The numbers and statistics presented in this report are limited to the activity managed by the San José State University Research Foundation and are not representative of the overall research expenditures of the larger institution as there are programs funded directly by the institution or through the Tower Foundation.

The annual report also reflects award activity or gross sponsor commitments recorded in the fiscal year. The audited financial statements reflect fiscal year expenses on sponsored awards. In many cases, expenses are actually lower than the award activity because of multi-year awards, which are recorded in their entirety when received but expended over multiple years.

COVER: Graduate Student Nalina Johnson and Professor and Moss Landing Marine Laboratories Interim Director Ivano Aiello using a scanning Electron Microscope. Continued on page 14.

THIS PAGE: Chemical and Materials Assistant Professor Dahyun Oh (back, center) with students in the Energy Materials Lab on campus. Dr. Oh aims to design new material structures to maximize device performance by understanding interfacial reactions between different materials inside the device. Continued on page 25.
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ABOUT

The San José State University Research Foundation is a non-profit 501(c)(3) California corporation that operates solely for the benefit of San José State University. It is an “auxiliary” of San José State University.

Auxiliary organizations at the California State University (CSU) are nonprofit organizations and separate legal entities. They operate pursuant to written operating agreements with the CSU Board of Trustees, have separate governing boards with close connections to a campus, and follow all legal and policy rules established by the CSU system and the respective campus administration.

Auxiliary organizations were created to perform essential functions associated with a post-secondary educational institution, which under California law were difficult, cumbersome, or legally restricted for the university and were not supported by state funding.

The entire team at the SJSU Research Foundation continues to be inspired by the endeavors and accomplishments of SJSU researchers. We are committed to supporting their efforts through our dedication to providing streamlined, robust, and efficient research administration systems and services.
We come to the end of the 2021-22 fiscal year of the San José State University Research Foundation (SJSURF) back on a trajectory of growth for the San José State University (SJSU) research, scholarship, and creative activity (RSCA) enterprise. We can report more than $48 million in total research expenditures handled by SJSURF, and a total of $72 million in total research expenditures across the institution.

This growth is a direct result of the increased grant proposals submitted by our faculty during the past two years, which are now bearing fruit as awards and expenditures continue to climb. The continued SJSU investment in RSCA as part of the Transformation 2030 Strategic Plan has the institution on track for continued growth for years to come. This growth brings more opportunities that add value to the experiential learning of our students, the professional development of our faculty, and the public impact of the SJSU research and innovation enterprise in our local and global communities.

At the same time, SJSURF’s efficiency in managing this increase in expenditures is also improving. As we develop the scale to handle this planned growth, we are focused on people, systems, and processes to ensure we can continue to serve SJSU effectively and efficiently in externally funded programs and intellectual property administration.

The details in this annual report represent the scope of work performed at SJSURF that includes grant proposal and award management, competitive faculty fellowships, RSCA-related agreements, and academic self-support programs. Our dedicated staff continues to serve the university and deliver the intended benefits of an auxiliary organization within the California State University system. We take pride in our ability to be flexible, solve problems, and adapt to change.

Our RSCA strengths as an institution are represented in this year’s researcher profiles and demonstrate the university’s strength in diversity and commitment to equity and inclusion. As a federally-recognized minority-serving institution (both as a Hispanic-Serving Institution and an Asian American and Native Hawaiian/Pacific Islander) and an institution committed to first-generation students, SJSU is providing experiential RSCA opportunities to often underrepresented groups, elevating the power of RSCA to change lives and the world for generations to come.

As a service organization, SJSURF is committed to supporting the faculty, staff, and students that make SJSU such a special place. We hope you enjoy reading this annual report and join us in recognizing and appreciating the important work that it represents.
NUMBERS

SJSU Research Foundation numbers for Fiscal Year 2021–22, which ended on June 30, 2022

291 Awards received valued at more than $64.7 MILLION

379 Proposals submitted valued at more than $142 MILLION (284 FACULTY)

448 SJSU Project Staff engaged in sponsored research projects, grants, contracts, or fellowships managed by the Research Foundation

$48 Million in research expenditures across 504 active projects

216 SJSU Faculty engaged in sponsored research projects, grants, contracts, or fellowships managed by the Research Foundation

$1.87 Million returned to San José State University in indirect revenue and strategic investment in the campus

588 SJSU Students engaged in sponsored research projects, grants, contracts, or fellowships managed by the Research Foundation
FISCAL YEAR 2021-2022 AWARDS

Types of Awards

- Federal: $33,565,775
- State: $18,459,593
- Non-profit: $2,031,115
- Industry: $2,275,844
- Other: $8,404,510
- Other Types: $8,404,510

Award Expenditures

- 2020: $50,647,780
- 2021: $47,082,196
- 2022: $48,792,317

Number of Awards

- 2020: 453
- 2021: 457
- 2022: 504
Sean Laraway

Human Centered Design and the SJSU Human Factors Program at NASA Ames

Sean Laraway is a San José State University Psychology Professor and Director of the SJSU Human Factors Program at NASA’s Ames Research Center in Silicon Valley. “Human factors includes anything from an app, to a spacecraft and everything in between,” explains Laraway. “The whole point of our work is to make sure we have a human-centered design process, where we include human abilities and foibles — our faults, our weaknesses and our strengths — in the design process.”

SJSU’s Human Factors and Ergonomics Master’s Degree Program is one of two in California that is accredited by the Human Factors and Ergonomics Society, the leading professional organization in the field. The Master’s Program’s secret sauce lies in its outstanding faculty and long-standing collaboration with the Human Systems Integration Division at NASA Ames. For over 35 years, SJSU researchers and Ames civil servants have worked shoulder to shoulder tackling research at the forefront of human system interaction, aeronautical systems, space flight and human-work fatigue. NASA-SJSU and NASA research is investigating human systems integration with cockpits, air-traffic control, as well as space mission planning and information technologies.

The need for human factors is burgeoning, across every field, industry and nation. What’s so unique about this discipline is that it requires a mosaic of minds to achieve success. Professionals from diverse backgrounds — psychology, sociology, engineering, computer science, biomechanics, industrial design, physiology, anthropology, user experience — come together to contribute varied perspectives as humans harness complicated equipment, tackling increasingly difficult goals like designing self-driving cars or traveling far from Earth. The SJSU Human Factors Program is bringing together diverse new minds to forge next-gen human factors, and the applications are incredibly broad — helping humans do more.

“There are so many different pathways in,” explains Laraway. Referring to students in the program, he says, “If you just look at the diversity of the backgrounds of our students in the program, some come from art, some from design, computer science and psychology. It’s truly an interdisciplinary field.”

“The whole point of our work is to make sure we have a human-centered design process...
Ferdinand Rivera, Cheryl Roddick, Peg Hughes, David Goulette, and Lisa Simpson

Training a New Generation of Math Teachers in Instructional Practices That Are Culturally Relevant and Inclusive of All Students

“We will train math teachers to develop math literacy-driven problem-solving tasks that are culturally relevant.”

Professor Ferdinand Rivera

Professor Ferdinand Rivera is the Interim Director of the Educational Leadership Doctoral Program and a Professor in the Department of Mathematics and Statistics in the College of Science. He believes university education departments should dedicate themselves to crafting new teaching methodologies that can be used to teach and learn content, in particular, math at the middle school and high school level in a way that is culturally relevant and supports growth in students’ mathematical literacy.

This interest is the driving force behind his most recent research project entitled “Developing Twenty-First Century Inclusive- and Mathematical Literacy-Driven Middle School and High School Mathematics Teachers” where he collaborated with Co-PI and Department Chair of Special Education Lisa Simpson, Department of Mathematics and Statistics Lecturer and Noyce Program Executive Director David Goulette, Department of Mathematics and Statistics Professor Cheryl Roddick, and Special Education Professor Peg Hughes. The project was made possible with support from the National Science Foundation. The compelling need in this research subject area is well documented. Numerous studies have shown that middle school and high students often lack basic math literacy skills.

“We project team seeks to understand how to best prepare future middle school and high school math teachers to develop and sustain an inclusive learning environment that supports growth in students’ ability to use mathematics to make sense of things that are happening around them,” Professor Rivera says. “We will train math teachers to develop math literacy-driven problem-solving tasks that are culturally relevant.”

The team is in the early phase of aligning all the courses and clinical experiences around this focus. This initial phase involves training everyone from the project team to course instructors to mentor teachers so that they can use this new approach to math teaching and learning. Next, they will begin pilot projects with student-teachers in actual classrooms alongside their mentor teachers.

Professor Rivera is justifiably proud of the way students in the BA Math Integrated Teacher Education Program have responded to the opportunity to be part of this innovative teaching research project. “Our students begin this research in their junior year when they are admitted to our integrated single subject/education specialist credential program. They take math and integrated pedagogical methods and learn how to write lesson plans that focus on math literacy and problem solving that are culturally relevant.”
Ellen Ostergren and Peter Allen Lee

Preparing the Next Generation of Social Workers to Serve the Needs of the Bay Area Community

Ellen Ostergren, LCSW, is the Integrated Behavioral Health Grant Program Coordinator and a Lecturer at the School of Social Work. Her colleague, Dr. Peter Allen Lee, is both the Director and a Professor of the School of Social Work, which is part of the College of Health and Human Sciences. They are engaged in a concerted effort to train the next generation of social workers.

