



Natural Hazards Engineering Research Infrastructure

**2024 NHERI Research Experiences for Undergraduates Research Symposium**

University of California San Diego

**Thursday, August 8, 2024**

Join from PC, Mac, Linux, iOS or Android: <https://utsa.zoom.us/j/9013659006>

\*All times are in Pacific Time and gray shaded times will be available online.

Breakfast, Welcome, & Icebreakers		
7:30-8:15am	Breakfast	Café Ventanas
8:15-8:45am	Icebreakers and Introductions	Structures and Materials Engineering (SME) 248
8:45-9:00	Break and last-minute adjustments	
9:00-9:15	Welcome by Dr. Joel Conte	
REU Research Presentations		
9:15-9:23am	<b>Mia Simon</b> , <i>Aerodynamic Wind Load Assessment of Parallel Solar Panels: Evaluating Surface-Rooftop Pressure Correlations</i> NSF NHERI Florida International University Wall of Wind Experimental Facility University of Notre Dame	
9:25-9:33am	<b>Joshua Del Bosque</b> , <i>Assessing the Mitigation and Aerodynamic Behavior of the Roof-Integrated System AMPS</i> NSF NHERI Florida International University Wall of Wind Experimental Facility Texas State University	
9:35-9:43am	<b>Robyn Andrews</b> , <i>Evaluating Wind Load on Tall Buildings: ABL and Downburst Winds</i> NSF NHERI Florida International University Wall of Wind Experimental Facility Texas A&M University	
9:45-9:53am	<b>Madeline Fisher</b> , <i>Failure Assessment of Bridge Mounted Light Poles During Hurricane Events; Design Standard Analysis for Improved Resiliency</i> NSF NHERI University of Florida, Boundary Layer Wind Tunnel Ohio Northern University	
9:55-10:03am	<b>Break</b>	
10:05-10:13am	<b>Sydney Oberdorfer</b> , <i>Modernizing Wind-Driven Rain Fenestration Testing: Redesigning a High Airflow Pressure Loading Actuator</i> NSF NHERI University of Florida, Boundary Layer Wind Tunnel Indiana Institute of Technology	
10:15-10:23am	<b>Christy Joy Tupas</b> , <i>Multi-Physics Cyber-Physical Simulations: Challenges in Fluid-Structure Interaction</i> NSF NHERI Lehigh University Real-Time Multi-Directional Natural Hazards Simulation Facility University of Texas at San Antonio	
10:25-10:33am	<b>Bethany Hutto</b> , <i>Dynamic Modeling and Performance Evaluation of a Shape Memory Alloy-Based Friction Damper for Seismic Hazard Mitigation</i> NSF NHERI Lehigh University Real-Time Multi-Directional Natural Hazards Simulation Facility University of Oklahoma	
10:35-10:43am	<b>Marah Kluge</b> , <i>Assessment of Soil Liquefaction Potential in Portland, OR, with Cone Penetrometer Testing (CPT)</i> NSF NHERI University of Texas at Austin, Large Scale Mobile Shakers Smith College	
10:45-10:53am	<b>Break</b>	
10:55-11:03am	<b>Ariana Paul</b> , <i>Evaluation of Soil Liquefaction Susceptibility in Portland, Oregon: Application of the Direct Push Cross-Hole (DPCH) Method</i>	

	NSF NHERI University of Texas at Austin, Large Scale Mobile Shakers North Carolina State University	
11:05-11:13am	<b>Aitong Xu</b> , <i>Dynamic Characterization of Portland Soil Using Resonant Column Torsional Shear Testing</i> NSF NHERI University of Texas at Austin, Large Scale Mobile Shakers Texas A&M Kingsville University	
11:15-11:23am	<b>Beatrice Olaosebikan</b> , <i>Hyperparameter Optimization of Graph Neural Network Simulation for Liquid and Granular Flow</i> NSF NHERI DesignSafe Community Cyberinfrastructure in collaboration with Texas Advanced Computing Center Houston Community College	
11:25-11:33pm	<b>Jonathan Gaucin</b> , <i>Graph Network-based Simulators and Point-E for 3D Natural Hazard Simulations</i> NSF NHERI DesignSafe Community Cyberinfrastructure in collaboration with Texas Advanced Computing Center University of Houston	
<b>Networking Lunch</b>		
11:35-12:50pm	Networking Lunch	Café Ventanas
<b>REU Student Presentations</b>		
12:55-1:03pm	<b>Trey Gower</b> , <i>Unveiling Debris Flow Dynamics: Physics-Informed Machine Learning via MPM Wave Simulations</i> NSF NHERI University of California, Berkeley Simulation Center University of Texas at Austin	
1:05-1:13pm	<b>Cristian Varela</b> , <i>Evaluating the Impacts of Flooding on Transportation Infrastructure in Coastal Areas</i> NSF NHERI University of California, Berkeley Simulation Center University of Rhode Island	
1:15-1:23pm	<b>Josette Audi</b> , <i>Data-Based Validation of Regional Hurricane Damage Models with Variance-Based Sensitivity Analysis: A Case Study of Hurricane Ian</i> NSF NHERI University of California, Berkeley Simulation Center University of Rhode Island	
1:25-1:33pm	<b>Emily Nakamura</b> , <i>Assessing the Elevated Probability of Component Failure Due to Post-Earthquake Fire</i> NSF NHERI University of California, Berkeley Simulation Center University of California, San Diego	
1:45-1:53pm	<b>Break</b>	
<b>Research Poster Presentations</b>		
2:00-2:50pm	Session 1, Research Poster Presentations—Maria Huang, Bayley Dickinson, José Ortiz, Hamad Khan, Leah Seifert, Emersen Liauw, Saul Romero, Michael Morales, Edan Miller, Kathleen Julca, Anna Miletich, Trey Gower, Cristian Varela, Emily Nakamura, Josette Audi, Diego Moreno	Structures and Materials Engineering (SME) 248
<b>Research Student Presentations</b>		
3:00-3:08pm	<b>Lucy Hegenderfer</b> , <i>Evaluating the Free Surface Interactions with an Impervious Structure of Tsunami-like Waves</i> NSF NHERI Oregon State University O.H. Hinsdale Wave Research Laboratory California Polytechnic State University, San Luis Obispo	
3:10-3:18pm	<b>Kamaakekahio Wong</b> , <i>Effect of Shoaling, Breaking, and Structure Blockage on Solitary Wave Velocity Fields</i> NSF NHERI Oregon State University O.H. Hinsdale Wave Research Laboratory University of Hawai'i, Manoa	





