

A close-up photograph of a scientist in a white lab coat and clear safety glasses. The scientist is holding a test tube with a red liquid inside, looking at it intently. The background is a blurred laboratory setting with shelves of equipment.

SJSU RESEARCH FOUNDATION
ANNUAL REPORT 2019

CONTENTS

- 4 **LESLIE ALBERT**
Seminar Series: Data Science for All
- 5 **DANIEL BRINKMAN**
Solar Cell Behavior
- 6 **MATTHEW CAPRIOTTI**
SJSU to Zero: Combating HIV Stigma
- 7 **BENJAMIN CARTER**
Studying Climate Change with Plant Diversity Data
- 8 **LIONEL CHERUZEL**
Light-Driven Biocatalysts
- 9 **SEN CHIAO**
Precipitation Prediction Products
- 10 **CHRIS DONLAY AND ROULA SVOROU**
Preserving Endangered Languages
- 11 **JERRY GAO**
Advancing Mass Warning Capabilities
- 12 **CLAIRE KOMIVES**
Developing Snake Antivenom
- 13 **LAURA MILLER CONRAD**
Fighting Hospital-Acquired Infections
- 14 **KIMBERLY NULL**
Researching Runoff, Weighing in on Water
- 15 **ALBERTO RASCÓN**
Inhibiting Mosquito Egg Production
- 16 **VIMAL VISWANATHAN**
A Teaching Tool for Free Body Diagram Drawing
- 17 **KATHERINE WILKINSON**
A Sense of Position: Motor Behavior
- 18 **STUDENT RESEARCH COMPETITION FINALISTS**
Representing SJSU at the Statewide CSU Competition
- 19 **EARLY CAREER INVESTIGATOR AWARDS**
Minghui Diao and Susan Snycerski
- 20 **GRANT AND CONTRACT AWARDS**
Fiscal Year 2017–2018
- 26 **STATEMENT OF ACTIVITIES**
Fiscal Year 2017–2018

MESSAGES



JOAN FICKE

President, Research Foundation
Board of Directors

Interim Provost and Senior Vice
President for Academic Affairs,
SJSU

Public higher education has seen a decided shift nationally, as more institutions and their faculty seek ways to nurture their scholarly roots, and to do so while teaching students for whom the challenges of past preparation and future commitments prevail. Therefore, at San José State University our professional opportunities for faculty (specifically our Research, Scholarship, Creative Activity Program) broadens academic reach across Colleges which reflects disciplinary expectations and is connected to our vibrant location in Silicon Valley. SJSU is already, by reputation, a significant research university given the volume and nature of faculty grant and scholarly activity. Moreover, SJSU has always played a leading role in providing unparalleled care for its aspiring and first generation students. Now, this nexus of faculty scholarly developmental achievement is coupled with the evolving preparatory needs for our students and for their futures.



PAMELA C. STACKS

Vice President, Research
Foundation Board of Directors

Associate Vice President for
Research, SJSU

I have the pleasure of reviewing the proposals that SJSU faculty submit to external agencies. To discover their passions as they seek to add to the body of scientific and scholarly knowledge is a gift. Whether pursuing funding for research endeavors, seeking support for community advocacy, or launching industry partnerships, their work is superb.

I also truly value the Office of Research partnership with our colleagues at the SJSU Research Foundation. They provide collaborative support to our faculty, continually strive to streamline operations, and address the array of technical issues that emerge throughout the proposal, award, and project management processes. Their dedication to the SJSU research enterprise is unwavering.



RAJNESH PRASAD

Executive Director,
SJSU Research Foundation

The Research Foundation team is fully committed to serving San José State University by providing a complete array of support services to all of those who are engaged in research, scholarship, and creative activity. As new faculty arrive at SJSU, our team seeks to guide them through the complex proposal process for externally sponsored funding. We also provide an array of resources for veteran faculty researchers as sponsored project compliance demands evolve and change.

On behalf of all of us at the Research Foundation, I would like to express our sincere admiration for the work conducted by SJSU faculty, staff, and students who bring their diverse expertise to bear on the challenges confronting the community and the world.



^ Seminar leaders (from left) Subhankar Dhar, Esperanza Huerta, and Scott Jensen, with Leslie Albert.

> Google's Director of Consulting & Strategy Harlan Findley converses with Simran Bhalla, '20 Business Administration (concentration in MIS), at the first Data Science for All seminar on the topic of "Demystifying AI."



SEMINAR SERIES: DATA SCIENCE FOR ALL

LESLIE ALBERT

Management Information Systems
Lucas College and Graduate School
of Business

Leslie Albert's interest in data science grew out of interactions with cybersecurity industry partners at SJSU's Center for Organizational Resilience. This led Albert, who teaches courses in Information Security and Assurance Management, and three colleagues to expand data science knowledge among SJSU students through a series of free "Data Science for All" seminars.

The team developed and delivered eight seminars during the spring 2019 semester, including Statistical Foundations for data science (Subhankar Dhar), Python Foundations for data science (Esperanza Huerta), Spark & Jupyter Notebooks (Scott Jensen), and Exploring Graphs in Neo4j (Scott Jensen). They also hosted a seminar titled Demystifying AI, presented by special guest Harlan Findley, Director of Consulting and Strategy at Google.

"We developed the seminars so that students could explore the topic in a fun and non-threatening environment," Albert explains. "Our goal is to pique the curiosity of all students, regardless of major, about data science and provide them with some basic, but highly sought after, data science skills."

Any community college or four-year institution can adopt the seminar series by accessing the materials developed by the team, including student bundles, seminar lessons, and pre- and post-seminar exercises hosted on Merlot and GitHub.

The seminar series will be presented again in the upcoming fall and spring semesters, with expanded offerings.

SPONSOR

National Science Foundation

SOLAR CELL BEHAVIOR

DANIEL BRINKMAN

Mathematics
College of Science

Daniel Brinkman was interested in electronics from a very young age. “I think I was the only kindergartner who listed ‘electrical engineer’ as my future job,” he says. Later in his academic career, with guidance from research supervisors Peter Olver at the University of Minnesota and Peter Markowich at the University of Cambridge, he discovered that his favorite part of engineering was physics, and that his favorite part of physics was math. “Without their support and guidance,” he says, “I would not be where I am today.”

Today, Brinkman is integrating math, engineering, and technology in his research into solar cell behavior. Collaborating with Arizona State University students and faculty, and with First Solar, a prominent manufacturer of solar panels, he seeks to predict how well solar cells will perform over vastly different time scales. The team has developed mathematically driven physical models to understand the cells’ behavior, rather than relying solely on the statistical analysis of expensive data.

This current project is coming to a close, but Brinkman is looking ahead to the possibility of exploring how one solar cell technology might be more valuable than another in a specific location, or how to optimize the characteristics of different solar cell devices for specific installations.

“Renewable energy is the future and there are many opportunities for researchers to apply mathematics to industrial applications in ways that will reduce costs and improve efficiency.”

SPONSOR

U.S. Department of Energy



< Cadmium telluride solar cells at the 550 megawatt Topaz Solar Farm in San Luis Obispo County, California. Photo courtesy of First Solar, Inc.



^ Matthew Capriotti (left) and Bonnie Sugiyama.

> SJSU HIV Student Health Educator Julia Balibrera, '19 Nursing (pronouns: she, her, hers).

Post graduation, Jules will work as a nurse in the field of pediatrics, while maintaining professional interests in the fields of sexual wellness, health education, and queering healthcare.



SJSU TO ZERO: COMBATING HIV STIGMA

MATTHEW CAPRIOTTI

Psychology
College of Social Sciences

SJSU to Zero is the university's first formal campaign to focus on both HIV prevention and HIV stigma reduction. Its message promotes the availability of screening for HIV and other sexually transmitted infections at the Student Health Center and at off-campus locations throughout Santa Clara County.

Led by Matthew Capriotti and Director of SJSU's PRIDE Center and Gender Equity Center Bonnie Sugiyama, the campaign also seeks to create an environment where students feel at ease communicating about their sexual health.

"If our students are comfortable with hearing about and talking about HIV, it destigmatizes the disease and they are more likely to seek out testing and treatment," explains Sugiyama.

SJSU to Zero student health educators spearhead the project. They table on 7th Street Paseo to educate students one-on-one, collaborate with other campuses to conduct joint events, and partner with SJSU instructors to create innovative assignments that infuse HIV education into course curricula.

