Spring 2026

engineering

at San José State

Engineering a Sustainable Future

Redesigning the Energy Footprint of American Manufacturing

A Small App With a Big Mission to Restore Dignity in Recycling

When the Airplane Is the Battery: A Radical Vision for Cleaner Flight

Celebrating 80 years of Innovation, Impact, and The Spartan Edge.

SJSU ENGINEERING 80 years 1946-2026

THE SPRING 2026 SEMESTER ARRIVES AT A PIVOTAL MOMENT for engineering — and for our world. At the Charles W. Davidson College of Engineering at San José State University, we begin with a clear purpose: to educate engineers who will build a more sustainable, resilient and equitable future.

Sustainability is no longer a specialty; it must be embedded across every discipline we teach and research. From clean energy systems and sustainable manufacturing to climate-resilient infrastructure and ethical artificial intelligence, today's challenges demand systems-level thinking. Our students learn that every design decision carries environmental and societal consequences, preparing them to innovate, steward resources wisely and lead with integrity.

This semester, we continue advancing engineering for human health, where disciplines intersect to improve quality of life. Whether developing AI-enabled diagnostics, wearable technologies or next-generation medical devices, students also examine lifecycle impacts, energy efficiency and accessibility. Innovation must serve both people and the planet.

Situated in Silicon Valley, SJSU connects students with leaders in aerospace, healthcare, semiconductor technology, climate tech and advanced computing. These partnerships reinforce that sustainability drives innovation. Engineers who understand efficiency, resilience and responsible design will shape global progress.

"Sustainability is no longer a specialty. It is a responsibility that must be embedded across every discipline we teach and conduct research in."

Hands-on learning remains central. Students design renewable energy solutions, improve battery technologies, advance smart transportation systems and explore sustainable materials, gaining experience to turn ideas into impact.

As alumni, you understand the power of an SJSU engineering education. Today's students bring that same determination, along with awareness of climate change, resource scarcity and rapid technological transformation.

I invite you to reconnect with the college: mentor a student, support a program or share your expertise. Together, we can ensure the next generation of engineers solves complex problems sustainably.

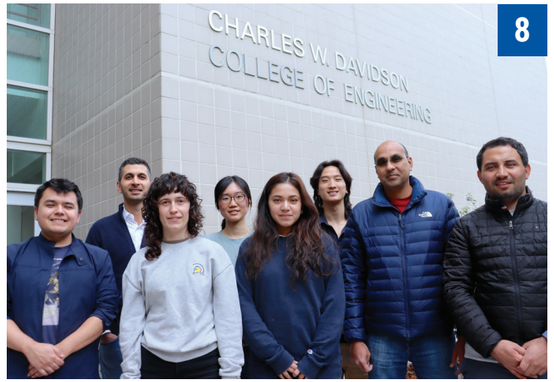
The future will be engineered. Let's ensure it is engineered wisely.

Sincerely,

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

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

In This Issue



Congratulations to **Dr. Gautam Kumar** on receiving a $146,500 research award from the National Institutes of Health (NIH) to develop a smarter, automatic deep brain stimulation (DBS) system.

Dr. Kumar's work aims to improve treatment for serious neurological disorders such as epilepsy, Parkinson's disease, schizophrenia and Alzheimer's disease — conditions that affect millions of people and can severely impact quality of life. While DBS has become an important therapy when medications fail, current devices require frequent, time-consuming adjustments by clinicians to maintain effectiveness.

This new research seeks to change that. By combining advanced computer modeling and machine learning, Dr. Kumar plans to design a system that can monitor a patient's brain signals and automatically adjust stimulation in real time. Such a responsive approach could make treatment more precise, reduce side effects and provide longer-lasting relief.

This NIH-supported project represents an exciting step toward more personalized and effective care. Congratulations to Dr. Kumar on this outstanding achievement and meaningful contribution to brain health research.

Kudos to **Dr. Christopher Lew**, who has received $200,000 from the National Science Foundation to develop new sponge-like materials known as zeolites.

Zeolites are crystalline materials filled with tiny pores invisible to the naked eye. Like molecular sieves, they trap certain molecules, block others and help trigger chemical reactions, making them essential in cleaning diesel exhaust, refining fuels and producing plastics.

Dr. Lew's work focuses on designing small-pore zeolites with large internal cavities to improve how gases move and react. By combining precise lab chemistry with advanced computer modeling, his team predicted and guided the formation of new crystal structures.

