

# CSTEM Research & Design Day -- Monday, May 6, 2024

Project Title	Project Authors	Time	Location	Poster #
SongCanvas	Anthony Hewitt, Elaeth Jonah Lilagan, Ahmad Rahman	8:30 - 9:10 am	Viasat Engineering Pavilion 5105	N/A
IFSA Website and Forum Page	Tyler Vo, Enrique Bustamante, Antonio Rojas	8:30 - 9:10 am	Viasat Engineering Pavilion 5107	N/A
Serverless Orchestrator	Mae Pereyra, Ruth Jimenez, Carter Rath, Jaclyn Walsh	9:10 - 9:50 am	Viasat Engineering Pavilion 5105	N/A
SigParser - LLM/GPT model development	Lily Bailey, Guadalupe Cruz, Gabriela Rojas, Benno Marshall Wiedner	9:10 - 9:50 am	Viasat Engineering Pavilion 5107	N/A
XR Translate the World	Tuan Tran, Edgar Carbajal, Ethan Smith, Kenny Ly	9:50 - 10:30 am	Viasat Engineering Pavilion 5105	N/A
AI-based Generative System for Artwork	Abraham Rosales, Bryce Tuller, Josh Vande Berg	9:50 - 10:30 am	Viasat Engineering Pavilion 5107	N/A
Azure DevOps Value Stream Map Wizard	Jarod Giacone, Rafael Refugio, Race Bays	10:30 - 11:10 am	Viasat Engineering Pavilion 5105	N/A
Frequency Comparison Plugin	Rian Bennett, John Plummer, Robert Mahin, Mykah Marks	10:30 - 11:10 am	Viasat Engineering Pavilion 5107	N/A
Qualcomm Autonomous DonkeyCar	Ricardo Colin Payan, Moyses Ledezma Bernal, Larry Garcia, Kevin Romero-Zaldana	11:10 - 11:30 am	Viasat Engineering Pavilion 5105	N/A
Seaslam	Tyler Vo, Antonio Bustamante, Enrique Bustamante, John Fetu, Jarod Giacone	10-11:30 am	Markstein 202	N/A
Space Escape	Leo da Luz, Esteban Castanon, Elijah Perry, Alejandro Agustin, Paola Corona	10-11:30 am	Markstein 202	N/A
VR Restaurant Simulator Game	Morgan Baumann, Joshua Williams, Maksym Bondarenko, Olivia Sheehan, Breanna Ford, Erika Ramirez	10-11:30 am	Markstein 202	N/A
VR Astronomy Teaching Tool	Christian Contreras, Dennis Lai, Hugo Bulnes, Michael Andrews, William Phong	10-11:30 am	Markstein 202	N/A
SwayApp	Javier Alonso, Tyler Felicidadario, Peter Minsch, Evan Tobin, Newton Le	10-11:30 am	Markstein 202	N/A
Escape the Shadow Realm	Anthony Herrera, Trenton Walters, Michael Andrews, Camila Ruelas, Melissa Ruelas	10-11:30 am	Markstein 202	N/A
Swingers! A Virtual Reality Golf Game	Tommy Dumouchel, Blake Fullerton, Jesus Gomez, Brian Sanchez, Christiansen Dimalanta	10-11:30 am	Markstein 202	N/A
holo surviVR	Riley Saliba, Dax Taraleskof	10-11:30 am	Markstein 202	N/A

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Kitchen Chaos	Morgan Baumann, Maksym Bondarenko, Breanna Ford, Olivia Sheehan, Joshua Williams, Erika Ramirez	10-11:30 am	Markstein 202	N/A
ScoreSensei	Adam Beck, Christiansen Dimalanta, David Hernandez, Jacqueline Hernandez, Daniel Oquendo, Blake Savell	1-2:30 pm	USU Main Ballroom	61
Innovedge Creators	Matthew Jordan, Jeremy Jordan, Isacc Carbajal, Roberto Aragon	1-2:30 pm	USU Main Ballroom	62
Cougar Carpool	Nalani Dela Rosa, Cody Helsel, Camila Ruelas, Melissa Ruelas, Juan Torres	1-2:30 pm	USU Main Ballroom	63
Collaboration Platform	Xavier Christopher, Sean Cooke, Christian Huntsinger, Benildo Pilande, Nathaniel Vandenberg	1-2:30 pm	USU Main Ballroom	64
PeerPilot	Logan Sevcik, Fabian von Kriegenbergh, Alac Springer, Breanna Ford, Donovan Pinchot, Jacob Thomas	1-2:30 pm	USU Main Ballroom	65
