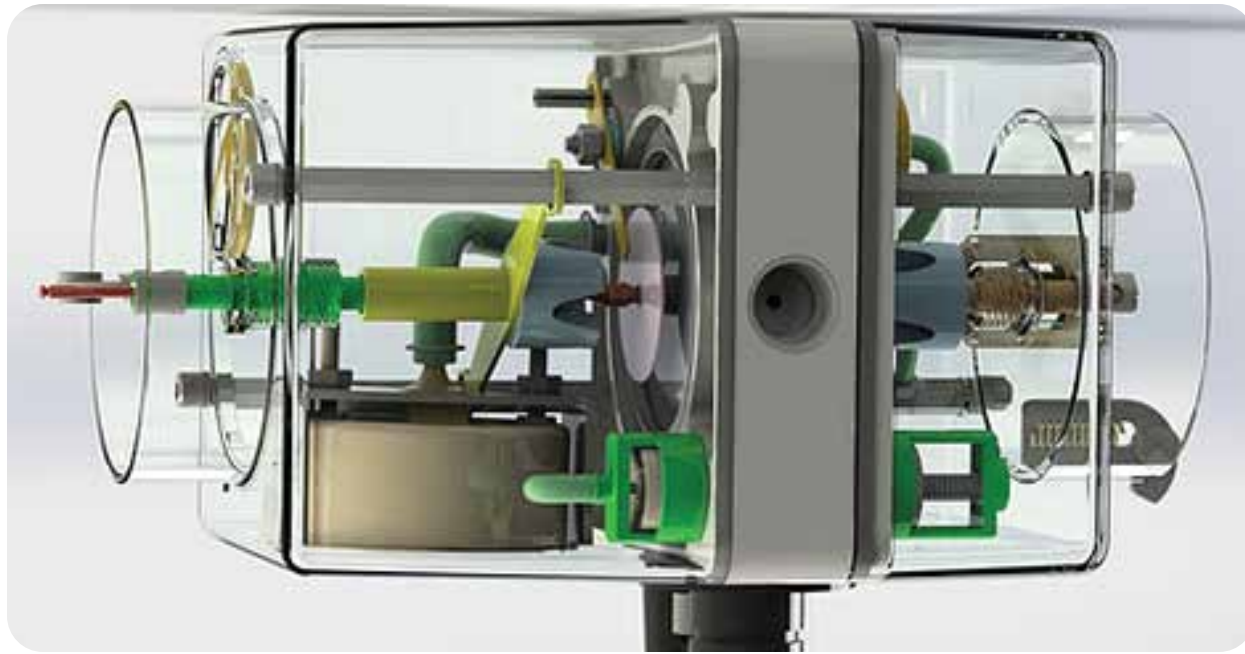
with a presentation and a video about the green future of the concrete industry.

The club also organizes educational Lunch and Learn sessions for members, with the invaluable time contribution of industry members of the local ACI Northern California and Western Nevada chapters. These sessions were particularly popular during 2020, when students attended virtual presentations from organizations such as Master Builders,

Concrete Reinforcing Steel Institute, National Ready Mixed Concrete Association, Central Concrete, FiberForce and Utelite LW Aggregates.

The ACI club offers a number of social opportunities where students relax and form lifelong friendships. The ACI club also offers business events that give students an opportunity to network with industry leaders. Find out more at: <https://www.acisjsuchapter.com/> 🌟





# Students Whistle Up a Rapid Improvement to Ventilator Project

*Delivering TLC to COVID-“stiff” lungs with Livermore Instruments*

**DURING THE START OF THE COVID-19 PANDEMIC,** many places suffered from a shortage of ventilators including towns in the United States. There are also areas around the world with little or no electricity where patients are helpless, lacking electricity-based medical devices. An analog ventilator, powered only by a compressed oxygen tank, can be made at an affordable price and is accessible to a wide range of people.

Students from the Materials Engineering department have been working hard on an industry-sponsored ventilator improvement project since August 2020, when Dean Sheryl Ehrman introduced them to Dr. David Fergenson, president of Livermore Instruments, whose website tagline is, “Bringing a \$700 ventilator to the world at 10,000 units/week.”

The Retro Vent 19 consortium had succeeded in reproducing a version of the Bird MARK 7 medical

ventilator (introduced in 1958) that was amenable to injection molding or mass 3D printing. The MARK 7 was the world’s first mass-manufactured medical ventilator and because it was the first, it lacked some critical safety and performance features which, necessarily, could only be discovered once medical ventilation was possible.

For this project, materials engineering students An Trong (‘21), Scott Lienhart (‘21) and Kyna Chen (MS ‘24), took responsibility for improving the pressure alarm indicator and the bellows portion of the ventilator.

Patients requiring ventilation due to COVID-19 have stiff lungs. The technical term for this is that the lungs are “non-compliant.” So higher oxygen pressures are needed to inflate those patients’ lungs. But as patients recover their lung health and capacity, the lungs become more compliant

and if the pressure isn’t turned down then the patients’ lungs can be hyperinflated, damaging them. According to Dr. Fergenson, the San José State team came up with an ingenious design to warn when a patient’s lungs were in danger of being hyperinflated, allowing a clinician to lower the pressure.

They made an alarm that sounds at least 64 decibels to warn doctors and nurses if the oxygen level for the patient is incorrect. For this, the students 3D printed a whistle to attach to the design and a battery-powered magnetic sensor alarm, providing clinics with choice and backup options.

For the bellows portion of the design, the Materials Engineering students had to ensure they would not leak, and they would be durable. Chen said, “We also have to make sure that the bellows will reset correctly after each breathing cycle. For this part, we will be using a two-way release valve that can hold the air as the bellows are being filled and release the air on command. A CAD design has already been made for the bellows design and we are currently working on finalizing the design and choosing the correct materials so our bellows can be 3D printed.”