This research expands the library of zeolites and demonstrates a more efficient, computation-driven approach to materials discovery, with potential benefits for emissions reduction and sustainable manufacturing.

In the race to build smaller, faster and more powerful computer chips, progress is often measured not in inches, but in atoms. **Dr. Dahyun Oh** of the Chemical and Materials Engineering Department at San Jose State University is helping push forward that frontier through the Center for High Precision Patterning Science, known as CHiPPS, at Lawrence Berkeley National Laboratory.

Supported by a $115,000 program backed by the University of California and Berkeley Lab, the initiative connects university researchers with national laboratory scientists to tackle one of the most demanding challenges in modern technology: how to precisely "print" the microscopic patterns that form circuits inside computer chips. These patterns use specialized light-sensitive materials called photoresists, and even the slightest imperfection at the atomic scale can affect performance.

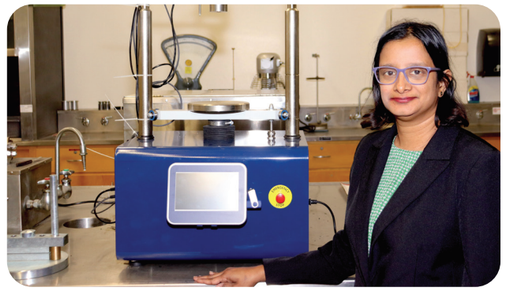
Dr. Oh's work focuses on understanding and improving these materials so they can produce sharper, more reliable features as components continue to shrink. By combining hands-on experiments with fundamental studies of material behavior, the research aims to make semiconductor manufacturing more precise and dependable.

As industries from artificial intelligence to clean energy increasingly rely on advanced microelectronics, this work carries wide-reaching importance. Congratulations to Dr. Oh on securing this support and contributing to innovation at the smallest — and most essential — scale.

The Woman Teaching Cities How to Breathe Again

Students and faculty work to design environmentally friendly, sustainable cities

WHEN DR. INDUMATHI JEYACHANDRAN TALKS about cities, she doesn't focus on traffic or skyscrapers. She talks about systems—water, heat, vegetation, energy—all interacting like a living organism. And she warns that the organism is overheating!



An assistant professor in civil and environmental engineering at San Jose State University, Dr. Jeyachandran studies urban climate, land-use change, water resources, and green infrastructure. "I'm trying to understand how we can build cities that don't work against the environment, but with it," she says.

Her research often begins in the sky. Using satellite data, she tracks California's landscape changes over decades. In Santa Clara Valley from 2001 to 2019, concrete expanded by nearly 46 percent, while vegetation thinned. "We're replacing green with gray," she notes. "And cities remember that heat." Her models link vegetation loss to higher temperatures, increased energy use, and changes in water demand. "For every one-degree Celsius rise," she says, "energy usage can jump two to four percent."

Dr. Indumathi Jeyachandran working with student Dion Celino..

But Dr. Jeyachandran also designs solutions. Green roofs, porous pavements, rain gardens, and retention basins can cool cities, reduce flooding, and recharge groundwater. "We can't stop cities from growing," she says. "But we can change how they grow."

Her teaching emphasizes hands-on problem solving. Graduate students in her Sustainable Water Resources Engineering course redesign real sites using green infrastructure. Dion Celino, a Fall 2025 graduate, says, "Students start to see themselves as problem-solvers... With my degree, I hope to help build train systems that are faster, convenient, and run on clean energy."

Dr. Jeyachandran's work also extends to wildfires, using vegetation health indices and satellite imagery to understand fire risk. For her, wildfire is a symptom of a warming, drying, rapidly changing landscape.

"I want to create a sustainable environment," she says. "And I love teaching. That's what gets me out of bed each morning." In a state where concrete spreads faster than shade trees, her work is not just studying the problem—it's shaping a blueprint for resilient, livable cities.

bottlr

A Small App with a Big Mission to Restore Dignity in Recycling

Connecting recyclables to income — and people to opportunity.

ON A RECENT AFTERNOON IN A GLASS-WALLED lab on campus, four young women huddled over their laptops, toggling between lines of code and a shared conviction that technology, at its best, should be in service of people.