Capriotti's research focuses on the health and well-being of LGBTQ+ individuals, as well as on the delivery of evidence-based treatments for Tourette Syndrome and other tic disorders. Yet it is seeing his students become excited about this field of study that is the most rewarding part of his work.

"Our students genuinely care about this project. They enthusiastically engage in the day-to-day work of getting out there on campus and have turned our campaign from an idea to a reality."

SPONSOR
The Health Trust

STUDYING CLIMATE CHANGE WITH PLANT DIVERSITY DATA

BENJAMIN CARTER

Biological Sciences
College of Science

The Carl W. Sharsmith on-campus herbarium, tucked away in Duncan Hall, is a little known SJSU treasure that houses preserved plant specimens, along with data including when and where the specimens were collected. Sharing this information across many herbaria is critical to the field, leading to a better understanding of which species are threatened by habitat destruction or climate change.

Benjamin Carter and his students are leveraging this unique trove of information by generating a specimen image database that will be folded into the UC Berkeley California Consortium of Herbaria. The resulting compilation of images will be accessible to anyone in the world. Researchers—and the broader public—will be able to contribute to climate change research by collecting data from these images.

Carter's interest in plant diversity began during his undergraduate studies at California Polytechnic State University, San Luis Obispo, where he was heavily influenced by his botany professor, David Keil. "He has an absolutely encyclopedic understanding of California plants—their names, where each one lives, their particular preferences for different kinds of habitats—but he has retained his sense of wonder at discovering new things. He taught me the importance and also the rewards of building a deep personal knowledge of the natural world."

SPONSOR

National Science Foundation

INFORMATION

sjsu.edu/herbarium



< Ilbert Bourang, '19 Biology (concentration in Systems Physiology), places a plant specimen in a custom-built lightbox that will capture a high resolution image of the specimen for use in climate change research.



LIGHT-DRIVEN BIOCATALYSTS

LIONEL CHERUZEL

Chemistry
College of Science

Lionel Cheruzel is looking to expand the toolbox of organic chemistry reactions. His research is centered around the use of hybrid P450 biocatalysts and their activation by visible light to produce chemicals that are difficult to obtain using traditional methods.

In the last two decades, biocatalysis has emerged as an important technology in the production of pharmaceuticals, flavors, fragrances, and beyond.

“Ultimately,” he says, “this work will find applications in the economically and environmentally friendly synthesis of new chemical compounds and potential drugs.” Developing new synthetic routes has been made possible through Cheruzel’s work combining chemical catalysis with the light-driven biocatalysis.

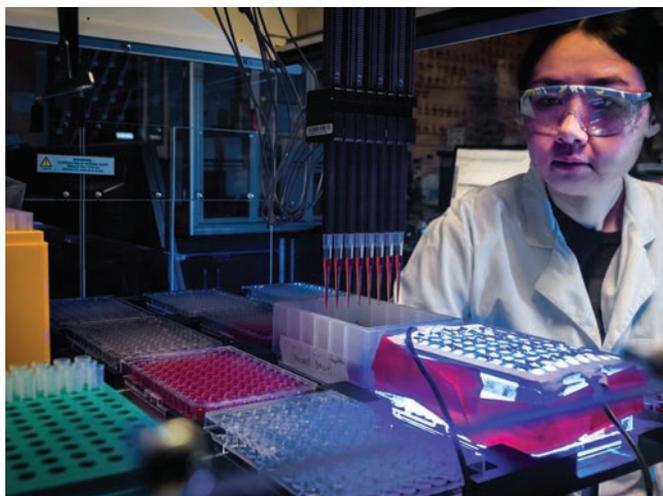
Cheruzel’s credits his postdoctoral mentor, Harry B. Gray at Caltech, for instilling in him a passion for chemistry. “He had such an impact on me both personally and intellectually,” he says. Cheruzel himself has supervised more than 130 undergraduate and graduate students in the lab since joining SJSU in 2009. His students have gone on to great success, working for companies including Boehringer Ingelheim, Cytokinetics, and Genentech, and pursuing Ph.D. degrees at UC Berkeley, UC San Francisco, UC Santa Cruz, University of Illinois, Urbana-Champaign, and University of Michigan.

“Watching students develop as scientists and succeed in their endeavors has been personally rewarding and continues to motivate my mentoring efforts.”

SPONSORS

National Institutes of Health
National Science Foundation

> Bridget Foley, '20 Chemistry, uses the automated pipeting and dispensing of a liquid-handling system.



PRECIPITATION PREDICTION PRODUCTS

SEN CHIAO

Meteorology and Climate Science
College of Science

Sen Chiao experienced more than 300 rainy days each year while growing up in Keelung, Taiwan, one of the wettest and gloomiest cities in the world, which likely led to his interest in studying the weather. “I wanted to learn more about rain and its impacts,” says Chiao, director of SJSU’s Center of Applied Atmospheric Research and Education, which is funded by a Minority University Research and Education Project grant from NASA.

Chiao’s research addresses weather, climate risk, and preparedness, with the goal of better understanding Earth’s water cycles as well as how climate will impact local storms.

To that end, Chiao and his students have been developing precipitation prediction “products,” which are hourly precipitation forecasts, in several different formats for the Santa Clara Valley Water District. The forecasts are developed using raw data collected from 46 rain gauge sites in the Santa Clara Valley and Santa Cruz mountains, raster data from watersheds, and images from the web. The water district uses the forecasts for early weather warnings and for their own research.

“Our goal is to build a reliable modeling framework that is refreshed four times per day to account for changing weather during a storm, particularly if that storm could cause flooding.”

Chiao hopes to expand the distribution of these prediction capabilities to additional water districts.

SPONSOR

Santa Clara Valley Water District



< Dalton Behringer, '19 MS Meteorology, prepares a ceilometer (a device for measuring and recording the height of clouds) to be installed on the roof of Duncan Hall.

Dalton will start his Ph.D. in Atmospheric Science this fall at the University of Wyoming.



PRESERVING ENDANGERED LANGUAGES

CHRIS DONLAY ROULA SVOROU

Linguistics & Language Development
College of Humanities and the Arts

Partnering with colleagues at the University of Azad Jammu and Kashmir, Roula Svorou and Chris Donlay are successfully working toward the preservation of Domaaki, a severely endangered language spoken only in northern Pakistan. As with many endangered languages, Domaaki has no written system, so the Pakistani team captures the language, area history, stories, songs, and recipes in audio and video recordings. They then collaborate remotely with their SJSU counterparts to analyze the data and develop a digital compilation of the language.

Svorou's intrigue with language began with a fascination for the systematicity of Greek and Latin grammar, and after a single linguistics course in college she was hooked. Donlay left a successful corporate career to pursue the field, became a language documentation specialist, and hasn't looked back.

Linguists have studied only a fraction of the world's languages, which is of concern to both Svorou and Donlay.

"Encouraging speakers to keep endangered languages alive preserves information about customs, social institutions, and local environments," explains Svorou.

"Language is inextricably intertwined with one's identity and culture," adds Donlay. "Helping communities preserve their languages is important on a humanitarian level."

SPONSOR

National Science Foundation

^
Chris Donlay (left)
and Roula Svorou.

>
Ayesha Bukhari (left),
part of the language
documentation team
in Pakistan, with
Chashman Bibi, one
of the few Domaaki
speakers left in Nagar
Valley.



ADVANCING MASS WARNING CAPABILITY

JERRY GAO

Computer Engineering
Charles W. Davidson College of Engineering

An interdisciplinary team of SJSU professors and students have conducted a comprehensive analysis of mass warning systems in major cities worldwide in order to deliver a study to the City of San José. Led by Jerry Gao (Computer Engineering), both David Anastasiu (Computer Engineering) and Subhankar Dhar (Management Information Systems) supervised the students' research and then developed recommendations for a public warning and notification system.

"Our project identified new technologies that can be used to reduce the time from detection or prediction of an emergency to sending alerts to the affected population," explains Anastasiu.

Dhar, who works on multiple Smart City projects with San José, notes that the city requested recommendations for a tiered public warning and notification system, e.g. a combination of sirens, text alerts, landline calls, and public address announcements.

