



# 10TH ANNUAL CSUF SUMMER RESEARCH SYMPOSIUM



**THURSDAY, AUGUST 10, 2023**  
**TITAN STUDENT UNION PAVILIONS**

1:00 – 1:30 PM

Check-in

1:30 – 1:45 PM

Opening Remarks

1:50 – 2:20 PM

Poster Session A

2:25 – 2:55 PM

Poster Session B



Cal State Fullerton

 PROJECT RAISE

## Presenter List, sorted by last name

### Poster # Presenter name

B-20 Abdolmanafi, Sheila (Irvine Valley)  
B-12 Acevedo Piña, Janet Monserrat (Orange Coast)  
A-12 Agarie, Alyssa (Irvine Valley)  
A-8 Alvarez, David (Citrus)  
B-13 Alvarez, Sam (Orange Coast)  
A-2 Angulo, Saray (Cypress)  
B-16 Becerra, Susana (Santiago Canyon)  
B-24 Castaneda, Eduardo  
B-22 Chan, Megan  
B-22 Couyoumjian, Claire  
B-24 Cusimano, Anthony  
A-6 Estrada, Eric (Golden West)  
B-7 Foroutan, Pantea (Orange Coast)  
B-23 Franza, Deborah  
B-3 Ghatas, Avrena (Golden West)  
B-4 Gomez, Andrew (Orange Coast)  
B-22 Gonzalez, Alondra  
B-24 Gonzalez, Analiese  
A-9 Guyer, Jenna (Cypress)  
B-1 Guzman, Cesar (Santiago Canyon)  
B-2 Hernandez Lopez, Luis Eduardo  
A-18 Hernandez, Jackie (Fullerton)  
B-18 Ho, Hung Anh (Santa Ana)  
A-13 Hsu, Ann (Cypress)  
A-17 Hury, Eric (Citrus)  
A-4 Islam, Areeba (Irvine Valley)  
A-22 Kernal, Sarah  
B-23 Krager, Aubree  
B-22 Lai, Devin  
A-23 Lang, Gary

### Poster # Presenter name

B-17 Leyva, Arai (Citrus)  
B-14 Lira, Anthony (Cypress)  
A-7 Macias, Jesus (Cypress)  
A-1 Mauga, Elijah (Fullerton)  
A-20 McNicol, Amber (Saddleback)  
B-19 Medina, Sussana (Citrus)  
A-14 Melendez, Bryan (Santiago Canyon)  
B-9 Nguyen, Liam (Santa Ana)  
A-3 Paul, Riti (Santiago Canyon)  
B-24 Peng, Melissa  
A-15 Perez, Jacob (Fullerton)  
A-10 Pham, Maia (Orange Coast)  
B-10 Ramirez, Gael (Santa Ana)  
B-11 Ramos, Angelica (Fullerton)  
A-22 Rehome, Samantha  
B-15 Ruiz, Dylan (Fullerton)  
B-6 Samari, Tanya  
A-23 Sampson, Nkosi K  
A-21 Scanlon, Riley (Santiago Canyon)  
B-21 Serna, Derek (Golden West)  
A-22 Sprengel, Scott  
A-19 Ta, Ngoc Hong Nhi (Santa Ana)  
A-22 Tamizifar, Ahoora  
A-5 Tran, Ngoc  
A-11 Van, Tien (Golden West)  
B-8 Vien, Man (Santa Ana)  
A-16 Villegas, Aidan (Irvine Valley)  
B-5 Vo, Uy  
B-22 Vu, Sean

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**Undergraduate Research Experience Student Research Mentors**