“The mission of the Masters of Social Work Program in the School of Social Work at San José State University is to prepare social work professionals at the advanced generalist level for effective, ethical practice,” Ostergren says. “And to equip graduate students to strengthen skills and assume leadership roles from a transcultural perspective with diverse individuals, families, groups, organizations, and communities.”

Their efforts to prepare the next generation of social workers are being supported by a federal grant that funds the Behavioral Health Workforce Education and Training (BHWET) Integrated Behavioral Health MSW Stipend Program led by the California Social Work Education Center (CalSWEC). SJSU’s School of Social Work is one of the programs in the San Francisco Bay Area partnered in this grant. “The Integrated Behavioral Health (IBH) Program is a workforce development opportunity that aims to enhance and expand the behavioral health workforce in our geographic area,” Ostergren explains.

“The Integrated Behavioral Health (IBH) Program is a workforce development opportunity that aims to enhance and expand the behavioral health workforce in our geographic area,” Ostergren explains.

Each year through the program, six SJSU MSW students are selected from a pool of applicants to engage in specialized practice preparation, providing much-needed and sought mental health and substance use services to medically underserved communities and populations. In addition, SJSU MSW students continue to provide data for three years after graduation to assess the impact of the training program.

Ostergren points to the benefits of the program for the larger Bay Area community. “It plays a vital role for students in the program, the School of Social Work, and also our community partners. The program has trained over 30 SJSU students for post-graduate employment over the last six years. It furthers our mission by preparing social work professionals for advanced practice in response to the diverse needs of our community.”
Akthem Al-Manaseer

Creating the Worldwide Standards for the Critical Materials Used to Build California Highways and Bridges

Professor Al-Manaseer is the Endowed Charles W. Davidson Professor of Civil Engineering and former Chair of the Department of Civil and Environmental Engineering at San José State University. He is a past recipient of a prestigious Fulbright Visiting Professorship. For all his many professional accomplishments, Professor Al-Manaseer is still very much a teacher at heart.

When Professor Akthem Al-Manaseer first started his career in civil engineering, he worked to develop cement-based grouts that would last 10,000 years to seal granite rocks surrounding future disposed nuclear fuel waste from power plants. He and his team have also worked with the California Department of Transportation (Caltrans) to develop guidelines for placing cast-in-place concrete piles so that they will not crack due to the heat of hydration. He tested concrete bridge girders for Caltrans throughout northern California. The goal of the inspection and testing program was to generate a design report on compressive concrete strength related to bridge ages.

He also worked with CSU Long Beach to create a Joint Training and Certification Program for Caltrans. It’s all part of the effort to ensure that state engineers are up to date on the latest roadway inspection methods. The program was created because of Senate Bill 1, the Road Repair and Accountability Act of 2017 (SB1), and trained more than 3,000 engineers and field technicians in the last five years.

“I have worked on two American Society of Testing and Materials (ASTM) standards for concrete testing that have been accepted internationally,” he says. “I worked on the mix design and conducted ten years of tests to evaluate the shrinkage and creep of the concrete used in the construction of the Bay Bridge. Also, our textbook on structural concrete, coauthored with M. Nadim Hassoun, Professor emeritus of civil engineering at South Dakota State University, is now in its seventh edition.” The book is used in universities worldwide and is considered the definitive text on the subject. He is currently working to develop concretes that are more ductile to resist earthquakes by introducing recycled, sustainable materials.

In summary, Professor Al-Manaseer views his knowledge as something valuable to be shared with the next generation of future civil engineers at SJSU. He cites an example of his students doing hands-on work in the field. “Students conducted nondestructive site tests on 52 bridges in seven counties in the state of California to evaluate their compressive strength for safety and to check their design according to current codes.” An example of shared knowledge passed down from the distinguished engineer who wrote the textbook “Structural Concrete: Theory and Design.”
But my research shows that water vendors and their clients often use social arrangements to informally regulate these markets and ensure that water prices and delivery practices remain fair and manageable for people.

Water insecurity may seem like a faraway issue, but Professor Beresford is quick to dispel that notion. “In many parts of the world, including here in Santa Clara County, people who are not connected to piped municipal water infrastructure buy their household water from mobile water vendors, either perpetually or intermittently,” which makes water insecurity a pressing environmental issue, and one that strikes close to home.

Department of Anthropology Assistant Professor of Social Sciences Melissa Beresford conducts research guided by two primary questions. The first one is: What cultural norms do people use to govern and distribute water when it is insecure? The second one is: How do different water distribution arrangements impact human mental health and well-being? Her research seeks to provide answers that can help shape new policy agendas for water management.

Professor Beresford recalls that her interest in environmental issues began in high school. “I became passionate about environmental issues and addressing the climate crisis after taking an Environmental Science course. I became fascinated by the ways that cultural norms and social arrangements helped communities adapt to a wide range of environmental conditions throughout human history.”

Her current research is a continuation of that early interest. And highly relevant given how environmental scientists have documented rising temperatures and expanding deserts worldwide due to significant climate change. The National Science Foundation has recognized the relevance and value of her work and awarded her the prestigious early faculty CAREER award in support of her most recent five-year project.

Her project carries the imposing title of Moral Economies in Water Markets: Implications for Understanding Human Responses to Water Insecurity in Market-Driven Economies.

“We are examining how people’s cultural notions of water justice (i.e., their notions of fairness around the distribution, procedures, and interactions of water access and management) shape the ways that informal water vending markets operate,” she says.

“For many years, researchers thought that these informal markets were exploitative and that water vendors price gouged to take advantage of water insecure communities.”
Associate Professor of Special Education Saili S. Kulkarni’s soon-to-be published book will explore diversifying the educator workforce, including intersectionality, recruitment, retention, professional development, human resources, and minority-serving institutions.

Saili Kulkarni

Working to Ensure that the Special Education Teaching Workforce Keeps Pace with Student Diversity

Saili Kulkarni is an Associate Professor of Special Education at the Connie L. Lurie College of Education. As a former special education teacher of color, she worked in the Oakland Unified School District and noticed how there were few teachers of color, generally, and even fewer in special education. In teaching placements and university courses, Saili and other special education teachers of color experienced racial battle fatigue, the psychological and emotional toll from having to fight constantly against racism.

Professor Kulkarni’s research also highlights “disability battle fatigue,” or how special education teachers fight against structures of ableism in schools. “These issues, coupled with the experiences I had with the Institute for Teachers of Color (ITOC) and graduate school courses on critical race theory, shaped my interest in working to improve the experiences of teachers of color in special education.”

These experiences motivated her to find ways to ensure teachers have the necessary support to navigate the challenges of being a teacher of color in a predominantly white field. Toward that end, she applied for and received a BIPOC Educator Research Fellowship to conduct research related to a recently published book entitled “The Handbook of Research on Teachers of Color and Indigenous Teachers.”

Professor Kulkarni worked with Dr. Conra Gist of the University of Houston and Dr. Travis Bristol of UC Berkeley to organize a special research journal issue in “Educational Policy Analysis Archives.” They paired policy experts with academic scholars and the handbook contributors to explore critical areas related to diversifying the educator workforce, including intersectionality, recruitment, retention, professional development, human resources, and minority-serving institutions.

“We are responding to the issue that the preschool-12 grade teaching workforce is not keeping pace with the diversity of students in schools,” Professor Kulkarni says.

“As the handbook notes, recent research has shown that having teachers of color benefits all students. As the first scholar to be a part of this fellowship program, I’ve been able to lean into both national policy and critical new research on this topic.” The fellowship also helped Professor Kulkarni secure a book contract with Teachers College Press, where she will be writing with SJSU special education alums and other local teachers of color to share their experiences with racism and ableism.
Ivano Aiello

Creating a Model for Restoration of Marshes to Protect Coastal Wetlands and Populations Worldwide

Ivano Aiello is Interim Director of the Moss Landing Marine Laboratories located on the coast between Monterey and Santa Cruz. He and his team have embarked on an ambitious research project to create an effective model that involves adding sediments over subsided soil to restore and protect coastal marshes. The goal is protection of coastal wetlands and the ecosystem benefits they provide to coastal lands and populations.

His project is entitled “ESNERR History and Topography to Improve Decision-making for Estuary Restoration.” It is supported by a grant from the California-based Elkhorn Slough Foundation based in Watsonville. The research work Aiello and his team are doing is driven by an underlying sense of urgency – California has lost about 90% of its coastal wetlands over the past century.

“My parents used to bring me to the Fucecchio Marshes in Tuscany, Italy, where I grew up. Our current project on marsh restoration is a unique research opportunity to learn best practices for sediment additions on subsided marsh soils. It can provide a way to address future scenarios of sea level rise in low-lying coastal areas.”

Ivano Aiello

“I have been fascinated by salt marshes since childhood,” Aiello says.


Graduate Student Nalina Johnson and Professor and Moss Landing Marine Laboratories Interim Director Ivano Aiello stand before an x-ray diffractometer used to test and measure estuary soil samples with the results used to improve the decision-making in estuary restoration.

Ivano Aiello and two graduate students conducting topography studies.

“My parents used to bring me to the Fucecchio Marshes in Tuscany, Italy, where I grew up. Our current project on marsh restoration is a unique research opportunity to learn best practices for sediment additions on subsided marsh soils. It can provide a way to address future scenarios of sea level rise in low-lying coastal areas.”