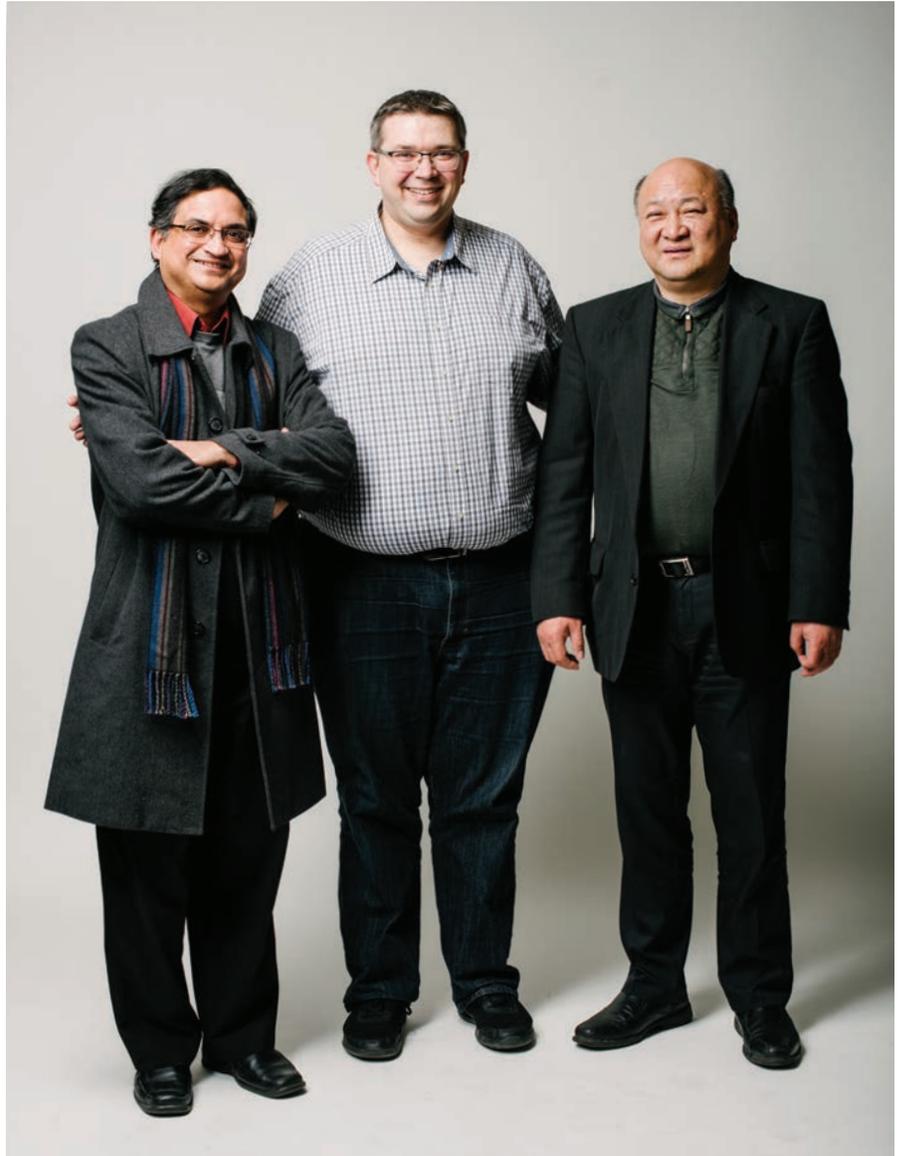
"As San José is one of the largest cities in the U.S. and at the center of Silicon Valley, we are looking at an all-inclusive array of approaches to communications."

The team has delivered its final report and anticipates that follow-up projects will be undertaken in the near future.

"We learned a great deal from this project, but it is clear that additional innovative solutions and technologies are needed for San José and all cities to build a safe living environment for the public," says Gao.

SPONSOR

City of San José



^
From left: Subhankar Dhar, David Anastasiu and Jerry Gao.

<
Saishruthi Swaminathan, '18 Electrical Engineering, reviewed more than 200 papers explaining disaster management technologies, presented findings to the City of San José, and developed recommendations for the use of Artificial Intelligence in disaster mitigation.

Saishruthi now works as a Data Scientist for IBM.



DEVELOPING SNAKE ANTIVENOM

CLAIRE KOMIVES

Chemical Engineering, Charles W. Davidson College of Engineering

Does the idea of a snake bite—possibly poisonous—make you shudder? During a sabbatical spent at the Indian Institute of Technology Delhi, Claire Komives began developing an effective antivenom that may have a major impact in the areas of the world where poisonous bites are most prevalent.

Inspired by researcher Binie V. Lipps, who discovered a protein in opossums that makes them immune to snake bites, Dr. Komives has created a low-cost method for synthesizing and testing peptides found in that protein and is applying them to the creation of a new snake antivenom.

“We have been able to answer questions about the activity of a peptide to neutralize venom from Indian snakes,” she explains. She intends to seek additional funding to further develop the peptide so that it has a longer half-life in the body.

Komives was recently awarded a Fulbright scholarship—her second—to share active, project-based learning models that have proven to be successful at SJSU with universities across India. She will work with the faculty and administrators of engineering colleges to try to improve the quality of teaching there, as many institutions limit their methods to lectures.

Being in India will also allow her to continue to collaborate with an Indian pharmaceutical company for the development of the low-cost antivenom.

SPONSOR

National Institutes of Health

> Israel Juarez-Contreras, '19 MS Chemical Engineering, inspects an assembled bioreactor containing growth media before it is autoclaved (sterilized). After sterilization, yeast (*Pichia Pastoris*) engineered for antivenom production is grown in the bioreactor.

Israel has been accepted into the biochemistry and biophysics Ph.D. program at UC San Diego.



FIGHTING HOSPITAL-ACQUIRED INFECTIONS

LAURA MILLER CONRAD

Chemistry
College of Science

Growing up, Laura Miller Conrad was in awe of medicine's power to cure disease, which inspired her to study organic chemistry and conduct chemistry research in search of disease treatments. This work led to her present day pursuit: blocking antibiotic resistant pathways in bacteria that cause hospital-acquired infections.

"The antibiotic colistin is one drug that has effectively treated these types of infections, caused by multidrug-resistant *Pseudomonas aeruginosa*, but we are now encountering colistin resistance," she explains. "However, our lab has identified a class of small molecules that make *P. aeruginosa* more susceptible to colistin-mediated eradication."

Undergraduate and master's degree students from Chemistry, Biology, Biomedical Engineering, and Chemical Engineering conduct the research on the project, from the synthesis of the small molecules to microbiological assays to in vitro kinetics. They apply concepts from their academic studies while learning the skills needed to conduct research independently.

"In the long term, we hope that these small molecules may eventually be used in clinical settings to help save the lives of those infected with this bacterium," says Dr. Miller Conrad. "At the same time, we are trying to develop even more potent drugs to battle hospital-acquired infections."

SPONSOR

National Institutes of Health



< Mellanie Gomes, '20 Chemical Engineering, is adjusting her pipetman in the biosafety cabinet in preparation for diluting the *P. aeruginosa* culture.

Mellanie is a National Institute of Health Research Training Initiative for Scientific Enhancement (RISE) scholar.



RESEARCHING RUNOFF, WEIGHING IN ON WATER

KIMBERLY NULL

Moss Landing Marine Laboratories
College of Science

It may seem odd to think of nutrients as pollution, but excessive nutrients from farm fertilization and irrigation, and the resulting runoff, can negatively impact surface water and groundwater quality.

To better understand these impacts, and in an effort to improve water quality in the Central Coast's agricultural regions, Kimberly Null and her students are conducting weekly field campaigns on multiple farm parcels to take direct measurements of water quality.

Null and her students aren't afraid to get muddy. Sample collection requires digging pits down to the water table. Surface water, groundwater, and tile drain water samples are then brought back to Moss Landing Marine Laboratories, where they are analyzed to capture nutrient variability during different seasons, irrigation events, and crop rotation.

Null's passion for H₂O took hold in the 8th grade. "I've always loved the outdoors, but my 8th grade science teacher really piqued my interest in the environment. I learned the importance of protecting our water resources, and it just stuck with me."

Through her research, Null hopes to provide new knowledge to growers and policymakers about the best nutrient mitigation strategies for the Monterey Bay region.

SPONSOR

California Sea Grant

> Jacqueline Chisholm, '21 MS Marine Science (concentration in Chemical Oceanography), and Null collect water samples on the Old Salinas River along artichoke fields. Their goal is to evaluate the relative contribution of farm irrigation to water. If groundwater enriched in nutrients is contributing to surface water quality, then it may require off-farm management (like constructed wetlands and bioreactors) in addition to best management practices on farms to improve surface water quality.



