

THE Q LENS

Message from Yvonne Harris, Ph.D., Associate Vice President

The New Year is here and we begin our Spring 2023 with our first newsletter of the semester and year. This spring, as in previous years, we begin with the announcement for the University Award for Research, Scholarship, and Activity for Senior Faculty and Earlier Career Faculty applications. Faculty at Sac State are engaged in cutting edge research, innovative scholarly activity and exceptional creative/artistic endeavors and we believe that this work should be recognized, celebrated and acknowledged. We again invite Senior and Early Career Faculty to apply and for more information please see the announcement below.

With talented faculty come talented students engaged in research and innovative projects. At the end of the Fall 2022 semester, the College of Engineering and Computer Science held their Senior Design Showcase with graduating seniors in Civil Engineering, and Mechanical Engineering presenting their senior capstone projects. These students work with various outside projects in small collaborative groups, each bringing a unique perspective to solving a problem and designing solutions. Read about the December 9th, 2022 ECS Senior Design Showcase and to learn more about these capstone courses and look at past archived student projects go [here](#).

The Sustainable Interdisciplinary Research to Inspire Undergraduate Success (SIRIUS II) is a project that aims to provide interdisciplinary Authentic Learning Experiences (ALEs) to STEM students across 67 courses at five institutions in the Sacramento Region. SIRIUS II project is supported by the National Science Foundation Improving Undergraduate STEM Education. To learn more about the SIRIUS II project, go to the link provided in this announcement and save the date: April 20, 2023, from 4:30pm-7:00pm in the Foothill Suite of the University Union at Sac State. Please plan on attending the first SIRIUS STEM Conference.

The California State Budget Act of 2022-23 allocated \$100 million to the University of California to invest in research that will have an immediate measurable impact on climate resilience. Letters of Intent were due January 17th. If you have any questions regarding this opportunity and CSU-WATER projects and future funding opportunities, please contact Steve Blumenshine at sblumens@csufresno.edu.

Finally, our last announcement is about a "pitch" event, where researchers working on a specific grant funding opportunity can recruit partners from over 90 US STEM Learning Ecosystems. Each ecosystem can represent hundreds of diverse collaborators from education, business, community and government organizations and can often serve as an interface for broader level STEM-based collaborations. This past "pitch" event, held in October 2022, was a huge success- with another one coming February 2nd. For more information read our last announcement in this newsletter, "STEM Learning Ecosystem, Opportunity to Connect," and/or reach out to Dr. Jeremy Babendure (jbabendure@scitechinstitute.org).

Questions for Yvonne

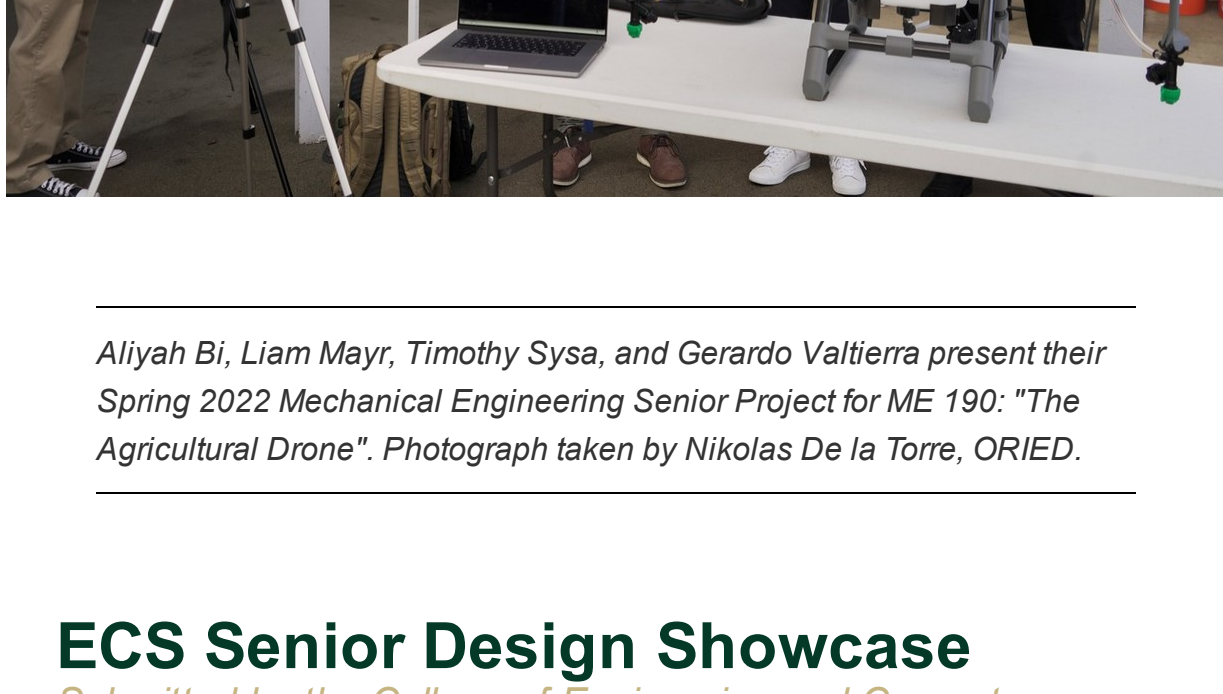
University Award for Research, Scholarship, and Creative Activity for Senior Faculty and Early Career Faculty - Call for Applications