Aiello’s research project was designed with active student involvement in mind. “At Moss Landing, our graduate students have been involved in each and every step of the research,” he says. “They do field work like mapping with a terrestrial laser scanner, soil sampling, and geotechnical analysis using a cone penetrometer. As well as lab-based analytical work using laser particle sizing and x-ray-based mineralogical analysis.”

The project is a collaboration with the ecologists at the Elkhorn Slough National Estuarine Research Reserve. The advanced geotechnical, sedimentological, and mapping tools they use will determine whether the addition of sediments over subsided soils is a viable strategy for reestablishing salt marsh ecosystems, which means the model they have created may have an impact not just in California, but also in coastal regions around the world.
Yvonne Kwan

Showcasing the Oral Histories of Asian Americans and Pacific Islander Activists in Santa Clara County

“Collaboration is at the heart of this project.”

As an ethnic studies practitioner and scholar, Professor Yvonne Y. Kwan works closely with community members to document and honor their contributions to our local community. Kwan is an Assistant Professor and Program Coordinator of Asian American Studies in the Department of Sociology and Interdisciplinary Social Sciences and an active participant and past Director of the Ethnic Studies Collaborative. When asked about the inspiration behind her work, she shared, “I look to the core essence in my field of Asian American Studies, which is to dismantle structural inequities and serve the people. This project came from the community. I, as the researcher, serve as the conduit to leverage my skills and to help actualize the community’s vision.”

A Community Advisory Committee saw a need to fill a historical and narrative void by highlighting the oft-silenced voices of community activist-elders and a call to action for our young and vibrant future activists and scholars: our students. While working with Kwan, they forged a dynamic relationship based on mutual respect and social change. The Santa Clara County Asian American and Pacific Islander (AAPI) Perspectives Oral History Project: Collective Community Storytelling calls for the public to engage with the largely untold history of AAPI in the Valley of Heart’s Delight, in particular, the civic, political, and social contributions AAPI have made in Santa Clara County. Interviewees include many San José State alumni like Yosh Uchida, Paul Sakamoto, Mike Honda, Paul Fong, Robert Ragsac ’54, Victoria Taketa, Roy Hirabayashi, PJ Hirabayashi, and many others.

In a special topics Asian American Studies course on Oral History and Community Activism that Kwan developed, San José State students learned oral history methodologies from listening to, coding, and analyzing the interviews collected from this research project. Students also created social media, websites, podcasts, and presentations that share the legacy and impact of our community activists.

The whole oral history research project will be archived with the Japanese American Museum of San José along with lesson plans for K-20 age groups. The time is ripe for us to honor and celebrate the diverse and vibrant voices of the AAPI activist community.
Katherine D. Harris

A Humanities Scholar Creates Collaborative Opportunities through Public Art to Foster Engagement Between the University and Its Neighbors

Professor Katherine D. Harris was inspired to pursue a career in academia by her interest in literary studies, women’s writing, and the humanities. “This curiosity was fostered by my doctoral studies at the City University of New York. There, I had conversations with students and faculty from all five boroughs. New York City taught me to be brave, but my faculty colleagues and fellow graduate students taught me to be an advocate.”

Professor Harris is the Director of Public Programming at the College of Humanities and the Arts and Professor of Literature and Digital Humanities, Department of English and Comparative Literature. She is known for her community-based art projects, which are inspired and ambitious. They’re designed to foster engagement between university students, faculty, and residents in neighborhoods in the central part of the city.

“In 2022, our Geography of the Arts initiative, under the umbrella of Humanities and Arts in Action, received two grants that built bridges between our college and the downtown San José community in this post-pandemic era,” she explains.

“The first grant from the City of San José provided generous funding through the Abierto Place-Making Grant to activate the green, public spaces around downtown San José.”

A second Humanities and the Arts project co-directed by Professor Harris and Dr. Alena Sauzade (Gallery Director & Collections Manager, Thompson Gallery) was supported by the California Humanities Council to create the project Public Art as Resistance in San José along with a team of faculty and students.

“This walking tour begins on the campus of San José State University and continues through downtown San José, highlighting a history of community empowerment through twelve unique works of public art,” she says.

“It includes murals, monuments, and sculptures.” For Professor Harris, this type of collaborative community-engaged research project is a creative way to explore how San José’s communities challenge interpretations of local history through public art creation.
Yu Chen

Artificial Intelligence for Social Good Education: Broadening Participation Across Disciplines and Regions

Business and technology sites often publish articles on artificial intelligence (AI) being used as a tool to gather specific data for commercial purposes like market research. Professor Yu Chen would like to see AI being used more to promote social good and benefit communities. To that end, she is working with colleagues in California State Universities (CSUs) to implement an interdisciplinary approach to AI education that addresses this societal need.

Chen is an Assistant Professor in the School of Information Systems and Technology at the Lucas College and Graduate School of Business.

“The project aims to broaden AI education among undergraduate students through the lens of AI for Social Good (AI4SG),” she says.

“IT invites students to prototype AI-powered tools to address social issues that align with the United Nations Sustainable Development Goals.

Professor Chen seeks to engage undergraduate students from diverse disciplines in AI education and provide them with the

necessary skills for future jobs contributing to their communities. “This project will generate evidence-based practices by evaluating the efficacy and impact of the proposed learning methods and activities on student learning, community engagement, and equity.”

Her project is supported by the National Science Foundation and is a collaboration with three other CSUs and the Chancellor’s Office. “Our research direction was inspired by two events in 2018,” she recalls. "The first was the Paseo Prototyping Challenge co-hosted by SJSU and the City of San José’s Mayor’s Office. The second was the IBM Call for Code competition that invited the developers worldwide to create systems in response to natural disasters."

For Professor Chen, student involvement is a primary goal. She and her team plan to share the AI4SG curriculum with over 1,000 undergraduate students across three CSU campuses. “Students are co-creators in each class,” she says. “They bring cultural and community assets to the classroom through their innovation projects, which we hope can then ripple beyond the classroom out into their communities as well.”

For further information, visit aiforsocialgood.org.

Technology, Communities, Social Change

AI FOR SOCIAL GOOD

ANNUAL REPORT 2023
Creating a Summer Research Program for High School Teachers

Liat Rosenfeld is an Associate Professor of Chemical Engineering in the Charles W. Davidson College of Engineering. Her research colleague is Tammie Visintainer who has a joint appointment between the Connie L. Lurie College of Education (Teacher Education) and the College of Science (Science Education).

They have taken on a three-year National Science Foundation-funded project called SJSU RET, which stands for Research Experience for Teachers. The SJSU RET program features an intensive summer research program for high-school STEM teachers from schools in the greater San José area that have socially, economically, racially, and ethnically diverse student bodies.

“The SJSU RET program provides substantive, hands-on research experience for teachers in the disciplinary area of Renewable Energy and Sustainable Engineering,” Professor Rosenfeld says.

“Professor Visintainer describes the solid progress they’ve made in the first year. “In the summer of 2022, we had the first cohort of SJSU-RET participants. Ten high school teachers participated in a six-week research-intensive program. It included working in engineering labs, conducting research, attending talks by industry leaders, and developing new curricular modules, which they will incorporate into their classrooms.”

Professors Rosenfeld and Visintainer are motivated to find ways to help teachers in the San José area, working with underrepresented groups, to participate in research activities that benefit their students. The exposure to cutting edge engineering research will motivate the teachers and their students to pursue STEM careers.
Abby Queale

The Silicon Valley Small Business Development Center (SVSBDC) at SJSU: Imparting Real-World Experiences

Abby Queale is the Director of Innovation within the Division of Research and Innovation. She also oversees the Silicon Valley Small Business Development Center (SVSBDC) whose mission is to support small businesses in Santa Clara County with high-growth potential by providing no-cost workshops, networking events, and one-on-one advising sessions with seasoned entrepreneurs and subject matter experts. Queale’s most recent project was the ambitious launching of the new SVSBDC on the SJSU campus.

“We are proud to host the SVSBDC at SJSU as part of our SpartUp innovation support hub to connect the Santa Clara County community to our campus as part of our Transformation 2030 goals,” Queale says.

“In our first year of operation, we exceeded our goals by serving over 350 clients and generating $31M in economic impact.

We hope to exceed these numbers next year by expanding our relationship with the new SpartUp Incubator.”

Queale’s interest in supporting innovation projects in a university setting was sparked by her previous work as the intellectual property attorney at Florida State University in Tallahassee. She says the experience showed her the long-term potential of untapped university research assets and prepared her to become an entrepreneur herself, co-founding a company to deploy a new model for university-industry (U-I) partnerships.

Now she and her startup advisors are passing along the insights they’ve gained from decades of combined experience mentoring tech founders across a variety of business categories. Queale offers one example of the successful campus startups she and her team have advised. “Xircle, a company that developed a social networking app to connect college students by interests, was founded by SJSU students.”

Queale is proud of the way university startups like Xircle have grown their businesses with the support of both the SpartUp Incubator and the SVSBDC. For her, it is a natural extension of her work as the SJSU Director of Innovation, and an opportunity to impart real-world educational experiences to the SJSU student startup founders she advises.
Matthew Leineweber

Designing Systems to Help Patients Who Use Prosthetics Improve Their Walking and Quality of Life

Associate Professor of Biomedical Engineering Matthew Leineweber conducts meaningful research that he hopes one day will result in wearable systems that can teach patients to improve their walking ability and prevent long-term injuries.