Customize Product - Iliac Golf	Alexa McGinnis, Alfredo Hernandez, Brawley Leitzell, Chris Huang, Sebastian Rojas	1-2:30 pm	USU Main Ballroom	66
Volleyball Tournament Application	Blake Fullerton, Jonah Burke, Kenneth Ha, Sergio Hernandez	1-2:30 pm	USU Main Ballroom	67
Rally Rover	Daniel Hernandez, Saul Romero, Edgar Fong, Mitchell Curtis, Alejandro Chacon	1-2:30 pm	USU Main Ballroom	68
Environment Dashboard	Alecsander Gonzalez, Tommy Dumouchel, Jamal Mills, Anthony Herrera, Farris Bader	1-2:30 pm	USU Main Ballroom	69
Magic wand	April Miller, Joshua Larson, Jose Romero, Brian Sanchez, Tavin Jongcharoeun	1-2:30 pm	USU Main Ballroom	70
CIS Senior Project Website	Chantale Caballero, Steven Luong, Johnathan Williamson, Joseph Bravo	1-2:30 pm	USU Main Ballroom	71
Northrop Grumman Volleyball Ladder System	Gerald Cordero, Dongjin Li, Matthew Gomogda, Luis Rodriguez, and Preciosa Moreno	1-2:30 pm	USU Main Ballroom	72
Volleyball tournament	Luis rodriguez, Matt Gomogda, Dongjin Li, Gerald Joven Cordero	1-2:30 pm	USU Main Ballroom	73
Customizing the Fairway: Iliac Golf Headcovers on Shopify's Interactive Customizer	Roberto Aragon, Matthew Jordan, Jeremy Jordan, and Isacc Carbajal	1-2:30 pm	USU Main Ballroom	81
Tale Scanner	Christopher Mead, Matteo DeMilia, Tiera Smith, Kyrstn Hall	1-2:30 pm	USU Main Ballroom	82

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Coincidence counter for quantum optics	Kevin Kuhn, Alex Semrow	1 - 5:30 pm	USU 2310	N/A
Prototype Development of the Ocean Wave Energy Converter	Brent Galindez, Michael Ross, Miguel Lopez	1 - 5:30 pm	USU 2310	N/A
Low profile high frequency antenna	Emmanuel Martinez, Jael Acuna	1 - 5:30 pm	USU 2310	N/A
Deployable Littoral Current Tracker	Matt Guiney, Panawat	1 - 5:30 pm	USU 2310	N/A
Mars Rover	Jonathan Nunez, Ruben Roberts, Jaime Cruz	1 - 5:30 pm	USU 2310	N/A
Portable FT8 Communication	Luis Bernal, Ford Becker, Noah Bills	1 - 5:30 pm	USU 2310	N/A
Link Optimization using Active Tracking	Thomas Handzel, Adam Robinson	1 - 5:30 pm	USU 2310	N/A
Self-charging an Electric Vehicle Drivetrain Powered by Battery and Solar PV: A Campus Golf Cart use Case	Christopher Lee, Jonas Zyserman, Dr. Hamed Nademi	1 - 5:30 pm	USU 2310	N/A
Efficient design of an Op Amp using Machine Learning	Ian Anderson , Conner Bunten , Alejandro Zuniga	1 - 5:30 pm	USU 2310	N/A
Dysphagia Flexible Sensor System	Julian Quevedo, Jonatan Flores, Ruben Roberts	1 - 5:30 pm	USU 2310	N/A
EEG Mind Scan Setup & Task Recognition	Jazmin Pantoja, Jasmine Ortiz	1 - 5:30 pm	USU 2310	N/A
Examination of inter-individual variability in developmental traits of tadpoles of the Baja California Chorus Frog ( <i>Pseudacris hypochondriaca</i> ) in response to temperature	Cameron St. Onge, Dr. Casey Mueller	3-4 pm	USU Main Ballroom	1
Gold-Catalyzed Intramolecular Etherification of Diols to Afford Benzylic Cyclic Ethers	Karissa Grier and Adam Lovato	3-4 pm	USU Main Ballroom	4
Bacterial Curi Accessory Protein CsgC May Be A Heat Stable Protein	Mellie Nitunga, Sergio Guadarrama-Ramos, Paul Molina-Smith, and Dr. Sajith Jayasinghe	3-4 pm	USU Main Ballroom	7