They call their project Bottlr — styled "Bottlr" in its domain name, a quiet nod to the app's intended role as a discreet helper. It is not an attempt to "disrupt" recycling or to monetize environmental guilt. Instead, it is a practical bridge between two groups who already exist: people who set aside bottles and cans, and those who rely on redeeming them for income.

"We're not inventing a new behavior," said Raina Zabasajja, a freshman majoring in computer science. "We're connecting people who are already doing this."

She is joined by Matilda Verdejo Aitken, a third-year computer science major; Maria Palacios Martinez, a senior in engineering technology; and Guadalupe Carrillo Vega. The four met through Girls Who Code and the ecosystem of Bay Area hackathons.

The idea for Bottlr began with frustration. The theme of their most recent hackathon was "Tech for a Greener Tomorrow." It was, they agreed, broad. "Sometimes tech tries to fix everything," one of them said. "And you go down a rabbit hole and it just feels discouraging."

They had considered climate dashboards and sustainability platforms. But those felt abstract.

Raina Zabasajja, Matilda Verdejo Aitken, Maria Palacios Martinez, Guadalupe Carillo Vega

Then, in conversation with a faculty mentor, recycling came up — and with it, a flaw. Cross-contamination can render entire batches unusable. Greasy pizza boxes, stained paper and improperly sorted waste often doom well-intentioned efforts.

Rather than attempt to fix the entire recycling system, the students narrowed their focus to aluminum cans, plastic bottles and glass containers — items that can be rinsed and redeemed for cash under California's deposit system. In California alone, they learned, hundreds of millions of dollars in bottle and can redemption value goes unclaimed each year.

"That money is just sitting there," one of them said. "When it could be in someone's pocket."

In neighborhoods across the state, collectors — often low-income workers, older adults or recent immigrants — already move from bin to bin, extracting cans and bottles to redeem for five or 10 cents apiece. It is grueling work, performed in summer heat and often early in the morning. It is also, for many, essential income.

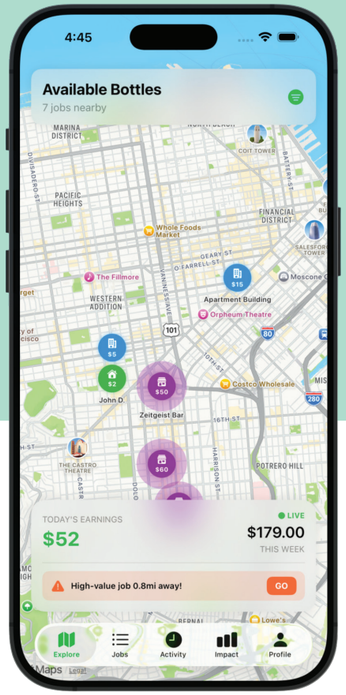


Photo via bottlr.tech

Bottlr aims to restore a measure of dignity and efficiency to that exchange.

Through the app, a donor can post a collection opportunity — a bag of rinsed cans, a stack of bottles — and set a pickup window. Collectors nearby receive notifications, view the location on a map and claim the job. A review system allows both parties to rate one another, building trust over time.

"It's about reducing friction," Matilda Verdejo Aitken said. "If it takes 20 seconds to post, can we make it five? If a collector walks over and the cans are gone, how do we prevent that?"

The app's early prototype uses Apple's MapKit architecture and a notification system. But getting from hackathon demo to public release will require more than polished code. The students speak candidly about what they lack: funding for a custom backend, resources to design standardized collection bags, legal guidance on app store approvals and data privacy, and mentorship from people who have scaled mission-driven technology before.

They are clear on one point: they do not intend to take a cut of collectors' earnings.

"We're connecting people who are already doing this."

"This isn't about us profiting," Raina Zabasajja said. "It's about societal value."

That stance complicates sustainability. Servers cost money. Hosting is not free. Outreach and iteration require time. The students have begun exploring partnerships with municipalities and with university innovation offices that support student ventures.

They also know that trust cannot be coded overnight. Collectors must believe the app will not waste their time or expose them to risk. Donors must feel confident that posting a bag outside their door will not invite trouble.

"We want it to be as dignified as possible," one of them said. "As easy as possible."

That word — dignity — surfaces repeatedly in conversation. It is not charity they are designing, but infrastructure. A way to formalize an informal economy.