“Some aspects of the design were truly ingenious”, said Dr. Fergenson. “For example, the Retro Vent 19

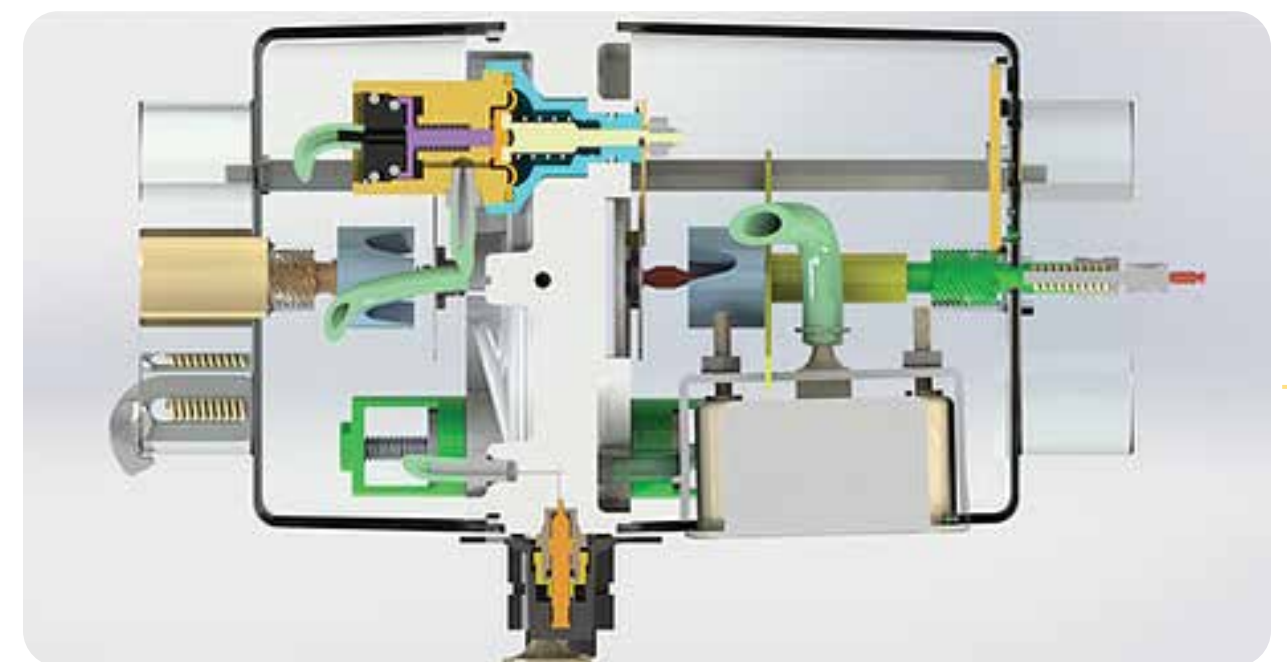
has a particularly high tolerance part with a known manufacturing failure rate. The students reused the “failed” parts in their design, producing a critical and expensive part for literally no cost by diverting failed parts which would otherwise end up in a landfill.”

Dr. Fergenson added, “It’s worth noting that this same task had previously been assigned to two other professional mechanical engineers. Of the three efforts, the San José State team produced the only realistically workable solution to this problem.” You rock, Spartan Engineers!

Find more information at <https://www.retrovent19.com>.

## VENTILATOR ALARM

Mechanical Engineering Assistant Professor Saeid Bashash and graduate student Tyler Moudy (‘21) are also working on an adjacent visual alarm project for ventilators: if the air volume is in the normal range, LEDs will shine green. However, when the volume drops below or goes above a certain level, the LEDs will turn blue or red.



# Names May Change But the Mission Remains Constant

*The evolution of the Computer Engineering department*

By Dr. Rod Fatoohi, and Dr. Haluk Ozemek

## COMPUTER ENGINEERING HAS AN INTRIGUING

history at SJSU, according to Professor Haluk Ozemek, who has been with the program since its inception in 1970. That year, the General Engineering department began to offer a Bachelor's degree (BS) with a major in General Engineering (Computer Science option).

Surrounded by a rapidly evolving Silicon Valley tech industry, students needed to stay current in the marketplace. In 1976 the General Engineering department changed its degree offering to BS in Engineering with an option in Computer Science. The department then changed its name in 1982 to Computer Science Engineering & General Engineering, and still offered a BS degree in Engineering with an option in Computer Science. According to their ABET report, they were first awarded accreditation in 1983, an important

milestone because this new degree was responding to the needs of the growing Silicon Valley. In 1986, the BS degree in Computer Engineering was first offered within the Computer Science Engineering & General Engineering department.

Computer Engineering became its own department in 1992. In 1996, several programs including Computer Engineering merged into a new department called: Computer, Information, and Systems Engineering (CISE). But the Valley kept evolving, as did the needs of the students. In 2000 CISE was dissolved, and in 2001 the Computer Engineering department restarted. It has maintained its name to this day (so far). Providing its faculty and students with ample opportunities for close collaborative ties with industry and research partners in Silicon Valley, the department serves more than 2,200 undergraduate and graduate students. ☺

## CHAIRS IN HISTORY

1976	Ed Dionne was the Chair of General Engineering with the Computer Science option.
1982 - 1986	Elden Shaw (Computer Science Engineering & General Engineering)
1986 - 1988	Interim Chair Bud Lima (Computer Science Engineering & General Engineering)
1988 - 1993	Nicholas Pappas (Computer Science Engineering & General Engineering / Computer Engineering)
1993 - 1994	Interim Chair Jim Freeman (Computer Engineering)
1994 - 1996	Haluk Ozemek (Computer Engineering)
1996 - 1997	Gene Moriarty (Computer, Information, and Systems Engineering)
1997 - 1999	Ben Knapp (Computer, Information, and Systems Engineering)
1999 - 2000	Lou Freund (Computer, Information, and Systems Engineering)
2000 - 2001	Haluk Ozemek (Computer Engineering)
2002 - 2014	Sigurd Meldal (Computer Engineering)
2014 - 2020	Xiao Su (Computer Engineering)
2020 - Present	Interim Chair Rod Fatoohi (Computer Engineering)

# 'General' Becomes Interdisciplinary Engineering

*As desired job skills change, so do departments*

## WHEN GENERAL ENGINEERING CHAIR,

Ping Hsu, arrived at San José State in 1990, the department was already named General Engineering – and it has not changed until now. “Industry opportunities are reflecting a more broadly based engineering need in addition to traditional, specific engineering skills,” said Hsu. Terms such as Interdisciplinary Engineering, Integrated Engineering or Multidisciplinary Engineering can be found on all the major recruiting platforms to address the nature of the listed job requirements.