Expression and Purification Of The Bacterial Outermembrane Protein CsgG	Clayton Connelly, Dena Hagen, and Dr. Sajith Jayasinghe	3-4 pm	USU Main Ballroom	10
Induced Oscillations in Eclipsing Binaries	Gia Mie, Therese Nuñez Basobas, Dr. Tara Fetherolf	3-4 pm	USU Main Ballroom	13
Comparing Nearshore Microbial Community Compositions across Water, Plastic, and Non-plastic Marine Substrates	Camila Valderrama Martínez, Marisa Mendoza, Kevin Garcia, Aline Curiel-Silva, Camillo Dello Iacono, Dr. Sara Belontz, Dr. Gerardo Dominguez	3-4 pm	USU Main Ballroom	16
Urban Run Off: Debris and Chemical Filtration System to Reduce Pollution Impact	Sarah Kennedy, Michelle Sanchez, Kassandra Terriquez	3-4 pm	USU Main Ballroom	19
Removing Invasive Burmese Pythons From Florida Through the Use of Traps and Apps	Alex Schaffer, Aiden Courtney, Chris Howard	3-4 pm	USU Main Ballroom	22
Connections Between Variability and Stellar Properties	Zachary Ashton, Dr. Tara Fetherolf	3-4 pm	USU Main Ballroom	25

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Measuring Long-period Variability (Rotation Rates) of Stars	Tiana Dolan, Dr. Tara Fetherolf	3-4 pm	USU Main Ballroom	28
Phenotypic analysis of insular dwarfism in Cozumel Island's opossum, <i>Didelphis virginiana</i>	Hannah Loney, Cayden Katnik, Juan Carlos Martinez, David Valenzuela-Galvan, Dr. Sergio Nigenda-Morales	3-4 pm	USU Main Ballroom	32
Tides of Trash: Investigating Plastic Pollution in River Systems	Samantha Bacasmas, Krissa Casao, Marco Flores	3-4 pm	USU Main Ballroom	33
Controlling metal binding selectivity	Alex Galindo, Dr. Kang Du	3-4 pm	USU Main Ballroom	38
Developing Mix-valent Diiron Complexes to Engender Large Electron Spins Through Double-Exchange Magnetic Coupling	Olivia Blauer	3-4 pm	USU Main Ballroom	39
Clean Coral Reefs: A molecular diffusion solution to aquatic greenhouse pollution	Dominic Brichetto, Jacob Debrito	3-4 pm	USU Main Ballroom	44
Analysis of Students' Exam Performance Perception within Genetic CELS	Nayeli Adame, Tony Perez, Chloe (Wug) Spears, and Manuel Montano	3-4 pm	USU Main Ballroom	45
"Waves of Change: Exploring Innovative Solutions for Water Pollution Cleanup"	Olivia Rojas, Alijah Selvin, Britani A. Zavala Soto	3-4 pm	USU Main Ballroom	49
Technological Innovations For Increased Environmental Accountability In Industrial Fishing	Jayson Bakoo, Vetta Manuzon	3-4 pm	USU Main Ballroom	52
The Effect of Light on the Growth of <i>Mycobacterium marinum</i> Cultures	Savannah Benton, Alexandra Nguyen, Saith Valadez	3-4 pm	USU Main Ballroom	55
Incorporation Design Thinking Into CHEM 300: Literature of Chemistry	Sajith Jayasinghe	4-5 pm	USU Main Ballroom	5
Incorporating An Authentic Learning Experience Into CHEM 450: Protein Structure and Function	Sajith Jayasinghe	4-5 pm	USU Main Ballroom	8
Development of a Simple and Efficient Extraction Method for Common Antibiotics Found in Milk.	Francis Sandoval, Stephany Ramirez, Devin Brodie, Dr. Karno Ng	4-5 pm	USU Main Ballroom	11
Encouraging Environmentally Friendly Waste Sorting	Grace Spievak, Jessica Hernandez, Lauren Munar	4-5 pm	USU Main Ballroom	14