There is ambition here, but it is tempered by realism. They talk about starting small — perhaps piloting the app on campus, where bottle collectors are a common sight. They discuss gamification, neighborhood challenges, dorm competitions.

Mostly, they talk about refinement.

"Anybody can have an idea," Matilda Verdejo Aitken said. "It's about execution."

In an era saturated with apps that promise convenience and deliver distraction, Bottlr's promise is modest: fewer rummaged bins, more redeemed value, less waste. It will not solve climate change.

But it might, if given the support it needs — funding, mentorship, institutional backing and a community willing to test it — move a meaningful stream of money into the hands of people who have already earned it.

And for four young women who refused to be paralyzed by the scale of environmental crisis, that is a start.

Redesigning the Energy Footprint of American Manufacturing

Practical Solutions That Reduce Costs, Save Energy, and Prepare the Next Generation of Sustainability, Focused Engineers

IN SILICON VALLEY, WHERE INNOVATION IS often measured by processor speed or the elegance of a neural network, a quieter technological shift is underway—one shaped not by venture capital, but by clipboards, data loggers, and disciplined observations. At San José State University, two complementary efforts are redefining industrial progress in a warming world. Led by Dr. Anil Kumar of industrial and systems engineering and Dr. Farzan Kazemifar of mechanical engineering, these programs share a conviction that the factories powering the American economy can be made cleaner, smarter, and more humane.

Kumar, who spent years consulting for manufacturing firms before entering academia, approaches sustainability through what he calls a "human-centered lens." The goal is deceptively simple: align people, processes, and technology so factories waste less and produce more. At the university's Industrial Training and Assessment Center (ITAC), a U.S. Department of Energy (DOE)–funded program providing free energy-efficiency assessments to manufacturers, Kumar and his students analyze electricity, gas, and compressed-air data to uncover minute inefficiencies that compound into major losses.

"We're not only reducing industrial energy consumption and carbon footprints," Kumar said. "We're also training students to become leaders in energy and sustainability. It's a dual mission—impact now, and influence for the future."

Across campus, Kazemifar leads SJSU's ITAC initiative that sends teams into factories from Sacramento to Fresno. These facilities range from aerospace machining shops to food processors, but the basic problem remains the same: energy flows where it shouldn't, and few have the tools or time to track it. Each audit begins as a kind of industrial forensics. Students install temporary sensors, walk the shop floor, and map the rhythms of production. Then comes the analysis: Where does the energy go? Where does it stall? Where does it leak, hum, or idle away?

The answers are often sobering. Some plants waste thousands of dollars monthly through air leaks alone. Others run HVAC systems meant for full production even during off-hours. One factory, Kazemifar recalled, powered up all its heavy machinery at midnight to escape peak daytime electricity rates—unaware that the simultaneous start-up triggered punishing demand charges. The fix? Simply staggering equipment start times. The savings: more than $100,000 annually.

"Almost everything that moves in a factory runs on an electric motor," he said. "A variable-frequency drive lets that motor work only as hard as it needs to. It's like cruise control for manufacturing—and it can save a lot of energy."

Kumar's team sees similar wins. Companies adopting digital twins—virtual replicas of real machinery—can predict breakdowns before they happen. AI-enabled sensors catch wasteful spikes in real time, while low-tech changes, like insulating walls between hot and cool work zones, can cut energy use by double-digit percentages. Some firms have reported 30 to 40 percent reductions after implementing SJSU recommendations.

Yet the programs' most enduring impact may be on the students conducting these assessments. They learn that engineering is equal parts mathematics and empathy, developing the ability to observe, listen, and understand the constraints of the workers whose days they briefly join.

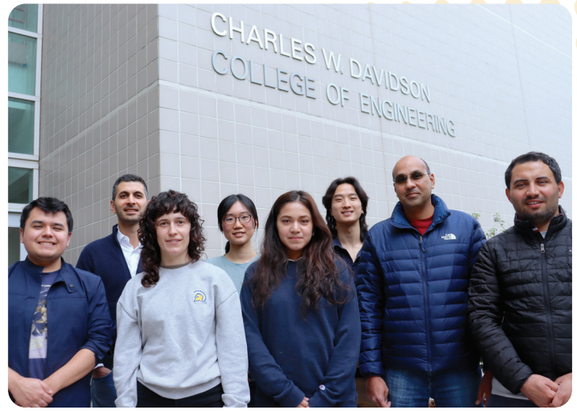
"Students gain more than technical skills," Kumar said. "They learn how to ask questions and communicate their ideas. Skills that make them responsible global citizens."