INHIBITING MOSQUITO EGG PRODUCTION

ALBERTO RASCÓN

Chemistry
College of Science

We may consider mosquitos a simple nuisance, but these tiny insects are responsible for the transmission of the Zika, Dengue, Yellow Fever, and Chikungunya viruses. Alberto Rascón and his student researchers are determined to limit the mosquito population, and in turn, minimize the viruses spread.

Rascón's team focuses on digestive enzymes known as proteases. Feeding on an (infected) human host provides the mosquito with proteins needed for reproduction. Proteases break down those proteins into peptides needed for egg laying. The team's goal is to inhibit the protease's process to limit egg production, thereby minimizing the mosquito population, and in turn minimizing virus transmission

During his five and a half years at SJSU, more than 20 of Rascón's undergraduate students have gone on to optometry, dental, pharmacy, and medical schools, as well as to Ph.D. programs. He credits them with his lab's success.

"Without my students, our research lab would not be as successful in securing federal funding. Their work has led to submissions of manuscripts for publication and presentations at local and national conferences (both orally or poster), giving them the confidence to discuss science with peers and with science faculty."

SPONSOR

National Institutes of Health



< Research Assistant Saira Montermoso works with Alberto Rascón to install a 50-mL superloop into the AKTA Fast Protein Liquid Chromatography protein purification system.

Saira graduated in 2017 with a double major in Chemistry (concentration in Biochemistry) and Computer Science. She has been working in Dr. Rascón's lab since 2016. Saira will start work on her Ph.D. at the University of Pennsylvania this summer.



A TEACHING TOOL FOR FREE BODY DIAGRAM DRAWING

VIMAL VISWANATHAN

Mechanical Engineering, Charles W. Davidson College of Engineering

Vimal Viswanathan is striving to change traditional classroom instruction with a focus on design thinking and design theory. His current project, Mechanix, is a virtual teaching assistant that provides real-time feedback to mechanical engineering students drawing free body diagrams, illustrations that demonstrate the force exerted when two bodies come into contact.

Free body diagrams are crucial tools, but many students are unable to accurately draw them. Due to classroom size, time restraints and an extensive curriculum, instructors are not always able to sit with individual students to provide direct and immediate feedback.

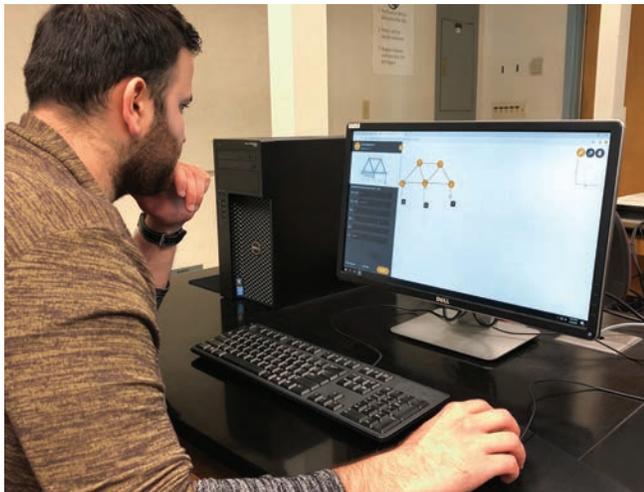
This is where Mechanix comes in. Mechanix uses a sketch recognition algorithm to detect the shape that a student draws on a touchscreen interface. After comparing the student's work with the accurate answer, Mechanix's virtual tutor provides immediate alerts for any incorrect forces or missing information in a student's drawing. Rather than penalizing the student for errors, the virtual TA creates the space and dialogue for correction in real-time, resulting in a better understanding of how to solve the problem.

"I am very excited about this research as I get to see the results and improvements in my classroom. When the students find the tools and techniques that I develop useful in learning new concepts, it gives me the motivation to continue developing new ones and improving the existing ones."

SPONSOR

National Science Foundation

> Mustafa Ihsan, '20 Mechanical Engineering, creates a free body diagram with Mechanix.



A SENSE OF POSITION: MOTOR BEHAVIOR

KATHERINE WILKINSON

Biological Sciences
College of Science

Human motor behaviors are complex. We require a perpetual sense of how our bodies are positioned in space to coordinate our movements. Specialized neurons in muscles sense length and movement, thus creating movement awareness, or proprioception.

Katherine Wilkinson studies sensory input during proper proprioception, as well as conditions leading to problems with balance and movement, and her research has made progress on both fronts. In collaboration with the Patapoutian Lab at the Scripps Research Institute, she pinpointed a mechanically sensitive ion channel that is necessary for stretch sensitivity.

“These findings could help identify therapeutics for proprioceptive disorders, and help develop better sensors for prosthetic limbs or robots.”

Wilkinson’s lab is operated entirely by students. Four of her former students are in Ph.D. programs, and two more have accepted offers to start in the fall. Her lab alum have gone on to medical, pharmacy, and dental schools, as well as to careers in biotech companies.

Wilkinson expresses gratitude for her own mentors. “I was encouraged to pursue undergraduate research by my freshman biology professor, and given a chance in my physiology professor’s lab,” she says. Her postdoctoral mentor was especially helpful, working with her “to develop a technique and research agenda that I could implement successfully at SJSU.”

SPONSOR

National Institutes of Health



< Alexandra Salazar, '20 Molecular Biology, Sarah Chu, '20 Microbiology, and Nikola Klier, '20 Molecular Biology, at work preparing for an experiment. Sarah (center) is dissecting the muscle and nerve that will be used to record sensory neuron firing rates in response to stretch. Alex (front) and Nikola (back) are taking notes in the lab notebook and preparing the rigs for the experiment.

2018 AND 2019 STUDENT RESEARCH COMPETITION FINALISTS

2018

SJSU undergraduate and graduate research students, listed below, presented their work at the 2018 CSU Student Research Competition, held at California State University, Sacramento on May 4-5, 2018.

Israel Juarez Contreras

Charles W. Davidson College of Engineering
Mentor: Claire Komives

"Expression of Snake Antivenom Peptide Chain in Pichia Pastoris"

Israel Juarez Contreras was awarded first place in the 2018 CSU Student Research Competition.

Kelly Cricchio

College of Social Sciences

Mentor: Matthew Holian

"Invisible Women: The Casa delle Zitelle and Female Patronage in Early Modern Venice"

Vijay Lalith Cuppala

Charles W. Davidson College of Engineering

Mentor: Burford Furman

"An Investigation into the Deformation Properties of Clamped Concrete Filled Steel Tubes"

Simon Jarrar

College of Social Sciences

Mentor: A.J. Faas

"Lost Legacies: An Evaluation of the Impact of Gentrification on LGBTQ Elderly Communities in the Bay Area"

Vandana Kannan

College of Social Sciences

Mentor: A.J. Faas

"Text to Image Synthesis"

Khiem Pham

College of Science

Mentor: Sami Khuri

"An Approximate Algorithm for Spectral Clustering based on the Bipartite Graph Model"

Unnikrishnan Sreekumar, Revathy Devaraj, and Qi Li

Charles W. Davidson College of Engineering

Mentor: Kaikai Liu

"Real-time Traffic Pattern Collection and Analysis Model (TCPAM)"

Jeffrey Tseng

College of Social Sciences

Mentor: Matthew Holian

"Radiology Resident Selection and Performance Prediction: Can We Do Better?"

2019

The following SJSU undergraduate and graduate research students will present their work at the annual CSU Student Research Competition, April 26-27, 2019, at CSU Fullerton.

Eric Anderson

Charles W. Davidson College of Engineering

Mentor: Ozgur Keles

"Can 3D Printing Compete with Mass Production: A mechanical reliability approach"

Richard D. Bridges Jr.