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3:20-3:28pm	<b>Ella Landau</b> , <i>Experimental Study of Vertical Pressure Distribution Due to the Tsunami-Like Wave Impact on a Structural Column</i> NSF NHERI Oregon State University O.H. Hinsdale Wave Research Laboratory University of Texas at Austin	
3:30-3:38pm	<b>Diego Moreno</b> , <i>Consolidation's Effect on Strength in Willamette Silt</i> NSF NHERI University of California, Davis Center for Geotechnical Modeling University of California, Berkeley	
3:40-3:55pm	<b>Break</b>	
Day's Closing		
3:50-4:30pm	REU Day 1 Announcements & Debrief	Structures and Materials Engineering (SME) 248

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Friday, August 9, 2024

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Networking Breakfast		
8:00-8:45am	Networking Breakfast	Café Ventanas
REU Student Presentations		
9:00-9:08am	Welcome to Day 2 by Dr. Lelli Van Den Einde	
9:10-9:18am	<b>José Ortiz</b> , NSF NHERI University of California, Davis Center for Geotechnical Modeling University of California, Berkeley	
9:20-9:28am	<b>Hamad Khan</b> , <i>Temperature Gradient Change Regarding Permafrost Thawing</i> NSF NHERI University of California, Davis Center for Geotechnical Modeling University of California, Merced	
9:30-9:38am	<b>Maria Huang</b> , <i>CONVERGE Training Module: Maternal Health in Hazards and Disasters Research and Practice</i> NSF NHERI CONVERGE Facility University of California, Berkeley	
9:40-9:48am	<b>Bayley Dickinson</b> , <i>CONVERGE Training Module: Understanding Social Vulnerability and the Complexities of Homelessness in Natural Hazards and Disasters</i> NSF NHERI CONVERGE Facility Hamilton College	
9:50-9:58am	<b>Leah Seifert</b> , <i>Assessment of a Fire Sprinkler System in a 10-story Cold Formed Steel Building During Seismic Loading Scenarios</i> NSF NHERI University of California San Diego Large High Performance Outdoor Shake Table 6 California Polytechnic State University, San Luis Obispo	
10:00-10:08am	<b>Break</b>	
10:10-10:18am	<b>Emersen Liauw</b> , <i>Development of a Total Environmental Data Interaction System for the Large High Performance Outdoor Shake Table</i> NSF NHERI University of California San Diego Large High Performance Outdoor Shake Table 6	

	Cleveland State University	
10:20-10:28am	<b>Saul Romero</b> , <i>Optimizing Steel Pipe-Pile Design for Enhanced Seismic Performance</i> NSF NHERI University of California San Diego Large High Performance Outdoor Shake Table 6 University of Texas at El Paso	
10:30-10:38am	<b>Michael Morales</b> , <i>Contributions to the Development of a Framework for Predicting Weldment Fracture</i> NSF NHERI University of California San Diego Large High Performance Outdoor Shake Table 6 Embry-Riddle Aeronautical University	
10:40-10:48am	<b>Edan Miller</b> , <i>Using Street-Level Hurricane Damage Datasets to Advance AI-Supported Damage Detection and Characterization</i> NSF NHERI RAPID Facility University of Maryland	
10:50-10:58am	<b>Kathleen Julca</b> , Air quality monitoring framework: Towards Quechua and Duwamish Indigenous Data Sovereignty NSF NHERI RAPID Facility Massachusetts Institute of Technology	
11:00-11:08am	<b>Anna Miletich</b> , <i>Civil Engineering Pedagogy: Converting LiDAR PointClouds of Structural Members into Scaled Physical Models</i> NSF NHERI RAPID Facility Texas Tech University	
Networking Lunch		
11:10am-12:20pm	Networking Lunch	Café Ventanas
Research Poster Presentations – Group 2		
12:20-1:10pm	Session 2, Research Poster Presentations— Mia Simmons, Joshua Del Bosque, Robyn Andrews, Madeline Fisher, Sydney Oberdorfer, Christy Joy Tupas, Bethany Hutto, Aitong Xu, Marah Kluge, Ariana Paul, Beatrice Olaosebikan, Jonathan Gaucin, Lucy Hegenderfer, Kamaakekahio Wong, Ella Landau	Structures and Materials Engineering (SME) 248
Day's Closing		
1:15-2:15pm	REU Day 2 Debrief with NHERI ECO	Structures and Materials Engineering (SME) 248
Large High Performance Outdoor		
2:45-3:00pm	Load bus and travel to site	Structures and Materials Engineering (SME) 248
3:00-4:00pm	Tour Site	LHPOST6
4:00-4:20pm	Load bus and travel to campus	Location TBA