Kazemifar echoes the sentiment. Students leave with something no textbook provides: a sense that sustainability is not an abstraction but a set of small, cumulative choices.

"We're also training students to become leaders in energy and sustainability."

As California pushes toward carbon neutrality and factories confront outages, wildfire smoke, and volatile energy markets, the work done inside these centers represents a blueprint for resilience. It is a vision rooted not in grand gestures but in disciplined observation and incremental change. In the end, SJSU's engineers are asking the same question Silicon Valley has always asked: How can we build a better future? Their answer is simply more grounded—measured not in code, but in kilowatt-hours saved.

Kalino Ruiz, a fourth-year mechanical engineering student at SJSU, has spent more than two years translating classroom theory into real-world practice



ITAC Students, left to right: Kalino Ruiz, Dr. Farzan Kazemifar, Ana Alvarez-Rutz, Ayane Gomi, Tyler Trihn, Sophia Thein, Dr. Anil Kumar and Ismet Altintas

through the university's Industrial Training and Assessment Center. The role has taken him far beyond textbooks and lectures, gaining experience with data analysis, energy modeling, and on-site audits—skills increasingly sought after in the clean-energy sector.

Kalino explained that students in the program work directly with industry clients, gathering operational data, identifying inefficiencies, and drafting technical reports outlining potential cost and energy savings. The work has been pivotal in helping him understand how engineering decisions shape both budgets and environmental impact. He credits the center with strengthening his communication skills as well, noting that students routinely present findings, interview plant managers, and collaborate with multidisciplinary teams.

"Students learn how theory becomes practice the moment they step into a facility," said Kalino. "What they gain—judgment, communication skills, and the ability to analyze real-world data—is something no lecture can fully teach. This experience ensures they enter the workforce prepared for the complexity and responsibility of modern engineering."

For Kalino, the result is clear: he feels ready for the energy industry's demands and is motivated by its possibilities.

When the Airplane Is the Battery: A Radical Vision for Cleaner Flight

Developing Structural Batteries—Aircraft Components That Store Energy as They Bear Weight

FOR DECADES, ENGINEERS HAVE DREAMED OF an aircraft that could power itself not by carrying batteries—but by being one. Until recently, it sounded more like science fiction than engineering. But Tianyang Zhou, a materials scientist and new faculty member at San José State University, believes the idea may one day reshape the future of flight.

Zhou, who joined the university in 2025 after completing her doctorate and postdoctoral research at Texas A&M, teaches aerospace materials and structures. But her own research takes aim at one of the most stubborn obstacles to electrifying aviation: weight. “In aerospace, every gram matters,” she said. “The batteries we have today are simply too bulky and heavy.”

The problem is straightforward. Electric cars can carry large lithium-ion packs with ease. Airplanes cannot. In small aircraft, conventional batteries can account for a third of total weight—an impossibly steep penalty. More weight demands more energy; more energy means even more battery mass. It is a loop engineers have struggled to escape.

Zhou’s work explores a different idea: **structural batteries**, where the aircraft’s fuselage, wings, or internal frames double as energy storage. Instead of placing heavy battery packs inside an aircraft, the aircraft’s skin and structure could become the battery.

The concept rests on an engineering coincidence. Modern airplanes—from the Boeing 787 to advanced military drones—already rely heavily on carbon-fiber composites. These materials are strong, light, and far easier to maintain than aluminum. They also share the same carbon-rich chemistry as graphite, the very material used as the anode in most lithium-ion batteries.

"The fuselage is the largest mass in an energy load, even a small percentage, we could rethink what flight looks like."

“If carbon fiber can hold mechanical loads and store energy,” Zhou said, “why shouldn’t it do both?”

The approach rewrites the battery’s blueprint. In a conventional lithium-ion cell, graphite anodes and metal-oxide cathodes are packaged like grains of sand inside metallic casings. These casings add safety but also substantial weight. Structural batteries use carbon fibers as the load-bearing skeleton and as the anode itself. A thin layer of cathode material coats the surface, creating a dual-purpose material: one that carries electrical charge while providing mechanical integrity.

