



Davidson Institute
Fellows Scholarship

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**FRESNO SIBLINGS AWARDED \$25,000 SCHOLARSHIP FOR
AGRICULTURAL DROUGHT MODEL FOR WATER CONSERVATION
John Benedict and Pauline Victoria Estrada Named 2022 Davidson Fellows
Scholarship Winners**

Fresno, Calif. – The Davidson Fellows Scholarship Program has announced the 2022 scholarship winners. Among the honorees are siblings John Benedict, 17, and Pauline Victoria Estrada, 15, of Fresno. Their project, *Field Evaluation Optimization and Application of a Novel AI Drought Assessment (AIDA) Model in Tomato (Solanum lycopersicum) Plants Using a Custom-Built Spectra-Rover*, was awarded a \$25,000 scholarship. Only 21 students across the country are recognized as 2022 scholarship winners.

"It is a great honor to be selected as 2022 Davidson Fellows," said John Estrada. "Hopefully, the use of our technology will help end food insecurity, not only here in the United States, but more importantly in developing countries."

The scholarship-winning project created a new model for predicting drought stress of tomato plants in California, allowing for better planning and use of water resources. Their model predicts the earliest signs of drought stress using indicators such as red, green, and blue (RGB) light reflectance, radiometric infrared canopy temperature, and soil moisture values. According to their research, the model has the potential to replace the existing models, saving as much as 26 billion gallons of water each year.

"It is my hope that our model will serve as an important tool necessary to help the world's farming community, reduce world hunger, and build a resilient future in food production," said Pauline Estrada. "This recognition has inspired me to further my research in creating more innovative solutions that will have a positive and long-term impact for my community and future generations."

John and Pauline Estrada attend Clovis North High School and serve as mentors for younger students interested in participating in science fairs.

"This year's class of Davidson Fellows Scholarship recipients continue to find new and innovative ways to pursue their educational and research journeys while striving to solve some of the world's most vexing problems," said Bob Davidson, founder of the Davidson Institute. "These students have not just overcome the challenges of doing significant work during a pandemic; our Fellows have embraced the new opportunities that have come from creative, outside-the-box thinking to use technology to expand their networks of mentors and access new sources of information and data, resulting in a very diverse portfolio of projects."

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The 2022 Davidson Fellows will be honored during a reception at the Massachusetts Institute of Technology and with a virtual project presentation ceremony in September 2022.

The Davidson Fellows Scholarship program offers \$50,000, \$25,000 and \$10,000 college scholarships to students 18 or younger, who have completed significant projects that have the potential to benefit society in the fields of science, technology, engineering, mathematics, literature and music. The Davidson Fellows Scholarship has provided more than \$9 million in scholarship funds to 407 students since its inception in 2001, and has been named one of the most prestigious undergraduate scholarships by [U.S. News & World Report](#). It is a program of the Davidson Institute, a national nonprofit organization headquartered in Reno, Nev. that supports profoundly gifted youth.

About the Davidson Institute

Founded by Bob Davidson in 1999, the Davidson Institute recognizes, nurtures and supports profoundly intelligent young people, and provides opportunities for them to develop their talents to make a positive difference. The Institute offers support through a number of programs and services, including the Davidson Fellows Scholarship and the [Davidson Academy of Nevada](#). For more information about the 2022 Davidson Fellows, please visit: [DavidsonFellows.org](#).

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High-resolution photos are available at
[DavidsonFellows.org](#)