College of Health and Human Sciences

Mentor: Monica Allen

"Tertiary Treatment of Hepatitis C as Prevention for End Stage Liver Disease: A Qualitative Study Examining the Barriers and Facilitators to Treatment of Chronic HCV Among Current and Former Intravenous Drug Users"

Blake DuPriest

College of Science

Mentor: Bree Grillo-Hill

"A new paradigm for regulation of cell death by intracellular pH dynamics in the fly eye"

Sky Eurich

Charles W. Davidson College of Engineering

Mentor: Francesca Favaro

"Takeover Response Times Following Disengagements in Semi-Autonomous Vehicles"

Avni Gulati

Charles W. Davidson College of Engineering

Mentor: Magdalini Eirinaki

"Social Recommendation Systems"

Sambhav Gupta

Lucas College of Business

Mentor: Yu Chen

"Artificially Intelligent (AI) Tutors in the classroom: A Need Assessment Study of Designing Chatbots to Support Student Success"

Vanshika Gupta

College of Science

Mentor: Madalyn Radlauer

"Investigating Macromolecular Structures for the Transformation of Greenhouse Gasses into Liquid Fuels"

Kauionalani Kekuawela

College of Health and Human Sciences

Mentor: Areum Jensen

"Differential Cardiovascular Responses to Acute Exercise in Children"

Sarah Ortega

Charles W. Davidson College of Engineering

Mentor: Nikos Mourtos

"Exploring a Hybrid Design for a Short to Medium Range Transport Aircraft"

Noe Vidales

College of Science

Mentor: Cristina Tortora

"Clustering Mixed Type Data Sets Using Probability Distance Clustering and Gower's Metric"

EARLY CAREER INVESTIGATOR AWARDS

MINGHUI DIAO, SUSAN SNYCERSKI NAMED ECIA WINNERS



Minghui Diao from the Department of Meteorology and Climate Science, College of Science and Susan Snycerski from the Department of Psychology, College of Social Sciences, have received the 2018 Early Career Investigator Awards.

Minghui Diao's research focuses on the impact of clouds and aerosols on global climate change and regional air quality. Her work includes aircraft-based field campaigns to study regions as remote as Antarctica and the Southern Ocean, high precision laser instrument development, and computational global model simulations for comparisons with aircraft-based measurements and satellite remote sensing data. Since arriving at SJSU in 2015, she has secured a substantial amount of extramural sponsored funding for her research, primarily from the National Science Foundation and NASA.

Dr. Diao's engagement of students in her research is significant. One graduate

student was the lead author on a published paper, and is now pursuing his Ph.D. in the School of Meteorology at the University of Oklahoma. She brought graduate and undergraduate students with her to the National Center for Atmospheric Research to do summer research with aircraft instruments and global climate model simulations in 2016 and 2018, and since 2016, her students have given five oral presentations at AMS and AGU annual meetings.

Susan Snycerski serves as the Principal Investigator of a previously awarded cooperative agreement that funds advanced rotorcraft research in collaboration with scientists from the U.S. Army Aviation Development Directorate. In the last year, she has significantly increased extramural sponsored funding for SJSU's human factors and aerospace engineering research at NASA's Ames Research Center at Moffett Field. This research has resulted

in technological advances in the areas of adaptive autonomy, future lift systems, and human-centered display design.

In 2018, Dr. Snycerski was awarded a new cooperative agreement at NASA Ames. This three-year agreement funds research conducted entirely by students working at NASA's Arc Jet Complex at Moffett Field, where materials that can withstand the heat environments to which spacecraft will be exposed are extensively tested. Such tests are imperative for NASA's Journey to Mars mission, as well as other space travel missions. Both undergraduate and graduate students will apply the science of macroergonomics (a subdiscipline of human factors/ergonomics) to the complex research processes and tasks conducted at this facility.

A complete description of the awardees' accomplishments is available at sjsu.edu/researchfoundation.

GRANT AND CONTRACT AWARDS FY2017–2018

COLLEGE OF BUSINESS

Dean's Office

Frances L. Edwards and Karen Philbrick

MTI's Emergency Management Training for VTA

Santa Clara Valley Transportation Authority:
\$27,309

Dan Moshavi and Hilary K. Nixon

Housing and Mobility Best Practices (County of San Mateo)

San Mateo County: \$95,000

Dan Moshavi and Karen E. Philbrick

CSUTC - California State University Transportation Consortium – Senate Bill 1 (CSU Lead Center) - Year 1

California State University System:
\$2,000,000

Environmental & Economic Benefits of Small Electric Vehicles with Focus on Electric Motorcycles

Zero Motorcycles: \$11,116

Mineta Consortium for Transportation Mobility (MCTM)

California Department of Transportation:
\$3,645,720

Mineta Consortium for Transportation Mobility (MCTM)

Department of Transportation: \$1,416,900

MTI Database on Terrorist and Serious Criminal Attacks against Public Surface Transportation

U.S. Dept of Homeland Security: \$134,631

MTI Transportation Research, Technology Transfer, and Workforce Development Training

Metropolitan Transportation Commission:
\$200,000

National Summer Transportation Institute Program FY2018

California Department of Transportation:
\$72,590

Specialized Services in the Area of Workforce Development, Education, Research and Other Transportation Related Services

Bay Area Rapid Transit: \$300,000

COLLEGE OF EDUCATION

Communicative Disorders and Sciences

Wendy Quach and June McCullough

Project EPICS - Educating Pacific Island Clinicians in Speech

Department of Education: \$250,000

Counselor Education

Michele C. Burns

In-Custody Education Services

Santa Clara County: \$16,250

Teacher Education

Katya Aguilar

San Jose State University Single Subject Intern 2017-2018

Milpitas Unified School: \$80,535

COLLEGE OF ENGINEERING

Dean's Office

Jinny Rhee and Blanca Sanchez-Cruz

Google Cascade the Code Project at SJSU

Regents of the University of California:
\$7,692

2017-2018 MESA Engineering Program (MEP) @ SJSU

Regents of the University of California:
\$10,000

Aerospace Engineering

Nikos J. Mourtos

NASA MUREP Scholarship-Cameron Young

NASA: \$5,700

Biomedical Engineering

Alessandro Bellofiore, Sang-Joon John Lee, and Kathryn Gosselin

MRI: Acquisition of a High-Speed Particle Image Velocimetry

National Science Foundation: \$450,274

Melinda Simon

Isolation of DNA from Single Cells in Microdroplets

Lawrence Livermore National Laboratory:
\$30,000

Guna Selvaduray

Design and Testing of New eSheath

Implant Solutions: \$50,460

Chemical and Materials Engineering

Claire F. Komives

Development of a Low-Cost Therapy for Biological Toxins for Rural India

Department of Health and Human Services:
\$103,480

Anand Ramasubramanian

Systems Biology Based Tools for Modeling Platelet Storage Lesion for Optimal Blood Transfusions

CFD Research Corporation: \$120,000

Anand Ramasubramanian and Amit Kumas Saha

Novel Antivirulence Peptides from Functional Metagenomics using Nano culture Microarrays

Department of Health and Human Services:
\$420,115

Civil and Environmental Engineering

Akthem Al-Manaseer

CSULB and SJSU Joint Training & Certification Program for Caltrans and Industry

CSU Long Beach Foundation: \$241,456

Computer Engineering

Jerry Gao, Subhankar Dhar, and David Anastasiu

Mass Warning Study for City of San Jose

City of San Jose: \$42,000

Ronald Mak

NSF Student Travel Grant for the 2018 CGO/HPCA/PPoPP Symposia

National Science Foundation: \$30,000

NASA Ames ISRDS-2 Internships

Stinger Ghaffarian Technologies: \$89,162

Younghee Park and Xiao Su

SaTC: EDU: Collab: Enhancing Security Education through Transiting Research

National Science Foundation: \$120,832

Electrical Engineering

Essam A. Marouf

Investigation of Saturn's Rings By Cassini Radio Occulation: Cassini Equinox

Jet Propulsion Laboratory: \$232,000

GRANT AND CONTRACT AWARDS FY2017–2018

Industrial and Systems Engineering

Hongrui Liu

Proposal to Test/Research Market Clearing Systems for ISO New England
ISO New England: \$54,670

Dan Nathan-Roberts

Proposal for Human Factors Research and Development Guidance of Operating Room Graphical User Interface For STERIS
Steris Corporation: \$50,000

Stanford LPCH OB OR Layout and Design
Stanford University: \$27,413

Mechanical Engineering

Saeid Bashash

High-Efficiency, Low-Volume, Space-Qualified Cryogenic-Coolers
CU Aerospace: \$28,400

Vimal Viswanathan

Collaborative Research: Changing Homework Achievement with Mechanix Pedagogy (CHAMP)
National Science Foundation: \$75,155

COLLEGE OF HEALTH AND HUMAN SCIENCE

Journalism and Mass Communications

Diane Guerrazzi-Martinet

Media Educational Program
Department of State: \$250,000

Justice Studies

Edith Kinney

SJSU Transient Project - Transience and Homelessness among PC 290 Registrants
California Department of Corrections and Rehabilitation: \$25,000

Margaret Stevenson

Record Clearance Project - Path to Expungement
Santa Clara County: \$50,000

The Record Clearance Project (RCP) at SJSU- Adult Reentry Services
Santa Clara County: \$80,000