Beginning in Fall 2021, College of Engineering students may earn a Bachelor of Science Degree in Interdisciplinary Engineering (IDE). The program, a revision of General Engineering, offers students an opportunity for interdisciplinary engineering education which has not been available through traditional, single discipline programs.

Students have the ability, working with an advisor, to create their own customized pathway of courses based on their engineering-related career interest. The revised program provides a structured curriculum to guide students through a broad-based engineering education experience based on an area of focus. Students may also take courses outside of the College of Engineering in support of their educational goals that best suit their needs.

Many major university engineering colleges across the country offer a similar curriculum structure and program name. However, Hsu said, the reason for the name change at San José State is that it more accurately reflects the skills and knowledge a student can obtain by successful completion of the curriculum. “IDE students take the same basic mathematics, physics and other science courses required by other engineering majors, but then they have options to select in-depth and broad-related areas related to their interest for upper division courses,” said Hsu.

An example of the students IDE might best serve could be found in alumnus Vignesh Ramachandran. As an attorney in the intellectual property (IP) practice, he applies his academic and professional training in electrical engineering to his work in patent prosecution. While a student at San José State, Ramachandran was an active member in IEEE and Engineers Without Borders. He continues to be involved in the university as a patent review board member of the Research Foundation and an Advisory Council member. As council member, working closely with IDE Chair Hsu, he is developing an IP program within the Interdisciplinary Engineering curriculum and hoping that more engineers will consider a career in IP. ☺

**“IDE students take the same basic mathematics, physics and other science courses required by other engineering majors, but then they have options to select in-depth and broad-related areas related to their interest for upper division courses.”**

—Ping Hsu, General Engineering Chair at San José State

# New Master's Specialization in Quantum Computing & Information

*Creating a diverse taskforce with quantum computing know-how*

By Hiu Yung Wong, assistant professor, Electrical Engineering

## FOR DECADES, NON-PHD MINORITY SERVING

Institutes (MSIs) have been steadily providing a diverse workforce to the semiconductor industry, which sustains the United States semiconductor industry's ecosystem and its competitiveness. For example, Silicon Valley companies such as Apple and Cisco hire the largest number of alumni from San José State as test engineers, circuit and layout designers, device engineers, programmers, marketing and program managers, business analysts and lawyers.

This hiring is also a result of the close collaboration between San José State and industry around internship and certificate programs. Our college is convinced that for the American quantum computing and information industry and ecosystem to be successful and competitive, a diverse taskforce with quantum computing know-how from MSIs is not just crucial but essential.

The Electrical Engineering (EE) department recently created a specialization in Quantum Computing and Information for its Master's degree program. As initially planned, this specialization comprises three classes:

1. Introduction of Quantum Computing (EE225), first offered in spring 2020 by leveraging the Quantum Classroom, a collaboration between San José State and IBM. Students learn quantum computing algorithms and verify them by running on IBM quantum computers. This class will be offered again in fall 2021.
2. Cryogenic Nanoelectronics (EE226). To be offered in spring 2022. Students will learn the physics and design of transistors and

integrated circuits that are used to manipulate and control quantum computers at cryogenic temperature (4.2K). Through recently awarded NSF funding, students will also gain hands-on experience in cryogenic electrical measurements.

3. Quantum Physical Qubit Architectures. Starting in fall 2022, students will learn various physical implementations of qubits that are used in quantum computers.

According to plans within the EE department, the specialization will be improved with feedback from the industry. Since microwave engineering, signal processing, control theory, et al. are critical to the success of large-scale quantum computers, quantum computer-related teaching materials will be added gradually to the respective traditional EE classes.

Read more about the Quantum Classroom at [www.sjsu.edu/it/ibm-collaboration/quantum-classrooms.php](http://www.sjsu.edu/it/ibm-collaboration/quantum-classrooms.php). Questions? Write to Professor Wong at [hiuyung.wong@sjsu.edu](mailto:hiuyung.wong@sjsu.edu).

**The Electrical Engineering (EE) department recently created a specialization in Quantum Computing and Information for its Master's degree program.**



# Agile Programs for Silicon Valley Professionals

*How Engineering Extended Studies works*

By Rebecca Lee

## SAN JOSÉ STATE HAS HAD A

long-time collaboration with Silicon Valley because of our location and presence. Over a decade ago, the College of Engineering recognized the need for agile Master's programs for professionals. We collaborated with corporate partners to share the academic expertise of San José State's engineering faculty and customize programs to their specific needs. The College of Engineering has offered corporate programs to eight companies over the past ten years, some of which were offered through multiple programs and cohorts.

The corporate Master's programs have many positive collaboration outcomes for the university,

corporate partners, and the students. Engineering employees gain skills relevant to their fields and apply learning to their work in real time. The classes are taught by faculty and industry subject matter experts using instructional design tools for remote work. They are cohort-based and they meet working students' needs, such as meeting one evening per week at the company's facilities.

San José State builds stronger connections with industry partners and a core alumni base at companies, and this leads to more research collaborations and more student internship opportunities. Industry experts share their knowledge in cutting-edge fields as part of the curriculum, and sometimes the special topics courses that were developed may

be permanently adopted into university curriculum.

Corporate partners benefit as well, with employees earning Master's degrees by learning skills and concepts that are both tailored to advance company goals and applicable to their daily work. Employees can also take individual courses relevant to their work as non-degree seeking students. Flexible schedules and convenient class times and locations aid hybrid delivery, a boon for employees with families. Students receive dedicated staff support for navigating the university's processes and requirements, and tuition reimbursement from employers. Most important, their learning is relevant to their job and valued by their employer.