Micro-Invaders: Mitigating anthropogenic microplastics via filtration from residential buildings; reducing toxic biomagnification in the food web	Matt Raftery, Kylee Shaffer	4-5 pm	USU Main Ballroom	17
Temperature effects on sharks off the Central Coast of Florida	Shyane Masters	4-5 pm	USU Main Ballroom	20
Stellar Activity Cycles	Elias Alvarez, Dr. Tara Fetherolf	4-5 pm	USU Main Ballroom	23

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SD CleanSight: Targeting Urban Waste with Precision Aerial Tech in San Diego	Cierra Banyas, Eileen Farrell, Julia Valine	4-5 pm	USU Main Ballroom	26
Microscope Cameras, Imperfect Food Molds, & Bioconversion, How Can We Prevent Food Waste In The US?	Cody Pijuan, Jane Casey	4-5 pm	USU Main Ballroom	29
Benefits of Soiless Growing Methods: Hydroponic and Aquaponic Cultivation in a Home Setting	Luke Warren, Giordan Lee, Brandon Bechler	4-5 pm	USU Main Ballroom	36
Innovative Strategies for a Quieter World: Minimizing Noise Pollution's Effects on Wildlife in Parks in San Diego	Ricardo Rodriguez, Luis Fabian	4-5 pm	USU Main Ballroom	37
Pollution in the Ocean: How to protect Sea Life and Human Populations via Autonomous Underwater Vehicles	Kevin Sereno, Jonah Sabrowski, Westley Ulloa	4-5 pm	USU Main Ballroom	42
Stylish Sustainability: Advancing Biodegradable Footwear to Reduce Waste and Carbon Footprint.	Katie Carlyle, Donavine Ortiz, Emily Parsons	4-5 pm	USU Main Ballroom	43
Biology and Biotechnology course quiz scores when students work collaboratively versus independently during review sessions	Lancey Nguyen, Arian Stanley, Yutzil Zavala	4-5 pm	USU Main Ballroom	47
"Design of General Education Forensic Chemistry Course using Case Studies and Evidence-Based Research Deconstruction Approach"	Karen Rivera, Leila Abrous-Sasanka, Marcos Arrioja	4-5 pm	USU Main Ballroom	50
Contamination of Wildland Firefighter PPE	Christine Croucher	4-5 pm	USU Main Ballroom	53
Raising Consumer Environmental Awareness: Unveiling Impact of Products Through Ingredient Analysis	Trey Kingston, Jessica Mercado	4-5 pm	USU Main Ballroom	56
Optimizing PCR conditions for E.coli tRNA.	Ahmad Houneini, Andre Dominguez, Maria Ruiz	4-5 pm	USU Main Ballroom	62
"Examining the Impact of Academic Stress on Student Mental Health: Insights and Interventions for University Support Systems"	Daniel Soheili	4-5 pm	USU Main Ballroom	66
Are unmanned ground vehicles for the fire service?	Jacob Miller	4-5 pm	USU Main Ballroom	70
To pee or not to pee: Regulation of ion transport with HCN channels in osmoregulatory organ Malpighian tubules in Yellow Fever mosquito <i>Aedes aegypti</i> larvae	Emily Pham	4-5 pm	USU Main Ballroom	71
Declining Bee Populations in Southern CA: Methods of Involvement and Interaction	Drew Flanders, Noach Hayward	4-5 pm	USU Main Ballroom	74

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C-Terminal Hydrophobic Residues of CsgF May Play An Important Role In Bacterial Curli Formation	Enrico Enuslay, Juan Mendoza, Paul-Molina Smith and Dr. Sajith Jayasinghe	5-6 pm	USU Main Ballroom	2
CagE Impacts The Aggregation of hIAPP	Chloe Spears-Cahill, Sergio Guadarrama-Ramos, Paul Molina-Smith and Dr. Sajith Jayasinghe	5-6 pm	USU Main Ballroom	3