Nutrition & Food Science

Lucy McProud and Ashwini Wagle

Cal-Pro-Net Center 2017-2018
California Department of Education: \$44,965

School of Information

Sandra Hirsh and Susan W. Alman

Investigation of Possible Uses of Blockchain Technology by Libraries-Information Centers to Support City – Community Goals
Institute of Museum and Library Services: \$100,000

Lili Luo

Institute for Research Design in Librarianship (IRDL)
Loyola Marymount University: \$19,318

School of Nursing

Deepika Goyal

ADN to BSN RN Bridge Program - TVSON/ EVC Collaborative - AY 2017-19
San José Evergreen Community College District: \$151,255

Colleen O'Leary-Kelley and Tamara H. McKinnon

All of Us in Santa Cruz County
American Association of Colleges of Nursing: \$10,000

School of Social Work

Edward Cohen

2015 SAMHSA/BJA MH
Superior Court of CA, County of Santa Clara: \$60,000

Laurie Drabble

Sexual Orientation Differences: Prevalence & Correlates of Substance Use & Abuse
Public Health Institute: \$54,772

Effects of Marriage Recognition on Substance Abuse and Health for Women
Public Health Institute: \$67,915

Peter Allen Lee

Title IV-E Child Welfare Training 2017-2018
UC Berkeley: \$1,834,897

San José State University BASW Mental Health Scholarship Program (MHSP)
Santa Clara County: \$300,000

BHWET Integrated Behavioral Health MSW Stipend Program
UC Berkeley: \$48,004

COLLEGE OF HUMANITIES & THE ARTS

English and Comparative Literature

Jonathan H. Lovell

San Jose Writing Project 2017-2018 – CSMP
The Regents of UC, Office of the President: \$27,662

San Jose Writing Project 2017-2018 - NCLB14

The Regents of UC, Office of the President: \$32,557

Cathleen Miller

Center for Literary Art Program Funding 2017-18
City of San Jose: \$10,470

Susan Shillinglaw

John Steinbeck: Social Critic and Ecologist
National Endowment for the Humanities: \$192,571

Anne Simonson

The California Arts Project- CSMP 2017-2018
The Regents of UC, Office of the President: \$36,028

NCLB14 The California Arts Project

The Regents of UC, Office of the President: \$8,972

Linguistics and Language Development

Roula Svorou and Chris Donlay

Documenting Domaaki (dmk), a Severely Endangered Indo-Aryan Language
National Science Foundation: \$70,032

TV, Radio, Films & Theatre

Amy Glazer Connolly

Guest Artist Series
The Kanbar Charitable Trust: \$5,000

GRANT AND CONTRACT AWARDS FY2017–2018

COLLEGE OF SCIENCE

Dean's Office

Elaine D. Collins

SJSU MESA School Programs SJSUD
Agreement (Partner School Site: Lincoln
High School & Gunderson)
San Jose Unified School District: \$4,200

SJSU MESA Schools Program - Bridges
Academy (of Franklin McKinley School District)
Franklin-McKinley School District: \$4,200

SJSU MESA Schools Program ARUESD
Agreement
Franklin-McKinley School District: \$50,400

SJSU MESA SCHOOLS PROGRAM LCPA
(Latino College Preparatory Academy)
Agreement 17-18
Latino College Preparatory Academy: \$4,410

SJSU MESA Schools Program CUSD
Campbell Union School District: \$5,750

SJSU Mesa Schools Program (MSP)
Academic Year 2017-2018
Regents of the University of California:
\$180,000

SJSU MESA Schools Program - Downtown
College Prep
Downtown College Preparatory: \$8,400

SJSU MESA Schools Program ESUHSD
Agreement
East Side Union High School District: \$44,410

SJSU MESA SCHOOLS PROGRAM
RCLA (Roberto Cruz Leadership Academy)
Agreement 17-18
Roberto Cruz Learning Academy: \$4,410

SJSU MESA Schools Program - Bridges
Academy (of Franklin McKinley School District)
Franklin-McKinley School District: \$4,410

SJSU MESA Schools Program ESUHSD
Agreement
East Side Union High School District: \$46,305

Marc d'Alarcao

Duncan Hall NS Security Project
Sandia National Laboratories: \$156,524

Biological Sciences

Benjamin Carter

Digitization TCN: Collaborative: Capturing
California's Flowers: Using Digital Images
to Investigate Phenological Change in a
Biodiversity Hotspot
National Science Foundation: \$20,791

Luke Miller

Collaborative Research: Effects of Multiple
Aspects of Climate Change on Marine
Biodiversity and Ecosystem
National Science Foundation: \$99,965

Collaborative Research: Context-dependency
of Top-down vs. Bottom-up Effects on
Herbivorous on Marine Primary Producers
National Science Foundation: \$123,567

Cleber C. Ouverney

MARC U*STAR at SJSU 2017-2018
Department of Health and Human Services:
\$273,371

Elizabeth Skovran

I-Corps Site: A Biological Sciences Site for the
CSU (J. Grace)
San Diego State University Foundation:
\$2,500

Julio Soto, Miri K. VanHoven

REU Site: Research by Undergraduate using
Molecular Biology Applications (RUMBA)
National Science Foundation: \$124,747

Katherine Wilkinson

Control of Muscle Proprioceptor Sensitivity
Department of Health and Human Services:
\$108,375

Chemistry

Lionel E. Cheruzel

RU(II) Diimine Labeled P450 Mutants for
Selective Hydroxylation of Substrate c-h Bond
using Innovative Photo-Oxidative
Department of Health and Human Services:
\$108,375

Laura Miller Conrad

Blocking Cationic Antimicrobial Peptide-
Resistance in *Pseudomonas Aeruginosa*
Department of Health and Human Services:
\$108,375

Alberto A. Rascón, Jr.

Vector Control Strategy Through Inhibition of
Aedes aegypti Midgut Proteases
Department of Health and Human Services:
\$108,375

Karen A. Singmaster

CSU SJSU LSAMP Program
CSU, Sacramento: \$40,000

SJSU LSAMP Program
CSU, Sacramento: \$30,000

Karen A. Singmaster

San José State University Rise Program
Department of Health and Human Services:
\$563,811

Annalise L. Van Wyngarden

Undergraduate Summer School in
Nuclear and Radiochemistry
University of Missouri: \$97,043

Computer Science

Sam Khuri

Support SJSU Students by Providing a
"Real-World" Experience Working in a
Business Start-up
Alum Rock Unified Elementary School District:
\$50,400

Geology

Kimberly Blisniuk

Re-Evaluating Fault Geometry and Activity
within the Left Bend of the Mission Creek
Fault
University of Southern California: \$50,000

Determining the Distribution of Slip Across the
Northern San Andreas fault System: Through
Long Term Fault Slip Rates
Department of Interior: \$69,623

Mathematics and Statistics

Daniel Brinkman

Solution for Predictive Physical Modeling in
CCDTE and Other Thin-Film PV Technologies
Arizona State University: \$114,394

Joanne Rossi Becker

UT Dana Center Project of 5th Grade Video
Project with SJSURF
University of Texas at Austin: \$5,000

GRANT AND CONTRACT AWARDS FY2017–2018

Joanne Rossi Becker and Cheryl D. Roddick

Santa Clara Valley Mathematics Project (NCLB14)

Regents of the University of California:
\$24,224

Julie S. Spitzer, Jordan Schettler, and Cheryl D. Roddick

Santa Clara Valley Mathematics Project (CSMP - State)

Regents of the University of California:
\$20,000

Santa Clara Valley Mathematics Project (CSMP - State)

Regents of the University of California: \$ 2,776

Slobodan Simic and Guangliang Chen

Verizon + CAMCOS Proof of Concept (2018)

Verizon: \$32,940

Meteorology and Climate Science

Craig B. Clements

Subcontract in Relation to MBIE Work Programme

Scion: \$180,173

Fire Weather and Fuel Moisture Monitoring Research Project Monitoring Sites in Northern California

Pacific Gas & Electric Company: \$123,368

PREEVENTS: Track 2: Understanding Extreme Fire Weather Hazards and Improving Resilience in Coastal Santa Barbara, CA
UC Santa Barbara: \$169,237

Craig B. Clements and Minghui Diao

MRI: Acquisition of a Multi-Purpose Cloud Radar

National Science Foundation: \$684,462

Craig B. Clements, Neil Lareau, and Sen Chiao

RAPID: The Diablo Wind and Extreme Fire Behavior during the 2017 Wine Country Fires