“People who rely on prosthetic legs to help their walking sometimes require active coaching to help them walk safely and efficiently,” he explains.

The goal of his research is to determine whether wearable sensors and vibrating motors can be used to help teach patients healthy movement patterns without requiring ongoing, real-time contact with a physical therapist. “Ultimately, we hope to develop wearable systems that can teach patients how to improve their walking ability and also prevent long-term injuries,” he says.

Professor Leineweber recalls a time back in his high school days that influenced him to pursue a career doing this kind of work. “I had the opportunity to visit a neighbor’s engineering firm. They were working on some projects to develop more effective medical devices. The idea that I could pursue a career that combined medicine and engineering to help improve people’s lives was particularly appealing to me.”

He sees real progress in the hands-on research he and his student researchers are doing. “So far we have been measuring how prosthesis users walk before training with our prototype system both when using our system and shortly after using our system,” he says. “Next, we want to develop more effective ways of delivering feedback to produce lasting changes that improve their walking and overall quality of life.”

Professor Leineweber is especially proud of the work his graduate student researchers have contributed. “They’ve had the opportunity to get hands-on experience in a variety of science and engineering topics, including software development, biomechanics, engineering design and data analysis. All done in a way that can have a meaningful impact on people’s lives. My research has benefitted from both their work and enthusiasm.”
Kathryn Blackmer Reyes

A Researcher and Librarian Showcases the History of San José East Side Residents and Their Contributions

Kathryn Blackmer Reyes considers herself both a university researcher and librarian and her two recent projects encompass both parts of her work. One project is called Restoring Multicultural Humanities Programming at the Dr. Martin Luther King, Jr., Library. Her intent was to identify and give visibility to lost, untold stories of communities of color in the Santa Clara Valley, including at SJSU.

“As the librarian who oversees the U.S. race and ethnic collections in the Africana, Asian American, Chicano, and Native American Studies Center (AAACNA), I try to create a unique, welcoming space on campus filled with vibrant collections that represent the diversity of this rich community,” she says.

From grants received, she was able to undertake and implement two historical projects. The digitizing of 250 videos that document the San José chapter of the American GI Forum, a Chicano, veterans organization, and an exhibit on SJ’s East Side neighborhood.” Both projects are in collaboration with the San José Public Library’s California Room. “The projects involved developing and implementing a library exhibit and resources that focused on the rich history of San José’s East Side neighborhood.”

“The East Side was a space that was once filled with orchards and canneries,” she says. “It was the primary location that housed migrant, local field and cannery workers. It has since become a neighborhood with great diversity and a vibrant history. Yet because of this diversity and how the community came to be, it has not always been represented in the most positive way by politicians and the media.” The grants have been an opportunity for her to focus on the history of this community. The history of how East San José has evolved into the grand neighborhood it is today, deserves to be recognized, shared and made public.”

“The history of how East San José has evolved into the grand neighborhood it is today, deserves to be recognized, shared and made public.”

Kathryn Blackmer Reyes is a Librarian and the Director of Africana, Asian American, Chicano, and Native American Studies Center (AAACNA) and Director of Academic and Community Engagement at the Dr. Martin Luther King, Jr. Library.

One of the many large community gatherings chronicled in the East Side Dreams exhibit in photographs and videos made available by Alcario Castellano and The Castellano Family Foundation. Early 1990s, Discovery Meadow, San José, CA. Courtesy of San José Public Library, California Room.
International Gateways

English Language

In 2022, International Gateways provided access to SJSU for 240 students and professionals from 30 countries through intensive English, Path to SJSU, short-term, and semester study programs. IG also partnered with SJSU departments to assist disqualified international students with reinstatement and readmission and administer the international conditional eligibility process.

Timpany Center

Physical Health and Wellness

The Timpany Center promotes health and wellness to individuals with disabilities, obesity, and advanced age. In partnership with Santa Clara County and the SJSU Research Foundation, the nonprofit boasts a newly-renovated swimming pool, adapted fitness center, open swim and gym usage, swim lessons, personal training, group exercise classes, physical therapy, and more.

International House

An Intercultural Home

The International House is an intercultural home to approximately 70 U.S. and international students attending San José State University. It was founded in 1978 by alums of SJSU, Alan and Phyllis Simpkins, and is a very special jewel near the SJSU campus.
2023 SJSU STUDENT RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITY (RSCA) COMPETITION FINALISTS

These students will represent SJSU at the 37th Annual CSU Student Research Competition

Mia Dong College of Engineering, M.S. in Industrial Systems Engineering candidate  
Faculty Mentor: Gaojian Huang Department of Industrial and Systems Engineering,  
Investigating the Effects of Adaptive Driving Styles on Trust in Partially Automated Vehicles

Autumn Galinski College of Science, B.S. in Physics candidate  
Faculty Mentor: Aaron Romanowsky Department of Physics and Astronomy  
Ultra Diffuse Galaxies and Globular Clusters in the NGC 1407 Galaxy Group

Hilary King College of Humanities and the Arts, MFA Creative Writing Program candidate Faculty Mentor: J. Michael Martinez Department of English and Comparative Literature  
Trees to Paradise: Using Poetry to Explore How California’s Arboreal History Reflects Its Eco and Social Cultures and Histories

Ran Li College of Science, B.S. in Data Science candidate  
Faculty Mentor: Guangliang Chen Department of Mathematics and Statistics  
On The Memory Scalability of Spectral Clustering Algorithms

James Guzman College of Engineering, M.S. in Artificial Intelligence candidate

Surabhi Gupta College of Engineering, B.S. in Software Engineering candidate  
Faculty Mentor: Magdalini Eirinaki Department of Computer Engineering  
Deep Learning in AI Medical Imaging for Stroke Diagnosis

Hanan Mubarez College of Social Sciences, B.S. in Psychology  
Faculty Mentor: Jill Citron Department of Psychology  
The Impact of Social Media Usage on Ethnic identity and its Relationship With Perceived Racial Discrimination

Jaedyn Rollins College of Science, M.S. Biological Sciences candidate  
Faculty Mentor: Jennifer Johnston Department of Biological Sciences  
Utilization of the RhD Locus as a Safe Harbor for Gene Editing Applications

Merlina San Nicolas Leyva College of Humanities and the Arts, M.S. Mass Communications and Media Studies candidate  
Faculty Mentor: Nisha Garud-Patkar School of Journalism and Mass Communications  
A Study of Mexican Journalists’ Professional Practices and Fact-Checking Habits During Misinformation and Anti-Press Times

Iris Schmidt College of Social Sciences, B.S. in Psychology candidate  
Faculty Mentor: Jill Citron Department of Psychology  
Substance Use Patterns Among College Students at San José State University: A Study on Ethnicity, Substance Type and Frequency, and Living Arrangements

Yik Haw Teoh College of Science, B.S. Applied Mathematics candidate  
Faculty Mentor: Hilary Hurst Department of Physics and Astronomy  
Free Fermions Subject to Weak Quantum Measurement: Collapse Dynamics and Numerical Accuracy
Professor Tammie Visintainer recalls a previous experience working on her doctorate research at UC Berkeley. “I observed summer science programs that served youth from groups historically excluded from access and opportunity in science education. Through the participation in a community-based science project, youths’ ideas about what science is and who can do science shifted significantly. By the end of the program, they saw themselves as learners, doers and agents of change in science.”

She is Assistant Professor of Science Education with a joint appointment between the Connie L. Lurie College of Education (Teacher Education) and the College of Science (Science Education). Her previous research work, including the research she gathered as part of her doctoral studies, has inspired her to create and support a justice-centered science teacher education model that empowers teachers as designers, equity advocates, and leaders in community-engaged science research and transformative science teaching.

For example, a recent project places climate justice and racial justice on equal footing and presents a novel approach to school-based science teaching and learning by empowering teachers and students as climate justice action researchers and change agents.

This is one part of a five-year research project she is managing thanks to a National Science Foundation grant. The project is called Transforming Science Teaching and Learning in K-12 Schools: Empowering Teachers and Students as Climate Justice Action Researchers and Change Agents.

“When I wrote the research grant, I wanted to broaden access and opportunity by making these types of experiences available to youth in schools.”

Tammie Visintainer is an Assistant Professor with a joint appointment in Teacher Education and Science Education.
Assistant Professor Dahyun Oh, center, with students in the Energy Materials Lab on campus. Dr. Oh aims to design new material structures to maximize device performance by understanding interfacial reactions between different materials inside the device.

Professor Oh is now passing along all that she has learned during her career to the next generation of materials science engineers. “Some of my students have gone on to prestigious masters and doctorate programs in the field. Others have found employment in the battery and semiconductor industries. They are all motivated to learn new technologies, solve these problems, and have successful careers after graduation.”