Exploring Chemical, Structural, and Functional Correlations in Porous Materials	Dakota Heisel and Dr. Kang Du	5-6 pm	USU Main Ballroom	6
Reducing carbon emissions with transportation redefined: EV public transportation access to all citizens	Anna Johnson, Analy Mendoza	5-6 pm	USU Main Ballroom	9
Assessing CELS Impact: Comparing Students' Perception and Approach to Life Science in Introductory Biology Courses	Luis Ruiz, Faheema Vawoo Abdullah Sahib, Ashley Virabouth	5-6 pm	USU Main Ballroom	12
Enhancing Student Confidence: A Comparative Analysis Using Different Activity Methods in Science CELS Sessions	Jordan Menjivar, Dani Gaspar, Fatima Sosa	5-6 pm	USU Main Ballroom	15
Global Meltdown: Effects on Earth and Solutions to Alter the Melting of Ice Caps	Gabriel Gonzalez, Matthew Tangonan, Angelo Urbiztondo	5-6 pm	USU Main Ballroom	18
Effect of Course Embedded Learning Support (CELS) and Perusall software on self-reported confidence and quiz performance in Biology Undergraduate students enrolled in Comparative Animal Physiology	Jason Roncone & Christian Thompson	5-6 pm	USU Main Ballroom	21
Developing a supramolecular cage chelate for sequestration of heavy metal toxins	Bella Ramos, Sara Taghizadegan	5-6 pm	USU Main Ballroom	24
Putting an End to Plastic Pollution Globally—On a Corporate and Individual Level—Using Algae, Fungi, Seaweed, and Other Invasive Plants	Presley Thorpe, Olivia Miller, Joshua Fletcher	5-6 pm	USU Main Ballroom	27
Synthesizing a thiophenol precursor for thiol-bridging mix-valent metal complexes	Mayra Reyes and Jerrvin Cendada	5-6 pm	USU Main Ballroom	30
Microbial Community Shifts Across Gradients of Urbanization	Brendan Boyd, Nick Smithson, Natalie Campos, Dr. George Vourlitis, and Dr. Elinne Becket	5-6 pm	USU Main Ballroom	31
Green Skies Harnessing solar power and using macro algae to transform CO2 into Oxygen with sustainable blimps to rehabilitate the atmosphere and air	Tony Perez, Julie Hernandez, Conrad Miholich	5-6 pm	USU Main Ballroom	34

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"Learning How to Co-exist with Wildlife in Urban Areas Using 'Interactive Plant Sensor'"	Annabel Abbott, Daniela Gauvin.	5-6 pm	USU Main Ballroom	35
S. Typhimurium CsgF Delays the Aggregation of Human Islet Amyloid Polypeptide	Alejandra Lopez, Paul Molina Smith, and Dr. Sajith Jayasinghe	5-6 pm	USU Main Ballroom	40
Dynamics of biochemical covalent modification networks	Jessica Escobedo, Maryrose Jardin, Haoyang Lu	5-6 pm	USU Main Ballroom	41
Deficiency Theory and Application to the Dynamics of Reaction Networks	Dru B, Michael C, Eric E, Maxwell K	5-6 pm	USU Main Ballroom	46
Fermat's Last Theorem for n=4	Dylan Scofield	5-6 pm	USU Main Ballroom	48
UN Performance Task Involving Inequalities	Miranda Zinda, Maria Murillo , Brittany Russell, Georgia Juve	5-6 pm	USU Main Ballroom	51
Linear Inequalities Help Me Out of the Maze	Hannah Gonzalez, Oscar Hernandez, Jace Bufford, Yovanna Soria, Perla Mora, Ty Childers	5-6 pm	USU Main Ballroom	54
To Shade or not to Shade?	Drew Daries, Jim Briggs, Audra Holzer	5-6 pm	USU Main Ballroom	57