National Science Foundation: \$121,906

Sen Chiao

The NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology
Howard University: \$100,000

Contract with BAAQMD 2017.100

Bay Area Air Quality Management District:
\$39,233

Detailed Quantitative Precipitation Forecasts for Santa Clara Valley Water District
Santa Clara Valley Water District: \$24,983

Sen Chiao, Craig B. Clements, Patrick Hamill, and Alison F.C. Bridger

Center for Applied Atmospheric Research and Education (CAARE)

NASA: \$1,890,084

Minghui Diao

Collaborative Research: Ice Supersaturation over the Southern Ocean and Antarctica, and its Role in Climate

National Science Foundation: \$338,940

Collaborative Research: Cirrus Cloud Formation and Microphysical Properties from in-situ Observed Characteristics to Global Climate Impacts

National Science Foundation: \$478,897

Minghui Diao and Sen Chiao

ROSES-2015/Health and Air Quality Applied Sciences Team

NASA: \$266,728

Neil Lareau

Boundary Layer Controls on the Shallow-to-Deep Cumulus Transition

Department of Energy: \$114,784

Moss Landing Marine Laboratories

Ivano W. Aiello

Post IODP Cruise 363 Proposal

Columbia University: \$11,451

Thin-Layer Sediment Placement: Evaluating an Adaptation Strategy to Enhance Coastal Marsh Resilience across the NERRS
Rhode Island Department of Environmental Management: \$30,000

Joseph J. Bizzarro

Applications of Life History and Fisheries Data for Improved Management of Skates

UC San Diego: \$55,000

Kenneth H. Coale

In Situ Sampling of Thermodynamics and Fog at the Air-Sea Interface

Naval Postgraduate School: \$216,655

Thomas Connolly, Kenneth H. Coale, James Harvey, and Jason G. Smith

High-Resolution Sensing of Nitrate in Monterey Bay and Surrounding Waters

National Science Foundation: \$140,299

Thomas Connolly, Kenneth H. Coale, and Jason G. Smith

CeNCOOS: Long-Term Monitoring of Environmental Conditions in Support of Marine Area Management in Central & Northern CA

Monterey Bay Aquarium Research Institute:
\$55,000

Ross Clark

North Monterey County High School Habitat Enhancement Project

Resource Conservation District of Santa Cruz County: \$85,697

Agreement Number 15446 - Developing and Validating Assessment Tools for Ephemeral Streams

Southern California Coastal Water Research Project: \$108,339

SFEI/ASC PURCHASE ORDER NO. 2072

San Francisco Estuary Institute: \$8,200

Colleen Andrea Durkin

Linking Sinking Particle Chemistry & Biology w/ Changes in the Magnitude and Efficiency of Carbon Export into Deep Ocean

Skidmore College: \$117,440

Russell Fairey

SWRCB Agreement Number: 17-045-270

California State Water Resources Control Board: \$711,993

CDFW Agreement Number P1783003

California Department of Fish and Wildlife:
\$300,000

H. Gary Greene and Joseph J. Bizzarro

Biological and Essential Fish Habitats Assessments of Marine Fauna in the Vicinity of the Monterey Bay Aquarium Seawater Intake Pipelines

Monterey Bay Aquarium Research Institute:
\$34,172

Jonathan Geller

MISP: Molecular Detection and Monitoring of Marine Invasive Species in California

California Department of Fish and Wildlife:
\$966,457

Metagenetic Analysis of Zooplankton of Port Valdez Alaska

Prince William Sound Regional Citizens' Advisory Council: \$7,866

GRANT AND CONTRACT AWARDS FY2017–2018

Wesley A. Heim and Autumn L. Bonnema

Contract No.: 1287 - San Francisco Estuary Institute/Aquatic

San Francisco Estuary Institute: \$424,484

SWRCB Region 6 Discretionary - Agreement #16-058-160

California State Water Resources Control Board: \$80,000

SWRCB Agreement Number: 17-023-270

California State Water Resources Control Board: \$1,896,712

SFEI Contract - 2018 S&T Bird Eggs Monitoring

San Francisco Estuary Institute: \$10,164

James Harvey

Estuarine Wetland and Near shore Ecology Studies along the Pacific Flyway.

United States Geological Survey: \$96,998

P1775028 - Biohazardous Waste Disposal Services

California Department of Fish and Wildlife - \$23,390

CMSF-BeachCOMBERS Contract

California Marine Sanctuary Foundation: \$13,500

COOPERATIVE AGREEMENT: Waterfowl Research Studies in the Suisun Marsh, CA
Department of Interior: \$49,000

Estuarine Wetland and Nearshore Ecology Studies along the Pacific Flyway
Department of Interior: \$84,842

James Harvey and Jonathan M. Prince

Auxiliary General Purpose Oceanographic Research (AGOR) Support Services
Office of Naval Research: \$192,773

James Harvey and Murray Stein

Research Vessel Use for Monthly Water Sampling
Applied Marine Sciences, Inc.: \$20,000

Scott L. Hamilton

Solving Impediments to the Co-Culture of Seaweeds and Shellfish
UC San Diego: \$132,084

Birgitte McDonald

Coll. Res.: At-Sea Experimental Disturbances to Characterize Physiological Plasticity in Diving Northern Elephant Seals
National Science Foundation: \$146,575

Large Whale Readiness and Response in Central and Northern California
Department of Commerce: \$91,458

Enhanced Stranding Response and a Continued Response Partnership Between the Long Marine Lab and Moss Landing Stranding
UC Santa Cruz: \$26,623

Heart Rate Logging in Deep Diving Toothed Whales; a New Tool for Assessing Responses to Disturbance
Office of Naval Research: \$359,265

Kimberly A. Null and Ross Clark

Characterizing Shallow Groundwater Nutrient Sources in Central Coast Sloughs
UC San Diego: \$86,107

Illiana Ruiz-Cooley

A Novel Approach to Identify Sources, Transfer and Impact of Domoic Acid in Marine Food Webs
UC San Diego: \$77,702

Marco A. Sigala

Sharpe Army Depot - Ahtna EI PO-0501103
Ahtna Environmental Inc.: \$25,850

Marco A. Sigala

Military Ocean Terminal Concord - Ahtna EI PO-0501104
Ahtna Environmental Inc.: \$25,850

G. Jason Smith

The Alliance for Coastal Technologies (ACT): National-Scale Efforts Toward Verification and Validation of Observing
University of Maryland Center for Environmental Science: \$255,000

Richard M. Starr

Improving Information for Stock Assessments: Comparison of NMFS Trawl Surveys and Visual Surveys of Adjacent Untrawlable
Department of Commerce: \$280,790

Richard M. Starr

Statewide MPA Monitoring
California Natural Resources Agency: \$600,000

Timothy P. Stanton

Collaborative Research: Thermodynamic and Dynamic Drivers of the Arctic Sea-Ice Mass Budget at MOSAIC
National Science Foundation: \$952,498

Alison Stimpert

Project Support for the Southern California Behavioral Response Study: Effects of Naval Sonar on Marine Mammals
Cascadia Research Collective: \$23,178

Alison Stimpert

Data Analysis of Passive Acoustic Data from Rockfish Behavioral Response Study
Department of Commerce: \$25,000

Diana L. Steller

Minimizing Disturbance Impacts by California Vessel Mooring Systems on Living Rhodolith Benthos in Catalina MPAs: an Experimental Assessment
UC San Diego: \$46,803

Qing Wang and Kenneth H. Coale

Toward Improving Coastal Fog Prediction (C-FOG)
University of Notre Dame: \$600,000

Nicholas Welschmeyer

DNVGL Envirocleanse Ballast Project
California Maritime Academy: \$140,960

Nicholas Welschmeyer

CMA -Panasonic Ballast Treatment
University of Notre Dame: \$484,420

Jenifer Zeligs

Investigating Sea Lion Locomotion
West Chester University: \$15,000

Physics and Astronomy

Alejandro L. Garcia

Stochastic and Hybrid Models and Algorithms for Fluids
Lawrence Berkeley National Laboratories: \$107,274

Michael J. Kaufman

A GREAT Map in M20: [[O I] and [C II] Emission From a Young Star Forming Region
Universities Space Research Association: \$36,700

Using the Astronomical Infrared Bands as Calibrated Probes of Astrophysical Conditions with the NASA AMES PAH IR
NASA: \$269,279