“My interest in sustainable technology started when I joined the Ph.D. program there and started working with my research advisor, Prof. Angela M. Belcher,” she says. “Her approach was very inspirational.”
STATEMENT OF ACTIVITIES
FISCAL YEAR ENDING 06/30/2022

REVENUE AND SUPPORT

Federal Contracts and Grants $22,049,406
State Contracts and Grants $9,642,250
Other Contracts and Grants $7,935,929
Indirect Cost Recovery–C&G $8,577,535
Administrative and Program Fees $350,952
Campus Organizations and Other Revenue and Support $3,849,121
Gifts $853,341
Investment Income ($1,555,269)
Other Revenue and Support $156,823
Transfers from SJSU and Tower Foundation $1,210,000

Total Revenue $53,070,089

EXPENSES

Program Activities

Sponsored Programs $39,795,902
Board Designated Programs $271,556
Campus Organizations Expenditures $5,217,759
Support Activities–Management and General $9,380,831
Transfers to SJSU $500,000

Total Expenses $55,166,048

CHANGE IN NET POSITION ($2,095,960)

Net Position at beginning of Year $19,234,608
Net Position at end of Year $17,138,647

Types of Revenue and Support

Federal Contracts and Grants $22,049,406
State Contracts and Grants $9,642,250
Other Contracts and Grants $7,935,929
Indirect Cost Recovery–C&G Other Revenue and Support $8,577,535
Administrative and Program Fees $350,952
Gifts $853,341
Investment Income ($1,555,269)
Other Revenue and Support $156,823
Transfers from SJSU and Tower Foundation $1,210,000

Total Revenue $53,070,089
<table>
<thead>
<tr>
<th>Contracted Services</th>
<th>Curriculum and Assessment</th>
<th>College of Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated Students</td>
<td>Undergraduate Studies</td>
<td><a href="#">CAREER: Transforming Science Teaching &amp; Learning in K-12 Schools: Empowering Teachers &amp; Students as Climate Justice Action Researchers &amp; Change Agents</a> National Science Foundation $222,957</td>
</tr>
<tr>
<td>Jane Zamora</td>
<td></td>
<td><a href="#">Smart Vertiplex for Advanced Air Mobility at NASA Ames Research Center</a> Universities Space Research Association $9,905</td>
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<tr>
<td>CCAMPIS Grant 2021-2025</td>
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<td><a href="#">Aviation and Technology</a></td>
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<tr>
<td>Department of Education</td>
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<td><a href="#">A Comprehensive Testing Platform for Mechanical Heart Valves to Propel Innovation towards Anticoagulant-Independence</a> Department of Health &amp; Human Services $293,000</td>
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<tr>
<td>$325,571</td>
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<td><a href="#">Reactive Ion Plasma Treatment of Cardiovascular Biomaterials to Understand the Effect of Nanotopography on Endothelialization</a> National Institutes of Health $140,460</td>
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<tr>
<td><strong>Tammie Visintainer</strong></td>
<td></td>
<td><a href="#">Quantifying Biofeedback Training and Retention Effects on Functional Outcomes in Above-knee Prosthesis Users</a> Department of Defense $348,636</td>
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<tr>
<td><strong>CCAMPIS Grant 2021-2025</strong></td>
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<td><a href="#">Fit and Usability Comparison of Face Masks</a> Atmos Life Science Inc. $14,957</td>
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<td><strong>$325,571</strong></td>
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<td><a href="#">Collaborative Research: Deciphering Complex Phenotypes in Bacteria Aided by Continuous Genome Shuffling and High Throughput Analytical Technologies</a> National Science Foundation $328,714</td>
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<tr>
<td><strong>Ozgur Keles</strong></td>
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<td><a href="#">CAREER: Multi-scale Mechanical Behavior of Quantum Dot Nanocomposites: Towards Data-driven Automatic Discovery of High-Performance Structures</a> National Science Foundation $599,293</td>
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<td><strong>$325,571</strong></td>
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<td><a href="#">A Modular Simulation Environment for Design and Prototyping of Closed-Loop Peripheral Neurmodulation Control Systems using the O2S2PARC Platform</a> Emory University $118,227.51</td>
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<td><strong>Anand Ramasubramanian</strong></td>
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<td><a href="#">Blood-Based Biomarkers for Chronic Fatigue Syndrome</a> Open Medicine Foundation $39,662</td>
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<td><strong>California Volunteers</strong></td>
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<td><a href="#">XR-FLC Faculty Participants</a> California State University, Fresno $9,000</td>
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<tr>
<td><strong>$133,797</strong></td>
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<td><a href="#">Blood-Based Biomarkers for Chronic Fatigue Syndrome</a> Open Medicine Foundation $39,662</td>
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<tr>
<td><strong>Tom Reisz</strong></td>
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<td><a href="#">Collaborative Research: Deciphering Complex Phenotypes in Bacteria Aided by Continuous Genome Shuffling and High Throughput Analytical Technologies</a> National Science Foundation $328,714</td>
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</tr>
<tr>
<td><strong>San José State University (SJSU) Civic Action</strong></td>
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<td><a href="#">A Modular Simulation Environment for Design and Prototyping of Closed-Loop Peripheral Neurmodulation Control Systems using the O2S2PARC Platform</a> Emory University $118,227.51</td>
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<td><strong>Fellows formerly known as AmeriCorps Civic</strong></td>
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<td><a href="#">Blood-Based Biomarkers for Chronic Fatigue Syndrome</a> Open Medicine Foundation $39,662</td>
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<tr>
<td><strong>Engagement Fellows (ACE Fellows @ SJSU)</strong></td>
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<td><a href="#">XR-FLC Faculty Participants</a> California State University, Fresno $9,000</td>
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</tr>
</tbody>
</table>

### Additional Contracts, Grants, and Fellowships

**Associated Students**

- **Jane Zamora**
  - CCAMPIS Grant 2021-2025
  - Department of Education
  - $325,571

**Curriculum and Assessment**

- **Undergraduate Studies**
  - **Elena Klaw**
    - San José State University (SJSU) Civic Action Fellows formerly known as AmeriCorps Civic Engagement Fellows (ACE Fellows @ SJSU)
    - California Volunteers
    - $133,797

**Connie L. Lurie College of Education**

- **Child and Adolescent Development**
  - **Maria Fusaro**, Emily Slusser, and Andrea N. Golloher
  - SSPC Mobility LABs Pilot Project Consultation
  - Grail Family Services
  - $6,494

**Dean’s Office**

- **Ben Reed**
  - TECHcellence: Accelerated CS Pathway Partnership
  - Coalition of Urban Serving Universities
  - $50,000

**Special Education**

- **Saili S. Kulkarni**
  - Handbook of Research on Teachers of Color and Indigenous Teachers
  - University of Houston
  - $30,000

**Teacher Education**

- **Allison Briceno**
  - Cultivating and Sustaining Biliteracy And Bilingualism in Multilingual Youth
  - Santa Clara University
  - $47,354

**Biomedical Engineering**

- **Alessandro Belliifore**
  - A Comprehensive Testing Platform for Mechanical Heart Valves to Propel Innovation towards Anticoagulant-Independence
  - Department of Health & Human Services
  - $293,000

**Biomedical Engineering**

- **Patrick Jurney**
  - Reactive Ion Plasma Treatment of Cardiovascular Biomaterials to Understand the Effect of Nanotopography on Endothelialization
  - National Institutes of Health
  - $140,460

**Computer Engineering**

- **Nima Karimianbahnemiri**
  - Collaborative Research: SHF: Small: Secure Deep Learning Computing on GPUs
  - National Science Foundation
  - $160,241

**Chemical and Materials Engineering**

- **Katy Kao**
  - Collaborative Research: Deciphering Complex Phenotypes in Bacteria Aided by Continuous Genome Shuffling and High Throughput Analytical Technologies
  - National Science Foundation
  - $328,714

**Chemical and Materials Engineering**

- **Ozgur Keles**
  - CAREER: Multi-scale Mechanical Behavior of Quantum Dot Nanocomposites: Towards Data-driven Automatic Discovery of High-Performance Structures
  - National Science Foundation
  - $599,293

**College of Engineering**

- **Aviation and Technology**
  - **Wenbin Wei**
    - Smart Vertiplex for Advanced Air Mobility at NASA Ames Research Center
    - Universities Space Research Association
    - $9,905

**College of Engineering**

- **Biomedical Engineering**
  - **Alessandro Belliifore**
    - A Comprehensive Testing Platform for Mechanical Heart Valves to Propel Innovation towards Anticoagulant-Independence
    - Department of Health & Human Services
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**College of Engineering**

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  - Department of Defense
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**Computer Engineering**

- **Ronald Mak**
  - Confidential
  - $124,156

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  - Grail Family Services
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<tr>
<th>Field</th>
<th>Project Description</th>
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<th>Grantor</th>
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<td>Ahmed Hambaba</td>
<td>Hewlett Packard Company</td>
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<td>Role of Microgrids in the Electricity Ecosystem of the Future: A-CPS Design</td>
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<td>Industrial and Systems Engineering</td>
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<td>CRII: HCC: Human-Automation Interaction: Assistive and Adaptive Multimodal Interface to Support Older Adults in Complex Automated Systems</td>
<td>Anil R. Kumar</td>
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<td>School of Social Work</td>
<td>Moctezuma Garcia</td>
<td>University of Chicago</td>
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<td>Community Network Driven COVID-19 Testing among Most Vulnerable Populations in the Central United States</td>
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<td>Nicole Okamoto and Mathew Stowe</td>
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<td>Whisper.ai</td>
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<td>Rhonda Hamberton and Revathi Krishnaswamy</td>
<td>The Ohio State University</td>
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<td>Role of Microgrids in the Electricity Ecosystem of the Future: A-CPS Design</td>
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<td>Industrial and Systems Engineering</td>
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English and Comparative Literature
Selena Anderson
Center for Literary Arts -- Local Arts Grant 2021-2022
Silicon Valley Creates
$4,400