# Supporting Supply Chains During the Pandemic

*Projects from the Industrial and Systems Engineering department*

## ONE OF THE EARLY REVELATIONS OF 2020 WAS THAT

essential supply chains around the globe can be fragile and fraught with challenges. The department of Industrial & Systems Engineering (ISE) developed several projects to support supply chains during the COVID-19 pandemic. Here are some highlights.

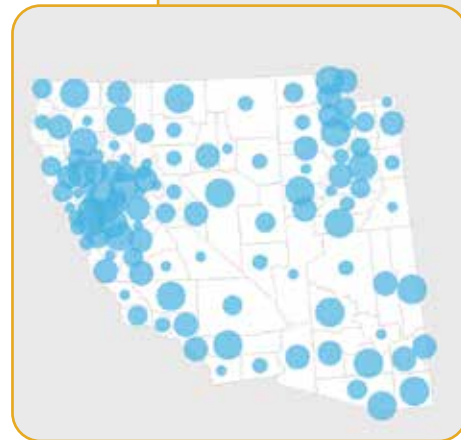
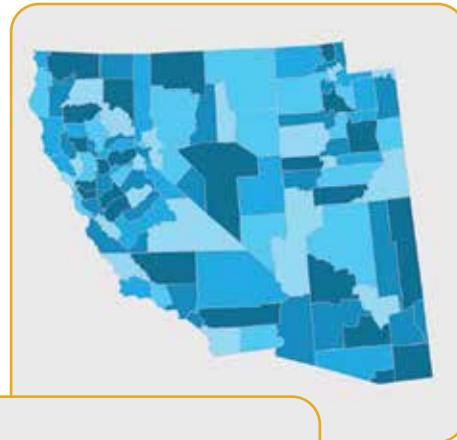
### Better Data Visualization

Aparna Avinash Gokhale, a Human Factors Master's student and instructional assistant, is working with Professor Abbas Moallem to study the general public's confidence and satisfaction while interpreting COVID-19 data when represented by the two most commonly used data visualization maps, Choropleth and Graduated Symbol, under variances of geographic area and volume of cases. A Choropleth map uses shade, color, or pattern to represent the intensity of COVID-19 cases in a geographic area, while a Graduated Symbol map uses differently sized circles to represent the intensity of cases.

Participants, via Zoom, were asked to click (via mouse or trackpad) on each of the maps and select the areas that appeared most and least affected by the pandemic, while their accuracy, timing, confidence and satisfaction were studied. "In epidemiology, a lot of research is focused on evaluating data visualization tools and understanding them from an expert's point of view," said Gokhale. "It is essential to evaluate these data visualization maps from the general public's perspective. The study will highlight areas of potential misinterpretation of the data, and this will help to address future misinformation."

### Devising logistical plans to procure safety kits

The healthcare industry is struggling to overcome the severe shortages of ventilators, sanitization PPE kits and pharmaceuticals. To address this challenge, ISE Assistant Professor Hongrui Liu is working with Engineering Management Master's student Siya Mukherjee. Together, they want to eliminate the root cause of supply shortages by devising optimal logistical plans to procure safety kits, based on the county demand and average patient footfall.



**“It is essential to evaluate these data visualization maps from the general public’s perspective.”**

– Aparna Avinash Gokhale



**“My goal with this project is to improve the way lay people make decisions about safety, thereby reducing the burden of COVID-19 on the national health systems.”**

– Dan Nathan-Roberts

They also hope to address high turnaround times of healthcare service following ICU resource scarcity. Understanding demand patterns and considering local vs. global partnerships, they hope to help the healthcare industry uncover solutions to be able to better react to any pandemics in the future by enhancing preparedness.

### Decision-support tools for lay people

Associate Professor Dan Nathan-Roberts is currently teaching his San José State engineering courses from New Zealand, while working with the University of Auckland on creating decision-support tools for laypeople for dealing with COVID-19, among other projects. "I will use my background in patient-centered healthcare research to help the University of Auckland and Orion Health / Precision Driven Health develop a

tool for patients to make decisions about COVID-19 treatments," he said. "My goal with this project is to improve the way lay people make decisions about safety, thereby reducing the burden of COVID-19 on the national health systems."

Nathan-Roberts was granted the exemption to New Zealand's border closure partly based on his 2020 work to support San José State's safety, resulting in a literature review summarizing COVID-19 transmission routes and a full gamut of information about best practices for interventions. That document led to an article currently under peer review called "Flunking COVID out of Schools; a Systematic Review of Non-Pharmaceutical Interventions to Minimize Novel Coronavirus-2 in Educational Settings," coauthored by ISE students Wakana Ishihara, Kelli Sum and Jenny Lee. 🍷



# Championing Engineering Students since 1991

*Interview with Kathy Robinson*

## KATHY ROBINSON, AN

administrative analyst with the Engineering Associate Dean's office, has three Bachelor's degrees, graduated cum laude in Health & Physical Education, and is an SJSU alumna (Criminal Justice '00). Since 1991, she has worked with the College of Graduate Studies, International and Extended Studies, the General Engineering and Civil Engineering departments, and the Dean's Office in various capacities.

Robinson has earned the College of Engineering Dean's Service Award, the San José State Diversity Award, and College of Engineering Staff Award for Excellence in Service. She's a longtime member of the San José State Black Faculty and Staff Association.

Born and raised in New Orleans, she worked in higher education while earning degrees in Business Administration and Health & Phys Ed, but decided to move once she had her daughter. "At the time in 1991, New Orleans was the murder capital of the world," she said. "I want to raise my daughter in a better environment."

Once in California, Robinson found work in the College of Engineering's Civil & Environmental Engineering department. She's been with San José State ever since. When asked why she has stayed, she replied, "My interaction with students keeps me going." She guides and champions students, and her student assistants, from their admission all the way through earning their degree. "I love helping students work through the San José State system to graduate," she said.