**Undergraduate Research Experience Faculty Mentors**

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## Session A | 1:50-2:20

Poster	Title	Presenter(s), Author(s), *Faculty	Faculty Mentor
A-01	Study of oxygen transport membranes in $\text{La}_x\text{Ca}_{1-x}\text{FeO}_3$ and $\text{La}_x\text{Ba}_{1-x}\text{FeO}_3$	<a href="#">Elijah Mauga</a> <sup>1</sup>	Dr. Allyson M. Fry-Petit
A-02	Discovering the relationship between excited state anti-aromaticity and photobasicity	<a href="#">Saray Angulo</a> <sup>1</sup>	Dr. Andrew Petit
A-03	Synthesis of lithium copper pyrophosphate as a potential cool pigment	<a href="#">Riti Paul</a> <sup>1</sup>	Dr. Joya Cooley
A-04	<i>In silico</i> & <i>in vitro</i> development of DNA based aptamer for small molecules	<a href="#">Areeba Islam</a> <sup>1</sup>	Dr. Stevan Pecic
A-05	Comparing accuracy level of different machine learning models	<a href="#">Ngoc Tran</a> <sup>3</sup>	Dr. Doina Bein
A-06	Predicting vehicle acceleration using supervised machine learning models	<a href="#">Eric Estrada</a> <sup>1</sup>	Dr. Doina Bein
A-07	Using pair trading analysis to examine the impact of COVID-19 on the stock market	<a href="#">Jesus Macias</a> <sup>1</sup>	Dr. Doina Bein
A-08	A comprehensive surveillance system for tracking disease outbreaks: A case study of Lassa Fever	<a href="#">David Alvarez</a> <sup>1</sup>	Dr. Sampson Akwafuo
A-09	Assessing potential changes in salt dome cap rock calcite carbon sources with depth, Boling Dome TX	<a href="#">Jenna Guyer</a> <sup>1</sup>	Dr. Sean Loyd
A-10	An investigation of unfamiliar gas presence and focused laser incidence angle on thermocavitation bubble behavior	<a href="#">Maia Pham</a> <sup>1</sup>	Dr. Darren Banks
A-11	Improving fuel efficiency in semi trucks	<a href="#">Tien Van</a> <sup>1</sup>	Dr. Salvador Mayoral
A-12	Study of filaments of the nematode <i>T. aceti</i>	<a href="#">Alyssa Agarie</a> <sup>1</sup>	Dr. Anton Peshkov
A-13	Investigation of the quasi-universal relation with equation of state	<a href="#">Ann Hsu</a> <sup>1,2</sup> , <a href="#">Jocelyn Read</a> <sup>*</sup> , <a href="#">Lami Suleiman</a>	Dr. Jocelyn Read
A-14	Flame indication and remote electronics (F.I.R.E.): LoRa radio communication system	<a href="#">Bryan Melendez</a> <sup>1</sup>	Dr. Ankita Mohapatra
A-15	Leveraging supervised learning for detection of malicious hardware designs	<a href="#">Jacob Perez</a> <sup>1</sup>	Dr. Jaya Dofe
A-16	Adapting Raspberry Pi for excavator remote control	<a href="#">Aidan Villegas</a> <sup>1</sup>	Dr. Rakesh Mahto
A-17	Training and evaluating machine learning transformer models to perform various mathematical tasks	<a href="#">Eric Hury</a> <sup>1</sup>	Dr. Yu Bai
A-18	Effect of host microbiota on <i>Drosophila melanogaster</i> development time	<a href="#">Jackie Hernandez</a> <sup>1</sup>	Dr. Parvin Shahrestani
A-19	<i>Drosophila melanogaster</i> longevity evolves in response to selection	<a href="#">Ngoc Hong Nhi Ta</a> <sup>1</sup>	Dr. Parvin Shahrestani
A-20	<i>Acinetobacter baumannii</i> response at the transcriptomic level when exposed to <i>Lactocaseibacillus rhamnosus</i> CRL2244	<a href="#">Amber McNicol</a> <sup>1</sup> , <a href="#">Maria Soledad Ramirez</a> <sup>*</sup>	Dr. Maria Soledad Ramirez
A-21	Optimization of a nuclear export assay for RNA binding protein PTBP	<a href="#">Riley Scanlon</a> <sup>1</sup>	Dr. Alison Miyamoto
A-22	Predicting energy consumption in California	<a href="#">Logan Clark</a> , <a href="#">Sarah Kernal</a> <sup>4</sup> , <a href="#">Samantha Rehome</a> <sup>4</sup> , <a href="#">Scott Sprengel</a> <sup>4</sup> , <a href="#">Ahoora Tamizifar</a> <sup>4</sup>	Dr. Jessica Jaynes
A-23	Hippocampal ensembles represent sequential relationships among an extended sequence of nonspatial events	<a href="#">Gary Lang</a> <sup>4</sup> , <a href="#">Jayden Tani</a> , <a href="#">Luke Makishima</a> , <a href="#">Nkosi K Sampson</a> <sup>4</sup> , <a href="#">Sandra Nguyen</a>	Dr. Jessica Jaynes