RCA Committee

The Research and Creative Activity (RCA) Subcommittee invites applications for the 2022-23 University Awards for Research, Scholarship, and Creative Activity. **The deadline for receipt of all application materials is 5:00pm on Friday, February 10th.** The required applications materials must be submitted through [InfoReady Review](#).

Questions?
 Questions about the competition may be addressed to Sadaf Ashtari, Chair, RCA Subcommittee at rsachair@csus.edu.

For technical assistance on application submission, please contact rca@csus.edu.



Aliyah Bi, Liam Mayr, Timothy Sysa, and Gerardo Valtierra present their Spring 2022 Mechanical Engineering Senior Project for ME 190: "The Agricultural Drone". Photograph taken by Nikolas De la Torre, ORIED.

ECS Senior Design Showcase

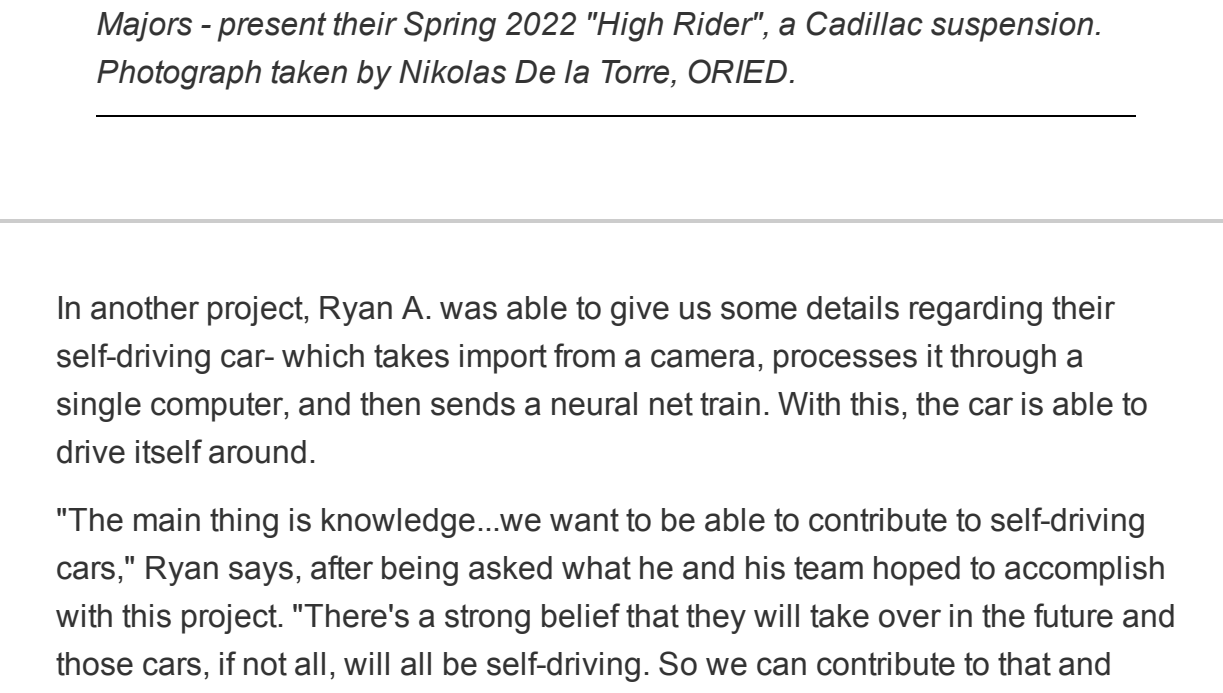
Submitted by the College of Engineering and Computer Science

On Friday, December 9th, 2022, The College of Engineering and Computer Science conducted their Senior Design Showcase, where graduating seniors in Civil Engineering, Computer Engineering, Computer Science, Electrical and Electronic Engineering, and Mechanical Engineering presented the highlights of their senior capstone projects. All students work collaboratively in small groups, and some work with outside individuals, private companies, or public agencies as clients.