Zhou is quick to emphasize that this is not as simple as mixing batteries into the fuselage. “You can’t just add energy storage to a structure without affecting its strength,” she said. Instead, her team studies how to align fibers with the forces an aircraft experiences—tension on the wings, compression on the fuselage during pressurization cycles, vibration during turbulence. In some orientations, structural batteries could cut significant weight; in others, they may add more than they remove.

Still, the potential impact is enormous. Lighter aircraft could require far less energy to fly, reducing reliance on fossil fuels for hybrid aircraft and making all-electric propulsion more feasible. And because structural batteries eliminate bulky metal casings, they could shrink the overall volume devoted to energy storage—freeing designers to rethink the airplane from the inside out.

Zhou is also exploring alternatives to lithium itself. Conventional batteries require nickel, cobalt, and other rare metals typically extracted through environmentally damaging mining. Her team is studying organic “redox-active polymers,” with her collaborators from Texas A&M University which could store charge without relying on these constrained resources. “We need sustainable materials,” she said. “Not just sustainable energy.”

Still, this future is distant. Even a single structural battery cell can take years to perfect. Integrating it into a full aircraft—subject to lightning strikes, extreme cold, pressure changes, and the rigorous approval process that governs aviation—could take decades. Early applications will likely appear in small drones long before they reach commercial jets.

Professor Tianyang Zhou

Yet Zhou is undeterred. Aircraft, she believes, will eventually need to shed both fossil fuels and heavy metal-based batteries. Structural materials that store energy may provide the bridge.

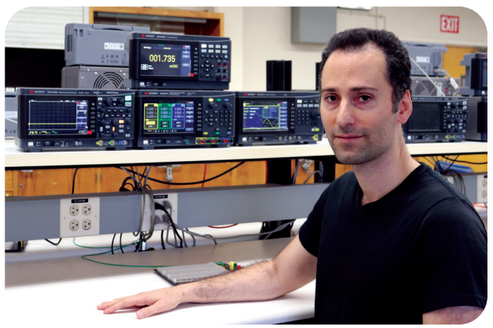
“The fuselage is the largest mass in an airplane,” she said. “If it could carry part of the energy load, even a small percentage, we could rethink what flight looks like.”

And in an age when aviation’s climate footprint is under intensifying scrutiny, rethinking flight may be exactly what the world needs.

Engineers Plan a Sustainable Future for Quantum Satellites

Blending Engineering and Sustainability to Create Safer Orbital Pathways for Quantum Communication Systems

IN A MODEST LABORATORY INSIDE THE College of Engineering at San Jose State University, a group of students is confronting a problem that begins high above Earth: how to build the next generation of quantum communication systems without worsening the growing crisis of space debris.



Dr. Sina Aboutorabi

Leading the effort is Dr. Sina Aboutorabi, who holds a rare joint appointment in electrical engineering and aviation. Since arriving in 2022, he has focused on a simple but urgent premise: the future of secure global communications depends on keeping space usable.

Low-Earth orbit — the band of space between roughly 160 and 2,000 kilometers above the planet — has become increasingly crowded. More than 8,000 active satellites circle the globe, along with fragments from decades of launches. Even a fleck of debris, traveling at 28,000 kilometers per hour, can disable a spacecraft. A single collision can create hundreds more fragments, compounding the risk in a cascade known as the Kessler effect.

For quantum communications — which rely on sensitive optical links between satellites to transmit ultra-secure encrypted data — that instability poses a serious threat. Without sustainable orbital practices, the very infrastructure designed to safeguard digital information could be jeopardized.

"We're entering an era when the quality of our global communication may depend on how well we manage the space around us."

Dr. Aboutorabi's research group is developing predictive models and software tools to help satellite operators better understand and avoid debris risks. Instead of relying on static maps, the team envisions dynamic forecasting — something akin to an orbital weather report — that evaluates debris density and movement at different altitudes in real time. A launch window that appears safe at 500 kilometers, for example, may be far riskier at 700.

The emphasis, he says, is sustainability. Responsible space traffic management is no longer optional; it is foundational. As governments and private companies expand satellite constellations for communications, navigation and climate monitoring, preserving safe orbital corridors becomes essential to protecting both economic investment and environmental stability beyond Earth.

Students from aerospace, electrical engineering and technology programs collaborate on simulations that mirror industry challenges. The work provides hands-on experience while reinforcing a broader lesson: sustainability does not end at the atmosphere.