Center for Literary Arts -- City of San José
Take pART
City of San José
$8,200

James (Josh) Coleman
San José Area Writing Project 2021-2022 – ESSA / Federal
Regents of The University of California
$39,082

Katherine D. Harris
Geography of The Arts in San José
City of San José
$30,000

Katherine D. Harris and Alena Sauzade
Public Art as Resistance in San José
California Humanities
$5,000

Bronwyn Lamay
San José Area Writing Project 2019-2020 - CSMP
Regents of The University of California
$32,185

Susan Shillinglaw
John Steinbeck: Social Critic and Ecologist
National Endowment for the Humanities
$9,455

Shannon Wright
The California Arts Project - CSMP 2017-2018
Regents of The University of California
$50,000

Lucas College and Graduate School of Business
Dean's Office
Dan Moshavi, Karen E. Philbrick and Hilary K. Nixon
Micro Transit Pilot Evaluation
Google Inc.
$60,000

Hilary K. Nixon
Evaluation of MTC Discretionary Funding Methods and VTA Transit Agency Partnerships (Phase 1)
Santa Clara Valley Transit Authority
$124,642

Hilary K. Nixon and Kezban Yagci Sokat
Not on Transit (NoT) Project
Santa Clara Valley Transit Authority
$159,998

Karen E. Philbrick
Mineta Consortium for Transportation Mobility (MCTM)
Department of Transportation
$1,401,100

MTI Database on Terrorist and Serious Criminal Attacks against Public Surface Transportation
U.S. Department of Homeland Security
$151,527

MTC Leadership Academy Training
Metropolitan Transportation Commission
$330,000

Senate Bill 1 (CSU Lead Center)
California State University System
$2,000,000

School of Information Systems & Technology
Yu Chen
Collaborative Research: An Interdisciplinary Approach to AI Education for Social Good
National Science Foundation
$263,253

Office of Research
Mohamed Abousalem
The City of San José 2021 Resident Survey - SJSU
Silicon Valley Community Foundation
$33,042

Richard Mocarski
Developing a Toolkit for Transgender and Gender Diverse-Affirming Health Communication: A Community-Based Participatory Research Partnership Approach
National Institutes of Health
$206,257

Abby Queale
The Spartan Small Business Development Center
Humboldt State University Sponsored Program Foundation
$607,250

President's Office
Kathleen Wong
Santa Clara County Hate Crimes Task Force Contract
Santa Clara County
$250,000

College of Professional and Global Studies
International Programs
Leann D. Cherkasky Maklni
Support for COVID-19 Response - IHouse
San José State University
$428,702.50

School of Information
Lili Luo
Expanding Access to Research Training for Academic Librarians (IRDL Online)
Loyola Marymount University
$40,000

College of Science
Biological Sciences
Tzvia Abramson
Stem Cell Internships in Laboratory-based Learning (SCILL) Continue to Expand the Scientific Workforce for Stem Cells Research and Therapies
California Institute of Regenerative Medicine
$3,606,500

Walter Adams
Microbial and Host Factors that Promote Epithelial Disruption and S. pneumoniae Transit out of the Lung
National Institutes of Health
$146,500

Jessica Castillo-Vardaro
Monitoring American Pika Occupancy and Population Pressures in Northwestern Nevada
University of Nevada, Reno
$25,000

Bree Grillo-Hill
Roles for Intracellular pH Dynamics in Cancer Cell Behaviors
National Institutes of Health
$109,875

Frank Huynh
Regulation of Mammary Gland Development by Sirtuin 4
National Institutes of Health
$146,500

College of Professional and Global Studies
International Programs
Leann D. Cherkasky Maklni
Support for COVID-19 Response - IHouse
San José State University
$428,702.50

School of Information
Lili Luo
Expanding Access to Research Training for Academic Librarians (IRDL Online)
Loyola Marymount University
$40,000

College of Science
Biological Sciences
Tzvia Abramson
Stem Cell Internships in Laboratory-based Learning (SCILL) Continue to Expand the Scientific Workforce for Stem Cells Research and Therapies
California Institute of Regenerative Medicine
$3,606,500

Walter Adams
Microbial and Host Factors that Promote Epithelial Disruption and S. pneumoniae Transit out of the Lung
National Institutes of Health
$146,500

Jessica Castillo-Vardaro
Monitoring American Pika Occupancy and Population Pressures in Northwestern Nevada
University of Nevada, Reno
$25,000

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$109,875

Frank Huynh
Regulation of Mammary Gland Development by Sirtuin 4
National Institutes of Health
$146,500
### CONTRACTS, GRANTS, AND FELLOWSHIPS

<table>
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<tr>
<th>Name</th>
<th>Project Description</th>
<th>Funding Source</th>
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<tr>
<td>Jennifer Johnston</td>
<td>Identification of Novel Safe Harbors to be Used in a Gene Editing Strategy for the Treatment of Hemophilia A</td>
<td>National Institutes of Health</td>
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<td>Scott Shaffer</td>
<td>Collaborative Research: Predator Facilitation Across a Variable Marine Environment</td>
<td>National Science Foundation</td>
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<td>Elizabeth Skovran</td>
<td>Efficient Recovery of Rare Earth using Methylobacterium Extorquens</td>
<td>University of California, Berkeley</td>
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<td>Miri K. VanHoven</td>
<td>Olfactory Memory Acquisition Consolidation and Recall</td>
<td>University of California, San Francisco</td>
<td>$112,214</td>
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<td>The Effect of Sleep on Neural Circuit Connections</td>
<td>University of California, San Francisco</td>
<td>$180,333</td>
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<td>Joseph (Brandon) White and Lionel E. Cheruzel</td>
<td>MRI: Acquisition of HPLC Coupled Mass Spectrometer for Proteomics, Metabolomics, and Small Molecule Applications to Expand &amp; Upgrade SJSU PROTEIN Lab</td>
<td>National Science Foundation</td>
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<td>Chemistry</td>
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<td>Lionel E. Cheruzel</td>
<td>Novel Strategies in Light-Driven P450 Enzymes</td>
<td>National Institutes of Health</td>
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<td>Nicholas Esker</td>
<td>HIPPO: Horizon-broadening Isotope Production Pipeline Opportunities</td>
<td>Texas A&amp;M University</td>
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<td>RUI: Targetry Development and Nuclear Structure Studies Near 100Sn</td>
<td>National Science Foundation</td>
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<td>Laura C. Miller Conrad</td>
<td>Blocking Cationic Antimicrobial Peptide-Resistance in Pseudomonas Aeruginosa</td>
<td>National Institutes of Health</td>
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<td>Madalyn Radlauer</td>
<td>LEAPS-mps: Confinement of Organometallic Complexes within Structured Polymers for Site-Isolated Tandem Catalysis</td>
<td>National Science Foundation</td>
<td>$249,678</td>
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<td>Alberto A. Rascon, Jr.</td>
<td>Understanding the Functional Roles of Newly Identified Serine “Orphan” Proteases and Two Chymotrypsins in the Aedes aegypti Midgut</td>
<td>National Institutes of Health</td>
<td>$109,875</td>
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<td>Karen A. Singmaster</td>
<td>CSU SJSU LSAMP Program 2018-2023</td>
<td>California State University, Sacramento</td>
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<td>Annalise L. Van Wyngarden</td>
<td>Re-establishing Nuclear Science Research at SJSU</td>
<td>Nuclear Regulatory Commission</td>
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<td>Abraham Wolcott</td>
<td>LEAPS-mps: Electric Field Sensing with Nitrogen Vacancy Centers and Chemical Tuning of the Diamond Host</td>
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<td>Supporting Active Learning in Introductory STEM Courses with Extended Reality</td>
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<td>Shelley Cargill</td>
<td>SJSU MESA College Prep Program- One-Time Funding 21-24</td>
<td>Regents of The University of California</td>
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<td>Elaine D. Collins</td>
<td>MESA College Prep Program for AY 2021-2022</td>
<td>Regents of The University of California</td>
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<td>SJSU MESA Schools Program – Bridges Academy (of Franklin McKinley School District)</td>
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<td>SJSU MESA Schools Program ARUESD Agreement</td>
<td>Alum Rock Unified Elementary School District</td>
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<td>SJSU MESA Schools Program ESUHSD Agreement</td>
<td>East Side Union High School District</td>
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<td>SJSU MESA SCHOOLS PROGRAM LCPA (Latino College Preparatory Academy) Agreement 19-20</td>
<td>Latino College Preparatory Academy</td>
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<td>SJSU MESA SCHOOLS PROGRAM RCLA (Roberto Cruz Leadership Academy) Agreement 2019-2022</td>
<td>Roberto Cruz Learning Academy</td>
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<td>Michael J. Kaufman</td>
<td>An upGREAT Map in M20: [OI] and [CII] Emission from a Young Star Forming Region – Cycle 9</td>
<td>Universities Space Research Association</td>
<td>$19,600</td>
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<td>Astronomical Infrared Bands as Calibrated Probes of Astrophysical Conditions in the JWST-era with The NASA Ames PAH IR Spectroscopic Database</td>
<td>NASA</td>
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<td>Geology</td>
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<td>Kimberly Blisniuk</td>
<td>CAREER: Re-Evaluating the Evolution of the Southern San Andreas Fault along its Restraining Bend from Holocene to Mid-Quaternary Timescales via 36Cl/10Be Burial and Cosmogenic Exposure Dating</td>
<td>National Science Foundation</td>
<td>$160,921</td>
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</table>
Ellen Metzger, Sen Chiao, Carlie Pietsch, and Leanne Teruya
GP-UP: Strengthening Pathways to Geoscience Degrees for Underrepresented Pre-College and Introductory Students Through Experiential Learning and Career-informed Research
National Science Foundation
$204,041