Robinson has also helped to cultivate the College of Engineering's Off-campus Dual Degree and Corporate Programs, which you can read more about on page 15. She has overseen student cohorts 13-17 at Techmart and corporate education programs with KLA, Applied Materials, Lockheed Martin and Lam Research.

Some of her favorite memories over the past three decades have come from volunteering for the annual Engineering Awards Banquet, and volunteering for each semester's graduation ceremonies. Both events involve painstaking preparation and culminate in

happy and festive occasions, with plenty of students dressed up and on their best behavior.

Outside of work, Robinson is deeply engaged in her community, particularly in helping young people find their confidence and self esteem through health, teamwork, and accountability. A cheer coach since 1973, she is President of Oak Grove Youth Football, Cheer + Dance and has held the role since 2004. This organization offers programs that teach basic skills in football, cheer, and dance in a fun and safe family environment. She also volunteers with the San José Sharks' nonprofit youth programs. 🍷



*Kathy Robinson (right) with her daughter.*

# SJSU's Mechatronics Program

*Singular and synergistic engineering design*

## DENISE BUTLER, MECHANICAL ENGINEERING

alumna and engineer at Bishop-Wisecarver, recalled that her senior project was creating a solar panel-dusting robot.

Now she works with CAD software, actuator design, motor selection, and lab testing, as well as Python and 3-D printers. "My SJSU mechatronics classes, my mechanical background, and not being afraid to code — all this gave me the edge in the job market," she said when she recently spoke with engineering students at a virtual Dean's Career Conversation.

Mechatronics is a branch of engineering that specializes in synergistic integrations of both mechanical and electronic technologies (the essential 'high' technologies of Silicon Valley). Many products that we use daily involve this mechanical and electronic integration, from smart household appliances like the digital buttons that operate washing machines to the microcomputers and processors that power GPS on a car's touchscreen.

In addition, mechatronics has far-reaching applications to power products and processes that could combat our biggest challenges, such as 24-hour farming and electric transportation to help confront climate change and hunger.

With substantial financial support from the National Science Foundation and large businesses in Silicon Valley, Mechanical Engineering Professor Tai-Ran Hsu led an interdisciplinary group of San José State faculty members from mechanical, electrical, materials, and general engineering, along with physics professors and faculty from Mission College to establish the first mechatronics program at the undergraduate level in the country. Dr. Hsu's research focuses on the integration of STEM education and sustainable mechatronics, which he considers vital to maintain leadership

in local and global economies. He believes one of the reasons Silicon Valley is the world leader in high technology is due to its excellent public education, especially STEM education.

The David Brown Fellowship in Mechatronics was established in 1996 to promote the professional development of students in the area of mechatronics, and to advance the development of the mechatronics program. The recipient of the \$2,000 award is expected to contribute to mechatronics laboratory development and laboratory instruction during the fellowship year.

Butler remembers her SJSU mechatronics education every day: "I use kinematic equations every day in my work. Basic electronics and hooking up circuits. I got a lot of new vocabulary, and I had to Google the words — they gave me a lot of confidence to try new things." 🍷



*Denise Butler*



*Tai-Ran Hsu*

**The first mechatronics program at the undergraduate level in the country.**



# How Machine Learning Helps Prevent Accidents

*Technology professor works across multiple disciplines to find patterns*

## TECHNOLOGY ASSISTANT PROFESSOR

Fatemeh Davoudi's field is machine learning and data analytics, but her passion is to save lives and reduce the monetary and environmental costs of industrial systems. She seeks to understand how to control the root causes for accidents and, if known, how to remove them by implementing strategies in the workplace and reducing injuries.

Davoudi's approach is to use machine learning in the study of accident data. "There are multiple factors in occupational accidents — human, environmental, machinery — it's complex to find them all. Previously, this was done through statistical analysis," she said. "The novelty of my research is adding machine-learning algorithms that are able to review all these factors at the same time, and give you a pattern."

The uses for machine learning in accident data analysis are far-ranging, and bring her into frequent collaboration opportunities, as she noted, "I love that I can work with many disciplines and researchers; my collaborators have been in Computer Science, Computer Engineering, and now I have a group of student researchers doing fault detection work to reduce waste in the semiconductor industry."

Her work with Computer Engineering graduate student Deepthi Jallepathi is on understanding fault detection in rotatory machinery — tracking the behavior of rotatory bearings in machines. Using sensor data on the bearings and raceways and analyzing it with machine learning, they can classify the behavior of rolling elements as "good" or "bad", and find the areas where they aren't working. Their work was published in the proceedings of the International Conference on Intelligent Human Systems Integration 2021.

Mining has always been dangerous — even as technology has improved, accidents are still a significant risk. Davoudi's research with Computer Science students and faculty at Iowa State analyzes accident patterns, which yields suggestions to reduce incidents. The researchers also test synthetic data against simulations that model a balanced outcome of accidents, to verify if their safety suggestions still work. Their work appears in the special issue "Safety Analytics in Occupational Settings," of the *International Journal of Environmental Research and Public Health*, of which Davoudi is the guest editor.

The study of accident data can be used in public policy work, like the CSU transportation consortium research she's conducting with Aerospace Engineering Assistant Professor Maria Chierichetti about resistance to bicycle helmet laws. Serious cycling injuries are on the rise, and adult cyclists still resist helmet laws. The professors developed a survey sent to adult California cyclists, gauging socioeconomic factors (job, education, income, family background) and cycling behaviors. Now they are trying to create patterns from the data collected in the survey to find out what other barriers, besides personal freedom concerns, cause cyclists to avoid helmet use. ☺

***"The novelty of my research is adding machine-learning algorithms that are able to review all these factors at the same time, and give you a pattern."***

— Fatemeh Davoudi

# From Student to Building Safety Coordinator

*Interview with Neil Peters*

## NEIL PETERS HAS WORKED FOR THE COLLEGE

of Engineering since his senior year at San José State. A local transfer student, he majored in Electrical Engineering, graduating with a BS in 1996. His senior project became the endeavor that would lead him to a critical staff role in the college.