Silicon Valley Leaders Symposium

Thursdays at noon | ENG 285

Symposiums are held throughout the school year, featuring prominent leaders in engineering, who discuss broader societal and political issues, business and technology trends.

Student Showcase & Celebration

Monday, April 13

Since 1980, the Davidson College of Engineering has recognized excellence among students, alumni, faculty, and staff, and has redesigned its traditional awards banquet to focus on student innovation, research, and design. At the 2026 Student Showcase on April 13, selected students will present projects demonstrating how creativity, technical skill, and industry mentorship translate into real-world solutions. The event also highlights opportunities for professionals and organizations to engage with the next generation of engineers through mentorship, sponsorship, and collaboration, showing how support from Silicon Valley and beyond fosters extraordinary achievements. Attendees will gain insight into emerging technologies, student research, and practical applications shaping the future of engineering.

Admitted Spartan Day

Saturday, April 18, 2026

This free event at San Jose State University is designed for newly admitted students to explore campus, meet faculty, attend department open houses, and connect with peers before committing to the university. This will be an exciting day packed with opportunities to connect with departments and campus partners, and discover more about becoming a Spartan! Registration information will be emailed to all newly admitted students. For questions about the event, email us at admittedspartan@sjsu.edu.

Student Club Fair Fall 2026

Tuesday, September 14

The Fall 2026 SJSU Engineering Club Fair will be held on Tuesday, September 14. It's a vibrant event showcasing engineering clubs at San José State University. Students can explore a wide range of disciplines, from aviation to environmental engineering. Club members will present projects, share their passion, and recruit new members. It is an excellent networking and community opportunity for students and provides a glimpse into the diverse, innovative engineering community at SJSU.

Scholarship Lunch Tuesday, November 3, 2026

Once every academic year, scholarship recipients have an opportunity to thank the individual and corporate donors who make student financial support possible. On Tuesday, November 3, 2026, at a lunch event, students can meet those responsible for their scholarships face-to-face. Many donors are College of Engineering (CoE) alumni who have reached success. Others, including generous corporate donors, want to see students reach their full potential.

Alumni Notes

ALI GUARNEROS-LUNA

By day, Ali Guarneros-Luna engineers complex aerospace systems at Lockheed Martin. By night, she returns to her alma mater as an adjunct professor, determined to make the path she once navigated alone a little clearer for the students following behind her.

Guarneros-Luna began her career studying aerospace engineering, propelled by a fascination with flight and space. Her early professional chapter at NASA proved formative. There, she learned that ambitious missions succeed not because of individual brilliance, but because of disciplined teamwork and systems thinking. Every design choice, she saw, carries consequences across an entire vehicle.

Those lessons remain central in her current industry role. At Lockheed Martin, she tackles high-stakes engineering challenges that demand precision, speed and collaboration. What excites her most, she says, are problems that appear unsolvable at first — the kind that require engineers to balance performance, cost and reliability under real-world constraints.

In the classroom, she brings that reality with her. Equations are paired with stories from design reviews and testing floors. She pushes students to think beyond textbooks, emphasizing communication, resilience and hands-on experience. Engineering programs, she believes, must prepare students not just to pass exams, but to contribute meaningfully on day one of their careers.

Teaching is not a side pursuit; it is a commitment. Guarneros-Luna volunteers her time to mentor, review résumés and demystify the hiring process, especially for students who may doubt their place in aerospace. “Uncertainty is part of the journey,” she tells them. “It’s not a sign you don’t belong.”

Her message to fellow alumni is direct: get involved. Mentor. Give back. Make a difference. In helping students find their footing, Guarneros-Luna is building something as lasting as any aircraft — confidence in the next generation of engineers.

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We love promoting your achievements.
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We want to hear your news!

We love promoting your stories. Keep the news coming!
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JERRY LEE ADAMS

'70 BS Aeronautical Engineering

Reverend Jerry Lee Adams lived a life defined by intellect, faith, and service. A valedictorian in aeronautical engineering from San Jose State University, he paired academic excellence with an early passion for flight. Answering a higher calling, he pursued theological studies at the Sacramento Bible Institute and devoted himself to ministry through the Independent Fundamental Churches of America. His legacy is scholarly achievement, spiritual leadership, and steadfast commitment to family and community.