There were a number of talented student presentations, and during an interview with Mechanical Engineering student, Liam Mayr, we were able to gain more insight on some senior's projects. His team presented their "Agricultural Drone", a pesticide drone built for agricultural purposes. Mayr's team designed their drone in Mechanical Engineering 190 last semester, and built it in Mechanical Engineering 191. Once the team picked up a sponsor for their project, it enabled them to have more of a budget to work with.

"We were looking at a bunch of different projects that interested us and drones were one of them," says Mayr. "Fortunately, we were able to find a sponsor that was interested in the same technology. We designed our project and presented it to them and they were on board. After we got funding we were able to build it."

Mayr's team hopes to accomplish building a product that will be used within future companies, as well as show off something they were all very proud of.



Trevor Emerick, Tyler Ericsson, and Tyler Fletcher - Mechanical Engineer Majors - present their Spring 2022 "High Rider", a Cadillac suspension. Photograph taken by Nikolas De la Torre, ORIED.

In another project, Ryan A. was able to give us some details regarding their self-driving car- which takes input from a camera, processes it through a single computer, and then sends a neural net train. With this, the car is able to drive itself around.

"The main thing is knowledge...we want to be able to contribute to self-driving cars," Ryan says, after being asked what he and his team hoped to accomplish with this project. "There's a strong belief that they will take over in the future and those cars, if not all, will all be self-driving. So we can contribute to that and make it safer for everybody. That will be a huge win."

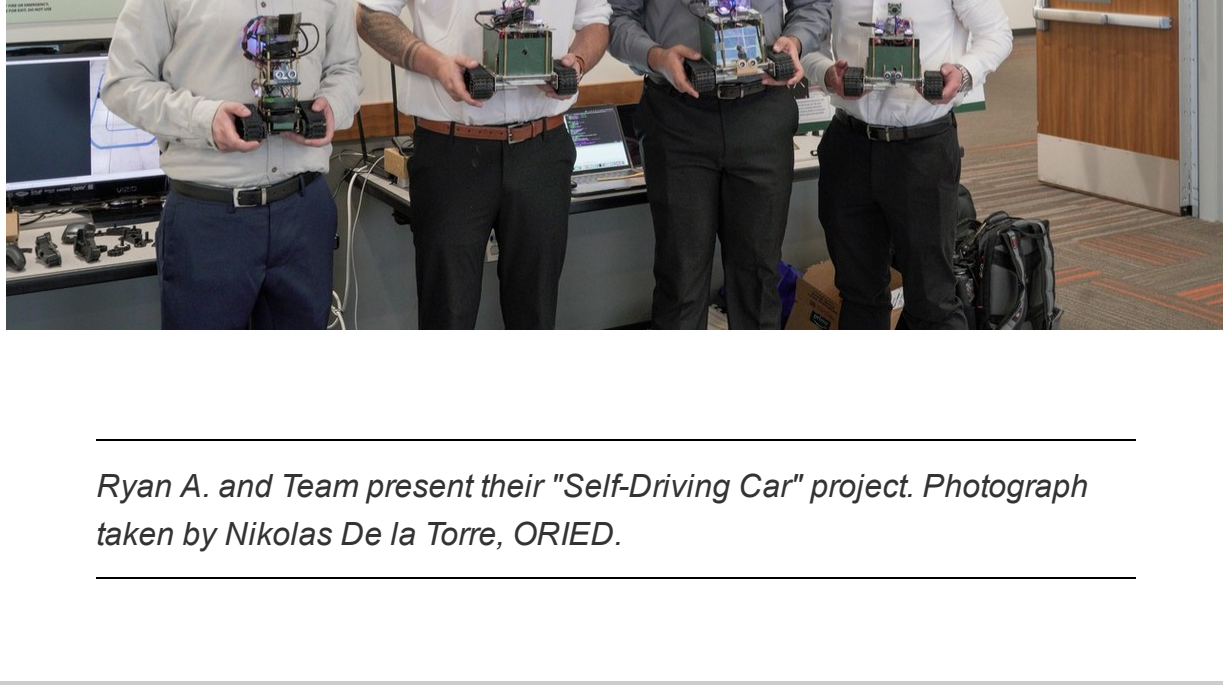
Ryan goes on to explain how exciting it was to learn how neural nets worked, and how the dataset ended up being the most exciting part of their project.

"I just think this process is a great opportunity for us to have something that's remotely interesting and just go with it...just take it 100%."

Troy Topping, the Department Chair of Mechanical Engineering, was present at the event to observe the various senior projects, noting how 'extraordinary' these projects are.

"This is our semester event for the senior project showcase. We have two courses, Mechanical Engineering 190 and 191, so this is a year-long project that teams of students go through and in 190, they attack a problem and design a solution. As you do with mechanical engineering," says Topping.

"These are a culmination of the work that they've done for a minimum of four years. Typically where they've taken all the science, math, & engineering courses and put that together. They have this awesome tool box, academically, and then they create something that's an engineering solution."