"When I was doing my senior project," said Peters, "I got interested in semiconductors. My project was to lay out a tip-level A to D converter. I asked my advisor if we had a semiconductor fab, and he connected me with Peter Gwozdz, a technologist in semiconductor wafer fabrication. Dr. Gwozdz taught introductory short courses for local semiconductor workers—not fab technicians, but administrators, educators, and marketing employees, and he hired me. While I was his assistant, we had one old wet sink, a couple of bench-style vent hoods, and a spinner, but I kept hoping we could build a real semiconductor fab.

"I was cleaning up the 285/7 conference room, when I found papers showing that Emily Allen, a professor in Materials Engineering, was raising funds to set a semiconductor fab. It took all my courage to talk to her—I told her I wanted to be a part of that process. She hired me to be a part of building our Microscale Process Engineering (MPEL) lab."

## Developing the MPEL

Working with Emily Allen, Peters learned much from the local companies that donated their time

as they set up the semiconductor fab. "In designing the lab, I learned that you need nitrogen, clean dry air, a deionized water system, and vacuums. I also learned AutoCAD to lay out lab infrastructure. We brought in industry partners like Hathaway Dinwiddie, Cupertino Electric and Therma. [Dean] Jay Pinson put up a unistrut all along the back corridor of the lab—if you needed to add a pipe, you could attach it to the strut rather than having to call Facilities to do so. I learned so much about how to install things."

Starting as a student assistant, he developed into a Process Lab Engineer. Later, as staffing and needs of the Chemical and Materials Engineering (CME) department changed, Peters was promoted to lead technician of all the CME labs.

## Building Safety as a Coordinator

Around 2016, Peters applied his existing knowledge of lab management and safety to monitor all the facilities in the Engineering building. Incidents at other research universities led him to focus on



***"It took all my courage to talk to her — I told her I wanted to be a part of that process."***

— Neil Peters



Peters and his girlfriend, Sandra, heading to Isla Mujeres, just outside Cancun.

**“I want to give them the data they need to make the decisions that support their research and careers.”**

– Neil Peters

a Safety First emphasis in research and teaching. He works closely with students and faculty to find alternatives to potential hazards.

Now he does what he loves best: helping to design new facilities and procedures, make them cost effective, and find new tools for the faculty to use in their work. “I want to help faculty build safety into the lab from their initial budget proposal,” he said. “Before they submit it, I need to review it with the campus facility team, and make sure we can handle their tech and facilities needs from the beginning. I want to give them the data they need to make the

decisions that support their research and careers.”

Peters plans to bring more research students into the Safety First mindset. He has a required safety course for students issued a door code for the research labs, and he wants to expand that training. “We need to teach students when they go out to industry that they represent SJSU with their knowledge of safe procedures,” he said.

\*Read more about the MPEL in the Fall 2019 issue of Engineering at San José State. [www.sjsu.edu/engineering/distinctions/alumni/magazines](http://www.sjsu.edu/engineering/distinctions/alumni/magazines)

# 2021 National Engineers Week Student Video Contest

*The best of engineering*

By Rebecca Lee

**AS PART OF ITS 75TH ANNIVERSARY CELEBRATIONS, THE** College held a National Engineers Week Video Competition. We asked, “Why is your project/major/club the best in the College of Engineering?” and encouraged students to be creative. Nineteen videos were submitted and accepted between October 2020 and February 2021.

The College invited its community to vote for their favorite three. There were hundreds of views per video and more than 520 people voted. The winners were announced during National Engineers Week (February 21-27).

All participants received a commemorative pin and the winners received cash prizes. Watch the videos at our National Engineers Week Video Competition website: [www.sjsu.edu/engineering75/video-contest](http://www.sjsu.edu/engineering75/video-contest)



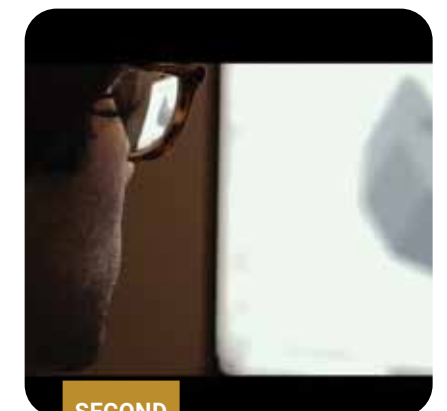
FIRST PRIZE

“Why I chose Mechanical Engineering” by Jared Wang



SECOND PRIZE

“How to be: SRE” by Trevin Aguilar



SECOND RUNNER UP

“Why I Chose ISE at SJSU” by Jibraan Qureshi



THIRD PRIZE

“Research Paper Review Portal Ad” by Kapil Mulchandani



FIRST RUNNER UP

“How SWE Changed ME” by Caitlyn Chau

# Highlights of Our History

## THE CHARLES W. DAVIDSON COLLEGE OF ENGINEERING CREATED A

timeline that notes both the college's origins and its contributions to Silicon Valley and to pre-Silicon Santa Clara Valley during its 75 years. Explore highlights of our history from the College's first building to the Engineering Student Success Center's grand opening.

You can access the full timeline from our College of Engineering website: [www.sjsu.edu/engineering](http://www.sjsu.edu/engineering)



### 1946

The tiny **engineering and aviation departments are established** in a couple of 40'x 80' Quonset huts, with many of the faculty members veterans of World War II. 200 students enroll.

### 1955

**Norman Gunderson serves as first Dean of the college.** In 1966, Buckminster Fuller wrote: "To the best of my knowledge, there is no engineer and educator... who is doing so much, so effectively, towards mankind's total success on Earth as is Dean Norman Gunderson of the School of Engineering of San José State College.

### 1963

Civil Engineering receives the College's **first sponsored research project** from the U.S. Department of Defense.

### 1972

The **Flying Twenty** become the Pacific Coast Intercollegiate Flying Champions!

### 1977

SJSU chapter of **Black Alliance of Scientists and Engineers** established.