Robert B. Miller
EDMAP: Structure of Cretaceous Intrusive Suites, Mosquito Lake Area, North-Central Sierra Nevada, California
Department of Interior
$18,034

Mathematics and Statistics
Wesley Maciejewski
ECR DBER DCL: Mathematical Flexibility In Undergraduate Education
National Science Foundation
$624,951

Ferdinand D. Rivera, Lisa Simpson, David Goulette, Peg Hughes, and Cheryl Roddick
Developing 21st Century Inclusive- and Mathematical Literacy-Driven Middle School and High School Mathematics Teachers
National Science Foundation
$778,840

Julie S. Spitzer
Santa Clara Valley Mathematics Project (CSMP – State)
Regents of The University of California
$20,000

Santa Clara Valley Mathematics Project 21-22 (ESSA Federal Funds)
Regents of The University of California
$24,223

Yan Zhang and Dashiell Fryer
CAMCOS Fall 2021 and Spring 2022
Ethereum Foundation
$50,000

Meteorology and Climate Science
Sen Chiao
Detailed Quantitative Precipitation Forecasts for SCVWD
Santa Clara Valley Water District
$29,922

Craig B. Clements
Collaborative Proposal: Sundowner Winds Experiment in Santa Barbara, CA (SWEX)
National Science Foundation
$179,853

Vertical Wind Profiling for Real-Time Fire Weather and PSPS Assessment
Southern California Edison
$53,350

Craig B. Clements and Adam Kochanski
EAGER: Observing Extreme Fire Behavior in Canyons
National Science Foundation
$201,993

Craig B. Clements, Sen Chiao, and Patrick Brown
METOPS - Analyze 30 YR Climatology 2KM WRF Model (2047625)
Pacific Gas & Electric Company
$503,015

Craig B. Clements, Amanda Stasiewicz, Adam Kochanski, and Kate Wilkin
IUCRC Phase I: San José State University: Wildfire Interdisciplinary Research Center (WIRC)
National Science Foundation
$315,951

Minghui Diao
Advancing the Understanding of Cloud Microphysical Processes and Aerosol Indirect Effects in High-Latitude Mixed-Phase Clouds
Department of Energy
$247,126

Aerosol Indirect Effects on Cirrus Clouds Based on NASA Flight Campaigns and Global Climate Models
NASA
$184,607

Adam Kochanski
Coupled Interactive Forecasting of Weather, Fire Behavior, and Smoke Impact for Improved Wildland Fire Decision Making
Colorado State University
$35,769

Datasets of Weather and Wildfire Fuel for California
Lawrence Livermore National Laboratory
$49,930

Understanding Urban and Wildland Fire Dynamics
Lawrence Livermore National Laboratory
$34,991

Adam Kochanski and Craig B. Clements
Evaluating and Improving Live and Dead Fuel Moisture Models for Use in Gridded Forecast Systems
U.S. Forest Service
$162,273

Measuring and Modeling Smoke Plumes and Emissions based on Aggregated, Object-based Fuel Structures
U.S. Forest Service
$73,765

Qian Tan
The NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology
Howard University
$5,000

Miguel Valero
Quantitative Measurement of Wildfire Behavior in the Field: Leveraging Remote Sensing for Reproducible Observation and Improved Understanding
National Science Foundation
$344,069

Moss Landing Marine Laboratories
Ivano W. Aiello
ESNERR History and Topography to Improve Decision-making for Estuary Restoration (HiTIDER)
Elkhorn Slough Foundation
$352,122

Ivano W. Aiello and Murray Stein
Research Vessel Use for Monthly Water Sampling
Applied Marine Sciences Inc.
$15,000

Dustin Carroll
A Catchment to Coast Paradigm: Impact of Spatially and Temporally Varying Nutrient and Freshwater Fluxes on the Gulf of Mexico Dead Zone
NASA
$18,192

Analysis of the Role of Diel Vertical Migrators in the Marine Biological Pump
Brown University
$44,397

Collaborative Research: Improving Estimates of Greenland’s Freshwater Flux: Where do Icebergs Form and Where Do They Melt?
National Science Foundation
$56,123

Estimating the Circulation and Climate of the Ocean (ECCO)
Jet Propulsion Laboratory
$11,550

Impacts of Changing Sea-Ice on Arctic Ocean Biology
Jet Propulsion Laboratory
$90,915

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<th>Project Title</th>
<th>Investigator(s)</th>
<th>Institution(s)</th>
<th>Funding Award</th>
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<tr>
<td>Ocean Carbon Sink Variability: Internal vs. Forced Mechanisms</td>
<td>Dustin Carroll</td>
<td>Columbia University</td>
<td>$33,566</td>
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<tr>
<td>Using a Data-Constrained Global-Ocean Ecology and Biogeochemistry Model to Study the Role of Biological Pump and Ocean Circulation in Driving Ocean Carbon Cycle Variability</td>
<td>Dr. Dustin Carroll</td>
<td>NASA</td>
<td>$46,782</td>
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<td>Completing the Core Objectives of the Moro Cajo Slough Management and Enhancement Plan</td>
<td>Ross P. Clark</td>
<td>Coastal Conservation &amp; Research, Inc.</td>
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<td>Conservation Innovation Grant (USDA) Project</td>
<td>Dr. Ross P. Clark</td>
<td>Resource Conservation District of Monterey County</td>
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<td>Planning for Predicted Sea Level Rise Within the Salinas Valley</td>
<td>Dr. Ross P. Clark</td>
<td>Coastal Conservation &amp; Research, Inc.</td>
<td>$25,000</td>
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<td>Provide Archival, Analysis, and Publishing Services on Benthic Data Previously Collected for Multiple Project</td>
<td>Dr. Ross P. Clark</td>
<td>Creative Environmental Conservation Network</td>
<td>$44,009</td>
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<td>CeNCOOS Partnership: Information Solutions to Power Healthy and Prosperous Oceanic, Coastal and Estuarine Communities</td>
<td>Dr. Thomas Connolly, Dr. Maxime Grand, and Dr. Holly A. Bowers</td>
<td>Monterey Bay Aquarium Research Institute</td>
<td>$54,875</td>
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<td>DNA Extraction, Illumina MiSeq Library Preparation, &amp; Sequencing of Plankton Collected by the Invasion Ecology Laboratory, SERC</td>
<td>Dr. Jonathan B. Geller</td>
<td>Smithsonian Environmental Research Center</td>
<td>$274,612</td>
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<td>Contract between PSA and SJSUF 2022</td>
<td>Dr. Michael Graham</td>
<td>Phycological Society of America</td>
<td>$82,278</td>
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<td>Assessment of Practical Methods for Re-Establishment of Bull Kelp Populations at an Ecologically Relevant Scale</td>
<td>Dr. Michael Graham, Dr. Scott L. Hamilton, and Dr. Maya Devries</td>
<td>University of California, San Diego</td>
<td>$157,307</td>
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<td>Improving IMTA System Design for the Co-Culture of Seaweeds and Abalone to Mitigate the Effects of Climate Change</td>
<td>Dr. Michael Graham, Dr. Scott L. Hamilton, and Dr. Maya Devries</td>
<td>University of California, San Diego</td>
<td>$149,999</td>
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<td>Validating Age and Growth of Captive Fishes from Mexican Waters at the Monterey Bay Aquarium</td>
<td>Dr. Scott L. Hamilton</td>
<td>Monterey Bay Aquarium</td>
<td>$9,000</td>
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<td>Evaluating Performance of California’s MPA Network through the Lens of Sandy Beach and Surf Zone Ecosystems</td>
<td>Dr. Scott L. Hamilton</td>
<td>University of California, Santa Barbara</td>
<td>$116,665</td>
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<td>California Collaborative Fisheries Research Program – Monitoring and Evaluation of California Marine Protected Areas</td>
<td>Dr. Scott L. Hamilton and Dr. Richard M. Starr</td>
<td>California Natural Resources Agency</td>
<td>$1,000,000</td>
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<td>Estuarine Wetland and Nearshore Ecology Studies along the Pacific Flyway</td>
<td>Dr. James Harvey</td>
<td>Department of Interior</td>
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<td>Contract for Services to Support Leatherback Monitoring</td>
<td>Dr. James Harvey</td>
<td>Upwell Turtles</td>
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<td>Hydrofocus Dutch Slough</td>
<td>Dr. Wesley A. Heim</td>
<td>HydroFocus Inc.</td>
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<td>MLJ DRMP CEC</td>
<td>MLJ Environmental</td>
<td>Pacific Gas &amp; Electric Company</td>
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<td>Pacific Gas &amp; Electric Company</td>
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<td>Provide Collection of Fish per Species for Tissue Contamination Testing at Seven Lakes Sacramento Municipal Utility District</td>
<td>Dr. Wesley A. Heim and Dr. Autumn L. Bonnema</td>
<td>Sacramento Municipal Utility District</td>
<td>$96,000</td>
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<td>LA River and San Gabriel Watershed Fish Collections – Aquatic Bioassay</td>
<td>Dr. Wesley A. Heim and Dr. Autumn L. Bonnema</td>
<td>Aquatic Bioassay &amp; Consulting Laboratories Inc.</td>
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<td>SWRCB-SWAMP Agreement Number 20-006-270</td>
<td>MLJ Environmental</td>
<td>California State Water Resources Control Board</td>
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Amanda Kahn
COST SHARE- Using Energetics and Metabolism to Enhance Olympia Oyster Aquaculture and Outplanting Success
California State University, Monterey Bay
$29,974