## Session B | 2:25-2:55

Poster	Title	Presenter(s), Author(s), *Faculty	Faculty Mentor
B-01	Determining useful characteristics of oxygen transport membranes through $\text{La}_{y-1}\text{Sr}_y\text{FeO}_3$ and $\text{La}_{y-1}\text{Ba}_y\text{FeO}_3$	<a href="#">Cesar Guzman</a> <sup>1</sup>	Dr. Allyson M. Fry-Petit
B-02	Exploration into alternative synthetic methods for solids state chemistry: Intercalation of photobases in 2D inorganic materials & microwave synthesis for $\text{Ba}_3\text{MoO}_6$ as NCOT	<a href="#">Luis Hernandez Lopez</a> , <a href="#">Perla Lea</a> , <a href="#">George Bodossian</a> , <a href="#">Allyson M. Fry-Petit</a> *	Dr. Allyson M. Fry-Petit
B-03	Structure-function relationships involving anti-aromaticity and photobasicity for quinolines	<a href="#">Avrena Ghata</a> <sup>1</sup>	Dr. Andrew Petit
B-04	Determining the role of acetylation in RNA binding protein function	<a href="#">Andrew Gomez</a> <sup>1</sup> , <a href="#">Niroshika Keppetipola</a> *, <a href="#">Chris Nuñez</a>	Dr. Niroshika Keppetipola
B-05	Bankruptcy prediction tool	<a href="#">Uy Vo</a> <sup>3</sup>	Dr. Doina Bein
B-06	Wildfires in California: Machine learning with random forest classification	<a href="#">Tanya Samari</a> <sup>3</sup>	Dr. Doina Bein
B-07	Building a logistic regression model for loan default risk assessment	<a href="#">Pantea Foroutan</a> <sup>1</sup>	Dr. Doina Bein
B-08	Immersive virtual reality: Analyzing the impact of user characteristics	<a href="#">Man Vien</a> <sup>1</sup>	Dr. Doina Bein
B-09	Development of a GIS-enabled hybrid dashboard and app for Mpx outbreak surveillance system	<a href="#">Liam Nguyen</a> <sup>1</sup>	Dr. Sampson Akwafuo
B-10	Mineral phases content and comparison with calcite carbon sources of salt dome cap rock from Boling Dome TX	<a href="#">Gael Ramirez</a> <sup>1</sup>	Dr. Sean Loyd
B-11	Advancing mobility: Innovative lower limb prosthetic design	<a href="#">Angelica Ramos</a> <sup>1</sup>	Dr. Yong Seok Park
B-12	Exploring Industry 4.0 through PLC smart factory integration	<a href="#">Janet Monserrat Acevedo Piña</a> <sup>1</sup>	Dr. Sagil James
B-13	Modeling black holes using numerical relativity	<a href="#">Samuel Alvarez</a> <sup>1,2</sup>	Dr. Geoffrey Lovelace
B-14	Measuring scattered light from the reflectance standard material Spectralon	<a href="#">Anthony Lira</a> <sup>1,2</sup>	Dr. Joshua Smith
B-15	Flame indication and remote electronics (F.I.R.E.): LoRa radio communication system	<a href="#">Dylan Ruiz</a> <sup>1</sup>	Dr. Ankita Mohapatra
B-16	Machine learning-based hardware Trojan detection in FPGAs	<a href="#">Susana Becerra</a> <sup>1</sup>	Dr. Jaya Dofe
B-17	Incorporating AI in construction to automate excavator operations	<a href="#">Arai Leyva</a> <sup>1</sup>	Dr. Rakesh Mahto
B-18	Fracture detection for artificial intelligence	<a href="#">Hung Anh Ho</a> <sup>1</sup>	Dr. Yu Bai
B-19	The microbial development of <i>Drosophila melanogaster</i> and its effects towards generational evolution	<a href="#">Sussana Medina</a> <sup>1</sup>	Dr. Parvin Shahrestani
B-20	Novel compounds that reduce HEK293 cell proliferation mediate their effect through the beta-catenin signal transduction pathway	<a href="#">Sheila Abdolmanafi</a> <sup>1</sup>	Dr. Nilay Patel
B-21	Bactericidal activity of extracellular products' of <i>Lactocaseibacillus rhamnosus</i> CRL2244 against <i>Acinetobacter baumannii</i>	<a href="#">Derek Serna</a> <sup>1</sup> , <a href="#">Maria Soledad Ramirez</a> *	Dr. Maria Soledad Ramirez
B-22	Investigating the unique contribution of distal upper extremity motor deficits to stroke impairment and functional outcomes	<a href="#">Claire Couyoumjian</a> <sup>4</sup> , <a href="#">Alondra Gonzalez</a> <sup>4</sup> , <a href="#">Devin Lai</a> <sup>4</sup> , <a href="#">Sean Vu</a> <sup>4</sup> , <a href="#">Megan Chan</a> <sup>4</sup>	Dr. Jessica Jaynes
B-23	An exploration of infant smartphone usage amongst low-income stressed parents	<a href="#">Aubree Krager</a> , <a href="#">Deborah Franza</a>	Dr. Jessica Jaynes
B-24	Impact of Mediterranean-DASH diets on MPN patient symptoms	<a href="#">Eduardo Castaneda</a> <sup>4</sup> , <a href="#">Anthony Cusimano</a> <sup>4</sup> , <a href="#">Melissa Peng</a> <sup>4</sup> , <a href="#">Milka Perez</a> , <a href="#">Analiese Gonzalez</a> <sup>4</sup>	Dr. Jessica Jaynes