### 1985-86

College embarks on a \$38 million renovation and expansion program called **Project 88**. Construction begins on new College of Engineering building, completed in 1988.

### 1993

San José State celebrates diversity. The campus **reaches cultural pluralism**, with no ethnic majority. SJSU continues to be a multicultural model for other universities.



### 2002

**Don Beall** and the Beall Family Foundation make first-ever endowed-deanship gift, ending the Don Beall Dean of Engineering.

The Early Years

Establishing Excellence

Expansion & Growth

Pushing Boundaries

### 1944

**A decision is made** to develop an engineering program. Dr. Ralph J. Smith becomes Department head.

### 1953

The departments move from the Quonset huts to an actual **Engineering building.**



### 1961

First **M.S. degrees** are conferred. They are in Electrical Engineering.

### 1967

San José State becomes one of the first 3 universities in the country to earn accreditation for its new **Industrial Technology degree.**

### 1975

SJSU student chapter of **Society of Women Engineers** is founded. 4% of engineering students are women.

### 1983

SJSU chapters of the **Society of Latino Engineers and Scientists (SOLES)** and **MESA (Mathematics, Science, Engineering, Achievement) Engineering Program** are established.

### 1986

Human Powered Vehicle competitions had been around since 1973. ASME takes over as the lead organization in 1983. **SJSU takes first place** in 1986 with a vehicle called 'Rude.'



### 1993

**Engineering Reports on the Earth** and **Environment 100W class** added for engineering students. The current version of this course is recently (2020) lauded as "changing climate change education."

### 2002

College hosts the first **Silicon Valley Leaders Symposium**, a free speaker series where industry leaders offer insights and perspectives to the students.

*“San José State engineering students, faculty and staff have had the gut feeling that we have been major participants in one of the world’s great stories of success.”*

— Dean Emeritus Norman O. Gunderson



**2002**

**Dr. Belle Wei becomes sixth Dean of CoE and first female dean.**

During her tenure the college doubles its research grants and its Silicon Valley corporate Master’s degree programs.



**2009**

**Engineering Student Success Center** opens.

**2012**

Aeronautical engineering students take home **first place at the Design/Build/Fly competition**, sponsored by the American Institute of Aeronautics and Astronautics Foundation.



**2019**

The **8th TechEd Satellite** is deployed from International Space Station, earning the team a Commendation by the Mayor of San José.

Pushing Boundaries

Leader of Engineering

**2007**

Charles W. Davidson makes **largest private individual gift** (\$15 million) in SJSU history. CSU Board of trustees approve naming the college in his honor.



**2011**

Aeronautical Engineering alumni **Julie Sattler**, who became the first female maintainability engineer at Lockheed Martin, is recognized by the Women In Aerospace organization with a Lifetime Achievement Award.

**2015**

The inaugural **Power of Women in Engineering Conference** takes place, later named Silicon Valley Women in Engineering Conference.

**2020**

SJSU is **ranked #1 Most Transformative University in United States** by *Money Magazine*.



# A Legacy Perpetuates Engineer’s Contribution to His Community

*A new scholarship honors Robert A. Dees, '93 Mechanical Engineering*

By Dr. Rajan Ramaswamy, President and CTO of Novo Engineering

**ROBERT DEES' LIFE (1967 - 2020) EMBODIED THE**

Latin phrase “Mens et Manus” (minds and hands). A saying followed by engineers everywhere; it urges them to use their education to create and build things in the real world. The breadth and depth of Robert’s professional and personal interests are proof of this philosophy in action.

After completing his BSME at San José State, Robert had a long, successful career in industry. Starting out as a junior engineer designing, testing and machining parts himself, he advanced to roles of progressively higher responsibility in engineering and engineering management. He worked at both large and small companies, notably Life Technologies, Ichor and Care Fusion, before joining NOVO Engineering in 2017. There he arguably found his true home—surrounded by like-minded folks who respected his abilities and enjoyed his sense of humor and adventurous approach.

Robert was a devoted father and involved in a wide range of hobbies, including motorsports with cars and motorcycles, brewing, and guitar playing. He brought his unique engineering attitude to each of these activities and delighted them with his keen insights and observations.

Robert’s mother, Ms. Debbie Hammond, decided to honor her son’s memory by establishing the Robert A. Dees Memorial Scholarship, an annual award to further the education of engineering students at SJSU. “We hope the recipients of my son’s memorial

scholarship will honor his memory by living with honor and integrity and by putting their education to the best practical use possible for society,” said Ms. Hammond.

You can join Ms. Hammond in honoring the memory of a loved one and help San José State’s nationally ranked Charles W. Davidson College of Engineering continue preparing future generation of engineers. Learn more at [Legacy.sjsu.edu](https://legacy.sjsu.edu).

*“We hope the recipients of my son’s memorial scholarship will honor his memory by living with honor and integrity and by putting their education to the best practical use possible for society.”*

—Ms. Debbie Hammond

# Alumni Notes



## DENISE BUTLER

BS Mechanical Engineering '19

Denise Butler, a Mechanical Engineer at Bishop-Wisecarver in the R&D department, was recently featured in Design World Network's "Women in Engineering" series. She spoke at SJSU as part of the Dean's Career Conversations Series in 2020.



## DEEPEEN DESAI

MS Computer Engineering, '05

Deepen Desai recently wrote an ebook on ransomware research and defense for organizations. The Chief Information Security Officer at Zscaler ThreatLabZ, he says it's time for organizations to completely reimagine their ransomware defenses.



## DANIEL GONZALES

BS Civil Engineering, '05

Daniel Gonzales was recently appointed as Piedmont's Director of Public Works. He served as Hillsborough's Deputy Director of Public Works for three years. Before that, he worked as a senior engineer for CSG Consultants with public and private sector clients.



## AOIFE GRADY

MS Electrical and Electronics Engineering (Exchange program), '19

When Sister Cities International inaugurated President Joe Biden as their Honorable Chairman in January, Aoife Grady spoke as a Pat McMahon San José-Dublin Sister Cities Scholarship recipient. She's currently a software engineer at a multinational company. She returned to Ireland after completing her studies in California, where she had secured a job at Intel.