Ryan A. and Team present their "Self-Driving Car" project. Photograph taken by Nikolas De la Torre, ORIED.

SIRIUS II Project

ALE-Apalooza & More

The second year of the SIRIUS II project was busy with Authentic Learning Experience (ALE) implementations, a two-day summer workshop, with various presentations, and a tour of Sacramento State labs for American River College (ARC) faculty and students. The summer workshop- named "ALE-apalooza"- was a celebration of faculty efforts thus far and a source of inspiration for the coming year. One day was virtual but there was a group gathering for a whole day on the Sacramento State campus, with President Neilsen from Sac State and Chancellor Brian King of the Los Rios Community College District, kicking off the event.

There are currently three studies related to SIRIUS project outcomes, where on-going research was presented at local symposia and national meetings last year. Posters can be accessed [here](#).

Looking ahead, the first SIRIUS STEM Conference will be held on April 20, 2023 from 4:30pm - 7:00pm in the Foothill Suite of the University Union at Sacramento State. This will be an informal gathering for networking and celebrating accomplishments, paired with some light appetizers and beverages while students share their work.

For any questions, comments, or concerns, please contact Kelly McDonald through the [SIRIUS II Project website](#), or at sirius@csus.edu.

(Originally published in the 3rd Issue of SIRIUS II Online Newsletter)

UC Climate Action Funding

Team Building

The California State Budget Act of 2022-23 allocated \$100 million to the University of California to invest in research that will have a swift and measurable impact on climate resilience. These funds are being used to fund action-oriented solutions to address California's climate goals and needs, ensure that local communities are prepared and resilient, and prevent future disasters.

Over the last month, Dr. Steve Blumenshine, a professor for the Department of Biology from CSU Fresno, has been fielding inquiries from individuals and some groups seeking team-building for a prime funding pool. [Letters of Intent](#) are due on Thursday, January 19th by 12:00pm. If anyone is in need of assistance, please start by [completing this form](#). Most of the information needed in this survey has been covered, but it is encouraged to add more information by directly contacting Dr. Blumenshine at sblumens@csufresno.edu.

In addition, Dr. Leslie Ponciano from the CSU Chancellor's Office of Research is available to review LOIs and proposal review. She can be contacted at lponciano@calstate.edu.

CSU-WATER

Campus Representatives

CSU-WATER seeks to achieve a long-term, sustainable water supply for California through education, research and policy development by harnessing the resources and leadership from within the 23 CSU campuses. They foster academic preparation, applied research and policy development that address all aspects of water use. CSU-WATER serves to focus synergistically with the CSU's many centers and programs of excellence on water issues.

The purpose of the CSU-WATER Faculty Research Incentive Award Program is to provide funding for CSU faculty members to develop and submit full proposals to external funding agencies and organizations for water-related research and educational projects. To learn more about future funding opportunities, please contact Steve Blumenshine at sblumens@csufresno.edu.

The application deadline for campus representatives was October 3, 2022.

For more information regarding eligibility, expectations, and important documents, please visit the [CSU Funding Opportunities](#) page.

STEM Learning Ecosystem

Opportunity to Connect

SciTech Institutes wants to connect with Sac State faculty about a unique opportunity to develop more meaningful, impactful, and sustainable grant opportunities with thousands of STEM-based intuitions nationally.

The concept is a "pitch" event where researchers working on a specific grant RFPs (IES/EIR in this case) can recruit partners from some [90+ US STEM Learning Ecosystems](#). For reference, each STEM Ecosystem can represent hundreds of diverse collaborators from education, business, community, and government organizations and often serves as the interface for broader level STEM-based collaborations. As a result, STEM Ecosystems are an ideal partner for researchers looking to connect with most STEM based intuitions.

The community held its first ever "pitch" event in October 2022 with just under 100 participants. Attendees connected with 7 researcher teams from institutions including TERC, EDC, ILI, and CAST. After the session, each researcher commented on the value of participating by connecting with multiple ecosystems after their pitch. Based upon this success, we will hold a second pitch event on **February 2nd at 12 EST** focused on EIR, IES and CS for All RFPs.

In addition, the pitch also allows for Ecosystems partners to pitch their concept to potential researchers. As a result, we also invite you to join and listen into project possibilities.

Additional details about the February pitch event:

1. The session will take place on **February 2nd at 12 EST.**
2. We are seeking a total of 7-8 pitches. Each will have five minutes to pitch and two minutes for questions. Should we get more requests, we will likely add another session time.
3. We will provide a framework that should be used to guide presentations. No more than 5 slides.

If you or members of your team are interested to make a pitch or attend, please email Dr. Jeremy Babendure (jbabendure@scitechinstitute.org) to discuss further.

For more information or inquiries please contact the Offices of Research, Innovation and Economic Development below.



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