GRANT AND CONTRACT AWARDS FY2017–2018

Aaron J. Romanowsky

A Close-Up View of the Star Formation History of a Young Ultracompact Dwarf
Space Telescope Science Institutes: \$31,865

Testing for Extreme Stellar Populations in an Ultra-Diffuse Galaxy

Jet Propulsion Laboratory: \$13,750

A Close-Up View of the Star Formation History of a Young Ultracompact Dwarf

Space Telescope Science Institute: \$31,865

COLLEGE OF SOCIAL SCIENCES

Environmental Studies

Bruce Olszewski

Environmental Careers
West Valley-Mission Community College
District: \$30,000

TAC Projects

Santa Clara County: \$5,000

Environmental Careers

West Valley-Mission Community College
District: \$20,000

Bruce Olszewski and Lynne Trulio

SJSU Move Out: Illegal Dumping Prevention
City of San Jose: \$10,000

History

Margo McBane

"Cannery Workers, Cannery Lives"
California Humanities: \$5,000

Political Science

Frances L. Edwards

ICS Training for Field Level TTT Workshops
The National Academy of Sciences: \$150,000

Garrick Percival

IPACE Internship Program
Jim Beall's Office: \$2,961

Psychology

Vernol Battiste

OPL Study Cost
CSU Long Beach Foundation: \$31,056

Dorrit Billman

Training for Generalizable Skills & Knowledge: Integrating Principles and Procedures
NASA: \$200,000

Matthew R. Capriotti

The PRIDE Study
UC San Francisco: \$34,020

Matthew R. Capriotti and

Bonnie Sugiyama

SJSU To Zero: HIV Prevention at Stigma Reduction at San Jose State University
The Health Trust: \$20,000

Kevin Gregory

2017 Fatigue Management Training for San Francisco Bar Pilots
California Maritime Academy: \$2,000

2018 Fatigue Management Training for San Francisco Bar Pilots

California Maritime Academy: \$8,000

Sean P. Laraway

Test Subject Recruitment Office
ASRC Federal: \$417,897

Human Systems Integration: Collaborative Human Factors Research to Improve Safety, Efficiency, and Reliability of NASA's Aeronautics and Space Missions
NASA: \$18,322,576

Randall J. Mumaw

Technologies for Indicating System Status and Dependencies during Complex Non-Normal Situations
University of Iowa: \$50,000

David Schuster

CAREER: Understanding the Cognitive Processes of Computer Network Defense
National Science Foundation: \$113,487

Susan M. Snycerski

Advanced Rotorcraft Research: Adaptive Autonomy, Future Lift Systems, and Human-Centered Display Design
NASA: \$1,997,680

Implementing Macroergonomics for Increasing the Safe, Effective, and Efficient Operation of the Entry Systems and Technology Division's High Enthalpy Facilities
NASA: \$25,000

Sociology and Interdisciplinary Social Sciences

Faustina Ducros

Louisiana Migrants in California Life History Project
CSU, Dominguez Hills: \$20,000

Urban and Regional Planning

Dayana Salazar

CommUniverCity: Community Leadership Program (CLP)
City of San Jose: \$50,000

CommUniverCity: Community Services
City of San Jose: \$125,000

UNIVERSITY PROGRAMS

Associated Students

Heather Vise

CCAMPIS - Child Care Access Means Parents in School
Department of Education: \$256,155

Office of Research

James L. Wayman

Consultancy Support to the NCSC Biometrics Test Programme
National Cyber Security Center: \$62,438

Consultancy Support to the NCSC Biometrics Test Programme
National Cyber Security Center: \$59,258

Provost Office

Stacy Gleixner

Transforming College Teaching: Statewide Implementation of the Faculty Learning Program to Improve STEM Undergraduate
UC Berkeley: \$66,618

Student Academic Success Services

Patricia R. Backer

Project Succeed: 2013 Title III Strengthening Institutions Program
Department of Education: \$449,902

Maria E. Cruz

The Ronald E. McNair Postbaccalaureate Achievement Program
Department of Education: \$256,547

University Library

Kathy Blackmer and Emily Chan

The Ronald E. McNair Postbaccalaureate Before Silicon Valley: Revealing the Race/Ethnic Histories of SJSU and Santa Clara Region
CALIFA: \$9,992

VP for Student Services

Debra Griffith

Walter S. Johnson Foundation Grant
CSU, Monterey Bay: \$82,000

STATEMENT OF ACTIVITIES FY2017-2018

REVENUE & SUPPORT

\$23,963,674	Federal Contracts and Grants
7,488,104	State Contracts and Grants
6,733,734	Other Contracts and Grants
7,883,869	Indirect Cost Recovery-C&G
587,048	Administrative and Program Fees
756,539	Gifts
1,158,964	Investment Income
6,419,789	Other Revenue and Support
\$54,991,721	TOTAL REVENUE

EXPENSES

	PROGRAM ACTIVITIES
\$37,460,825	Sponsored Programs
1,536,137	Board Designated Programs
9,135,561	Campus Organization Expenditures
8,218,190	Support Activities-Management and General
780,000	Other Expenses and Transfers
\$57,130,713	TOTAL EXPENSES
\$(2,138,992)	CHANGE IN NET POSITION
17,819,675	Net Position - beginning of year
16,232,271	Net Position - end of year

BY THE NUMBERS

Ranked **#2 out of 23** CSU campuses in terms of extramurally funded sponsored grants and contracts (San Diego State is first).

Provided **\$1.1 million** in indirect revenue and strategic investment into the campus community.

Submitted **290** proposals valued at more than \$94 million.

Received **244** awards valued at more than \$54 million.

Managed more than **300** grants and contracts.

Employed **433** students on sponsored research projects.

Engaged **176** faculty members on sponsored grants or research projects.

BOARD OF DIRECTORS

FROM THE SJSU ADMINISTRATION

Joan Ficke

Board President, SJSU Research Foundation
Interim Provost and Senior Vice President for Academic Affairs, SJSU

Pamela C. Stacks

Board Vice President, SJSU Research Foundation
Associate Vice President, Research, SJSU

Charlie Faas

Board Treasurer, SJSU Research Foundation
Vice President of Administration and Finance/CFO, SJSU

FROM THE SJSU FACULTY

Marc d'Alarcao

Interim Dean, College of Graduate Studies

Amy D'Andrade

Professor, College of Health and Human Sciences

James Harvey

Director, Moss Landing Marine Laboratories

Walter R. Jacobs

Dean, College of Social Sciences

Michael Kaufman

Dean, College of Science

Essam Marouf

Associate Dean, Graduate Studies and Research, College of Engineering

Matthew Spangler

Professor, Department of Communication Studies, College of Social Sciences

FROM THE SJSU STUDENT BODY

Chloe Gore

Meteorology & Climate Science, College of Science

FROM THE COMMUNITY

Daniel Harris

Senior Vice President, Civic Entertainment Group

William F. Wiles

CEO, WFW International

FROM THE SJSU RESEARCH FOUNDATION

Rajnish Prasad

Board Secretary, SJSU Research Foundation
Executive Director, SJSU Research Foundation

CORPORATE COUNSEL

Nancy McGlamery

Adler & Colvin

ANNUAL REPORT

Executive Director

Rajnish Prasad

SJSU Research Foundation

Editor

Marilyn Dion

SJSU Research Foundation

Contributors

Melissa Anderson

San José State University

Robert Bain

San José State University

Peter Carvalho

'97 Graphic Design, 'MFA Creative Writing
San José State University

Michelle Frey

San José State University

Alyssa Gapuz

'14 Kinesiology
SJSU Research Foundation

Saroyan Humphrey

saroyanhumphrey.com

James Knutilla

jamesknutilla.com

Lavanyalakshmi Lokadolalu

'20 MS Engineering Management
SJSU Research Foundation

Yanni Ma

'20 BFA Graphic Design
San José State University

Bonnie Rae Mills

bonnieraemillsphoto.com

Brenda Swann

SJSU Research Foundation

For more information:

sjsu.edu/researchfoundation/annualreport

SJSU | RESEARCH FOUNDATION

COVER: Mina Nguyen, '20 Chemistry with a concentration in Biochemistry, studies purified biocatalyst (enzyme) in the lab of Lionel Cheruzel.



Dalton Behringer, '19 MS Meteorology, atop Duncan Hall with an OTT Parsivel2 Disdrometer, which can determine the full raindrop size distribution, rainfall rate, accumulated rainfall, hydrometeor type, and the scattering properties of drops (to simulate radar variables). This information is used to gain information about the microphysical properties of rainfall.