## KENT KADING

BS & MS Chemical Engineering, '91

Kent Kading was selected as the National Director of Environmental, Health and Safety (EHS Services) at Connecticut-based TRC companies. He is working to broaden the available EHS services.



## PATRICK LITTLE

BS Electrical Engineering, '89

Patrick Little was selected as CEO and Chairman of SiFive. He has extensive executive technology experience including CEO of eASIC Corp., Senior Vice President of CSR Technology, and Senior Vice President at Xilinx Inc. SiFive provides processor cores, accelerators, and SoC IP to create domain-specific architecture based on the free and open RISC-V instruction set architecture.



## LEONARD POON

BS Industrial Technology, '66

Dr. Leonard Poon has been a Distinguished Research Professor Emeritus in Psychology, Gerontology, and Public Health at the University of Georgia since he retired in 2011. After graduating from San José State, he worked at Lockheed Missiles & Space, then earned his PhD in Psychology at University of Denver. He did Postdoctoral work at Duke Medical School and became a Harvard Medical School Clinical Professor of Psychiatry in 1974.



## CRAIG SIMON

Aviation Ops and Aviation Maintenance Mgmt, '98

Craig Simon has been named the Assistant Director of Aviation – Operations for the Oakland International Airport (OAK) after serving as the Interim Assistant Director. He has worked for OAK for eight years. Prior to joining OAK, Simon worked for Norman Y. Mineta San José International Airport for 11 years.



## SRIDHAR VEROSE

MS Software Engineering '08

Sridhar Verose was recently elected councilmember for District 3 in the city of San Ramon, California. He has served as commissioner of San Ramon Parks and Community Services since 2016. He works as senior manager, Cloud Operations, Open Text, Inc.

## IN MEMORIAM



# Remembering Charles W. Davidson

*Developer, Philanthropist, Affordable Housing Activist*

### WE WERE DEEPLY SADDENED TO LEARN OF

Charles W. (Chuck) Davidson's passing on March 25, 2021, and the college community is mourning his loss. An avid reader and lifelong learner, Chuck was a student of life and an ardent supporter of San José State University.

San José Spotlight journalist Janice Bitters wrote of him in 2019, "Charles Davidson arrived in San José [from Eastern Oklahoma] a broke 21-year-old in 1952 seeking a way out of poverty and he's spent the last 67 years forging his own lucrative path in the world. But he's also quietly become one of Silicon Valley's most unsung philanthropists."

Chuck graduated from Civil Engineering (1957) after working nights in local railroad yards and attending classes during the day. An entrepreneur who founded and managed five thriving companies, he built thousands of homes, was a pioneer in creating and enabling affordable housing, and provided San José State with the largest private grant in its history: \$15 million to the College of Engineering.

**"Providence has allowed me to be the manager and trustee of this money, and philanthropy comes with that responsibility – taking care of your employees, your business partners, your family, and your community."**

– Charles W. Davidson

"I'm not a saint by any stretch of the imagination, so don't get the wrong idea about me," Davidson told Bitters. "I'm a normal human being. I've had lots of good luck along the way and lots of good people around me."

He also holds an honorary Doctor of Humane Letters from SJSU. In 2007, the California State University Board of Trustees approved naming our engineering college after him in perpetuity. Chuck was quoted as saying: "I don't believe the money I have earned is wholly mine. Providence has allowed me to be the manager and trustee of this money, and philanthropy comes with that responsibility – taking care of your employees, your business partners, your family, and your community."

Chuck was a founding member and chair of the Tower Foundation, the philanthropic arm of San José State. Throughout the years, he faithfully attended Spartan football games and served on the Tower Board.

Chuck has deeply enriched our lives, and the lives of our students: past, present and future. He will be greatly missed. ☺

# Silicon Valley Leaders Symposium

Thursdays at noon | via Zoom

The Symposium hosts industry and technology leaders to talk about business and technology trends. It also features prominent leaders who discuss broader societal and political issues that shape society. ☺



# SPECIAL PANEL: Toxic Secrets in Silicon Valley Groundwater

Wednesday, April 28

The fight for clean water is not just in Michigan, it's right here underneath us. Chemical solvents leaking into groundwater. Twenty-three Superfund sites, still in remediation. Hear from experts who are working to solve these problems. ☺



# Green Talk Speaker Series

Wednesdays at noon | via Zoom

The Symposium hosts industry and technology leaders to talk about business and technology trends. It also features prominent leaders who discuss broader societal and political issues that shape society. ☺

# Interdisciplinary Speaker Series

Fridays at 3pm | via Zoom

Dean Sheryl Ehrman has invited experts to discuss interdisciplinary projects. ☺

**INTERDISCIPLINARY SPEAKER SERIES**

5 March at 3pm  
"Atomic/Nano-scale Surface and Interfacial Engineering for Solid Oxide Fuel Cells"  
Min Hwan Lee, ME Associate Professor  
U.C. Merced

9 April at 3pm  
"Robotics: Safe Learning and Control with LI Adaptation"  
Naira Hovakimyan, ME Professor  
University of Illinois at Urbana-Champaign

7 May at 3pm  
"Directly Imaging Exoplanets with Coronagraphy"  
Kevin Fogarty, Astrophysicist  
NASA Ames Research Center

[www.sjsu.edu/engineering/student-success/studentprograms/iss/index.php](http://www.sjsu.edu/engineering/student-success/studentprograms/iss/index.php)

# Engineering Awards Ceremony

Friday May 7th, 2021 | via Zoom and website

[www.sjsu.edu/engineering/distinctions/awards/index](http://www.sjsu.edu/engineering/distinctions/awards/index)

# Spring Commencement Ceremonies

May 26-28, 2021 | via Zoom

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**#1** SAN JOSÉ STATE UNIVERSITY  
**MOST TRANSFORMATIVE UNIVERSITY** —Money magazine

1946  
2021  
Charles W. Davidson  
College of Engineering  
**75** YEARS