PAUL MAX BRYANT

'59 BS Electrical Engineering

Paul Max Bryant was a proud Navy veteran, Eagle Scout, and accomplished electrical engineer. After serving in the U.S. Navy during the Korean War, he earned his degree from San Jose State University and built a distinguished career as a respected leader, author, and patent holder. He contributed to the Apollo space program, helping develop the recorder/reproducer that supported the moon landing—an achievement reflecting his lifelong dedication to innovation, service, and excellence.

DOUGLAS HERDA

'11 MS Computer Systems Engineering

Douglas “Doug” Herda built a life defined by curiosity, energy, and devotion. A math and philosophy scholar at the University of Wisconsin–Milwaukee, he began his career at Burroughs, spent 23 years at Hewlett-Packard, and later contributed to aerospace innovation at Lockheed Martin and Northrop Grumman, earning a master’s in Computer Systems Engineering from San Jose State University. An avid traveler, musician, actor, and lifelong learner, Doug embraced adventure, culture, and family with enthusiasm.

TOMMY S. MAYFIELD

'73 BS Industrial and Systems Engineering

Tommy S. Mayfield went to work for Lockheed Martin after graduating from San Jose State University with a BS in Industrial and Systems Engineering. Upon retirement from Lockheed Tommy and his wife moved to Fallbrook, CA to be near their daughters and grandchildren. He enjoyed over 20 years of a peaceful retirement where he tended his citrus orchard and worked in his large workshop of tools.

PRATIK PANDEY

'17 MS Software Engineering

Pratik Pandey was a talented technology professional whose work advanced data innovation at Microsoft, contributing to the Fabric platform within the Cloud and AI division. Since joining Microsoft in 2020, he brought expertise shaped by roles at Walmart and Apple. A proud San Jose State University alumnus, Pratik was admired for his dedication, collaborative spirit, and joyful energy—qualities that made him a valued colleague, friend, and beloved son.

DAYLE PARKES

'68 MS Electrical Engineering

Dayle Parkes built a life defined by service, scholarship, and innovation. A Korean War veteran, he earned his electrical engineering degree from the University of Florida, then advanced his expertise with a master’s from San Jose State University and an MBA from Santa Clara University. In California, he contributed to firms including Fairchild, Lenkurt, and Lockheed, supporting work on the Hubble Space Telescope. In retirement, he pursued music, earning an A.A. and enriching his community through performance and lifelong learning.

DAVID W. SCOTT

'81 BS Metallurgy/Materials Science

David earned a Bachelor of Science in Engineering in metallurgy from San Josè State University and built a long career with IBM in San Jose. He was a devoted church member and temple worker who loved working on cars and fixing anything that needed repair.

BARBARA SHARP

MS Engineering, 1988

Barbara was a pioneering engineer whose work helped shape modern infrared and thermal imaging technology. A Cal Poly San Luis Obispo industrial engineering graduate with a master’s in systems engineering from SJSU, she advanced through roles at General Dynamics, IBM, Raytheon, Amber Engineering, and Indigo Systems, later serving in FLIR’s CTO group. Co-inventor on more than 60 patents—including innovations behind the Lepton camera—she paired technical brilliance with adventurous spirit, exploring the world’s wonders and U.S. National Parks.

THEODORE MEAD WEDEL

'64 BS Electrical Engineering, 1964; minor: Math

Theodore “Ted” Mead Wedel built a distinguished life of service and leadership. A Lick Wilmerding High School graduate, he earned his engineering degree from San Jose State and later completed an MBA and MSA at Pepperdine University. He served as a U.S. Army Radio and Communications officer, receiving the National Defense Service Medal. Ted enjoyed a long engineering career, primarily with Lockheed Missiles and Space, and led enthusiast groups as president of the Safari Club and California Imported Car Club.

SJSU SAN JOSÉ STATE UNIVERSITY
CHARLES W. DAVIDSON COLLEGE OF ENGINEERING
ONE WASHINGTON SQUARE
SAN JOSÉ, CA 95192-0080

RANKED 3RD IN THE NATION BY U.S. NEWS AND WORLD REPORT 2023

Among public engineering programs offering bachelor's and master's degrees, excluding service academies.

HAPPENING THIS SUMMER...

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

Flight competition
Precision Flight Team will compete in the SAFECON National competition May 2026 in Oshkosh, WI

Spartan racing
Electric Vehicle Competition
Summer 2026
Brooklyn, MI