Amanda Kahn and Luke Gardner
Using Energetics and Metabolism to Enhance Olympia Oyster Aquaculture and Outplanting Success
University of California, San Diego
$59,877

Birgitte McDonald
Central Coast Stranding Response: Recovering from Covid
University of California, Santa Cruz
$19,014

State Funds to Support Stranding Response in California
Marine Mammal Center
$76,389

Zachariah Peery
Effectiveness and Optimization of Forest Fuels Reductions for Biodiversity Conservation in a Changing Sierra Nevada
California Department of Forest & Fire
$249,712.10

Jonathan (Mike) Prince
NSF IPA Assignment
National Science Foundation
$98,943

Marco A. Sigala
2022 TNA Reporting
Central Coast Water Quality Preservation Inc.
$54,000

Bioassessment Studies to Monitor Stream Health and Response
Sierra Pacific Industries
$299,032

Delta RMP QA Services
MLJ Environmental
$64,185

Timothy P. Stanton
Long Term Observations of Upper Ocean Fluxes and Pycnocline Diffusivity in the Canada Basin Buoy Instrumentation
Department of Defense | Office of Naval Research
$105,719

Ocean Sensor Development for the AMOS Buoy System
Woods Hole Oceanographic Inst.
$21,847

Technical Support for Flux Instrument Package Integration for IceNode Vehicle
Jet Propulsion Laboratory
$32,213

Edward Thornton
Coastal Land-Air-Sea Interaction- Thornton Portion
Department of Defense | Office of Naval Research
$44,727

ROXSI: Rocky shores eXperiments and Simulations—Thornton Portion
University of California, San Diego
$26,949

Mark Yarbrough and Michael E. Feinholz
Implementation of MarONet for Support of OCI/PACE Vicarious Calibration
University of Miami
$198,660

Richard M. Starr
Monitoring and Evaluation of Mid-Depth Rocky Reef Ecosystems in the MLPA Marine Protected Area Network
University of California, San Diego
$1,735,500

Jennifer Zeligs
Locomotion and Transitions of an Amphibious System: Biologic to Robotic
West Chester University
$40,000

Physics and Astronomy
Kassahun Betre
LEAPS-MPS: Investigating Emergent Gravity in Combinatorial Quantum Systems
National Science Foundation
$172,119

Alejandro L. Garcia
Stochastic and Hybrid Models and Algorithms for Fluids
Lawrence Berkeley National Laboratory
$125,470

Hilary Hurst, Ehsan Khatami, and Hiu Yung Wong
Collaborative Research: NRT-QL: A Program for Training a Quantum Workforce
National Science Foundation
$739,029

Ehsan Khatami
AI and Data Science Enabled Predictive Modeling of Collective Phenomena in Strongly Correlated Quantum Materials
University of Tennessee
$74,276

Gina Quan
Collaborative Research: Access Expansion: Growing a Network of Equity-Focused Programs in the Physical Sciences
National Science Foundation
$45,047

Aaron J. Romanowsky
Jet Propulsion Laboratory
$17,000

The Stellar Population Gradients of Ultra-diffuse Galaxies
Jet Propulsion Laboratory
$12,650

College of Social Sciences
Anthropology
Melissa Beresford
CAREER: Moral Economies in Water Markets: Implications for Understanding Human Responses to Water Insecurity in Market-Driven Economies
National Science Foundation
$458,340

Chicana and Chicano Studies
Jonathan Daniel Gomez
The Cultural Work of Poetry: A Reading, Writing, and Community Discussion Series in San José, CA
California Humanities
$24,567

Communication Studies
Matthew Spangler
The Immigrant Experience in California through Literature and History
National Endowment for the Humanities
$7,758

Economics
Darwyyn Deyo
Institute for Justice Senior Research Fellow Project
Institute for Justice
$64,244
Environmental Studies
Katherine Kao Cushing
CommUniverCity: Community Leadership Program (CLP) 21-22
City of San José
$50,000
Katherine Kao Cushing and Michael Oye
CommUniverCity: Community Services Program 2021-22
City of San José
$105,000
SoFA Pocket Park
Veggielution
$15,000
Vaccine Outreach
City of San José
$60,000
Metha Klock
Broadening Opportunities for Underserved Students to Engage in Ecosystem Restoration
Midpeninsula Region Open Space District
$49,964
Bruce Olszewski
Recycling/Reuse Hotline and Website for Santa Clara County
City of Morgan Hill
$105,000
History
Victoria Harrison
Payment from the Israeli Consulate into the Jewish Studies Account
Consulate General of Israel to the Pacific Northwest San Francisco
$4,000
Justice Studies
Margaret Stevenson
San José State University Research Foundation (SJSURF) Parole Grant 2021-2022
Santa Clara County
$100,000
San José State University Research Foundation (SJSURF) Service Navigation-2021-2022
Santa Clara County
$744,445
San José State University Research Foundation (SJSURF) Service Navigation-2022-2023
Santa Clara County
$844,445
SJSU Record Clearance Project On-Line Legal Services Support
Santa Clara County
$25,000
The Record Clearance Project (RCP) at San José State University
State of California
$449,998
Yue Wilson Yuan
Methods to Cost Crime Victimization: Statistical Modelling with Integrated and Survey Data to Comprehensively Measure Harm
NORC at the University of Chicago
$1,300
Political Science
Leonard Lira and Younghee Park
USC-SJSU ICAE Consortium’s National Security & Intelligence Scholars Research Program
University of Southern California
$25,000
Psychology
Cassie J. Hilditch
2021 Fatigue Management Training for San Francisco Bar Pilots
California Maritime Academy
$6,000
Sean P. Laraway
Human Systems Integration: Collaborative Human Factors Research to Improve the Safety, Efficiency, and Reliability of NASA’s Aeronautics and Space Missions
NASA
$14,506,629.45
Test Subject Recruitment Office
ASRC Federal
$268,653
Vertical Motion Simulator Research Assistance
SkyTran Inc.
$18,401
Randall Mumaw
Autoflight Issue Analysis and Design Recommendations
Boeing North American Inc.
$58,261
Evan Palmer
Mobile Device Thermal Comfort
Google Inc.
$40,295
Lester Papa
Meaningful Crosscultural Connection: Seeing the Humanity in Each Other
California State University, Fullerton
$2,000
Susan M. Snyderski
Future Vertical Lift: Collaborative Research on Flight Control, Autonomous Rotorcraft, and Human-Systems Interface Design
NASA
$2,374,693.74
Implementing Macroergonomics for Increasing the Safe, Effective, and Efficient Operation of the Entry Systems and Technology Division’s High Enthalpy Facilities
NASA
$17,000
Sociology and Interdisciplinary Social Sciences
Yvonne Kwan
Local Asian American Activists Oral History Project
Santa Clara County
$495,650
Urban and Regional Planning
Shishir Mathur and Hilary K. Nixon
Impact of Innovative Financing Tools on the Production of In-Fill Housing and Reduction in VMT
California Air Resources Board
$139,511
Kerry Rohrmeier and Jan English-Lueck
Mosaic America Culture Map
Sangam Arts
$101,558
Dr. Martin Luther King, Jr. Library
Kathryn Blackmer Reyes
Restoring the AAACNA Studies Center Humanities Programming
American Library Association
$10,000
Reviving Humanities Public Programming with East Side Dream: The Untold Story of East San José
Social Science Research Council
$92,152
Emily K. Chan and Lili Luo
*National Forum on the Assessment of Scholarly Communication*
California State University, Sacramento
$13,860

Christina Mune
*Digital Inclusion Hotspot Program*
Institute of Museum and Library Services
$158,049

**Provost and Senior Vice President of Academic Affairs**

Maria E. Cruz
*ASPIRE (Student Support Services) – San José State University - FY 2020-2025*
Department of Education
$509,776

*The Ronald E. McNair Postbaccalaureate Achievement Program*
Department of Education
$289,267

**Provost’s Office**

Vincent Del Casino and Feruza Amirkulova
*ADVANCE Partnership: Kindling Inter-University Networks for Diverse (KIND) Engineering Faculty Advancement in the California State University System*
California State University, Fresno
$25,088

Vincent Del Casino, David Parent and Liat Rosenfeld
*Project Engineering Success: Increasing Hispanic Student Success in Engineering at San José State University, San José City College & Gavilan College*
Department of Education
$999,999

**Undergraduate Studies**

Elena Klaw
*CaliforniansForAll College Service Program*
CaliforniaVolunteers
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**Competitive Fellowships**

*Chicana and Chicano Studies*

Jonathan Daniel Gomez
*2021 Ford Postdoctoral Fellowship*
*The National Academy of Sciences*
$50,000

*Environmental Studies*

Carolina Prado
*Career Enhancement Fellowship for Junior Faculty*
The Tower Foundation of SJSU
$31,500

*Philosophy*

Joseph Stenberg
*Ethics with Buridan*
National Endowment for the Humanities
$60,000
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