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# RESEARCH MENTORSHIP PROGRAM

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2021 Symposium Proceedings



## 2021 Research Symposium Schedule

Wednesday, July 28

Time	Talk
9:00 AM	<b>Welcome – Morning Session</b>
9:04 AM	<b>Quantifying the Carbon Capture Efficiency and Cost of Solid Sorbent Direct Air Capture</b> Drisana Bhatia
9:16 AM	<b>Life Cycle Carbon Efficiency and Cost Analysis of Liquid Solvent Based Direct Air Capture Systems</b> Sanjana Ryali
9:28 AM	<b>Assessing Land Trade-offs Between a 100% Renewable Energy and Global Agricultural System</b> Sophia Stefanakis
9:40 AM	<b>Generating Audiovisual Art Through the Use of Autonomous Agents</b> Brian Sui
9:52 AM	<b>Time-Series Statistical Model for Revenue Forecasting and Risk Management</b> Mihir Kelkar
10:04 AM	<b>Revenue Forecasting and Risk Management for Booking Holdings</b> Andrew Shi
10:16 AM	<b>Intermission</b>
10:36 AM	<b>Genocide Recognition and the Crackdown of Freedom of Expression: After the July 2016 Coup Attempt in Turkey</b> Frances Kassouni
10:48 AM	<b>Who Watches the Watchers? Tracing Security Technology Companies in North Carolina</b> ShaoYuan (William) Su
11:00 AM	<b>Comparing Differences in Locomotion Across Drosophila Larvae Species Using Computer Vision and Data Analysis</b> Tanish Baranwal
11:12 AM	<b>Optimizing Asymmetric Anodic-First and Triphasic Pulses to Reduce Stimulation Thresholds in Retinal Implants</b> Emma Gao

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Time	Talk
11:24 AM	<b>Utilizing Interphase Gap in Sinusoidal Waveform Stimulation Currents to Minimize Threshold Currents for Retinal Implants</b> Yash Jain
11:36 AM	<b>Using Computational Models to Predict Phosphene Appearance for Suprachoroidal Retinal Implants</b> Lisa Li
11:48 AM	<b>Predicting Visual Perception from a Suprachoroidal Retinal Implant</b> Andre Mao
12:00 PM	<b>Adjourn</b>
4:00 PM	<b>Welcome – Afternoon Session</b>
4:04 PM	<b>Evolution of Ostracod Bioluminescence: Techniques for Resurrecting Ancient Genes</b> Michael Lan
4:16 PM	<b>Uncovering the Origin and Evolution of the Firefly Bioluminescence Storage Protein</b> Lauren Van
4:28 PM	<b>Structural Prediction of Pex2/10/12 Through the Lens of Human Disease</b> Tsz Laam Kiang
4:40 PM	<b>Identifying and Modeling Amino Acid Sequences of Interest Within Pex5 and Pex7</b> Jonathan Kim
4:52 PM	<b>Standardly Stratified Algebras: Implementing a Determining Algorithm</b> Chandreyi (Zini) Chakraborty
5:04 PM	<b>Structural Comparison of SARS-CoV and SARS-CoV-2 Envelope Protein Golgi-Targeting Regions</b> Katie Champion
5:16 PM	<b>Identification of Potential Inhibitors of Severe Acute Respiratory Syndrome Coronavirus 2 Envelope Protein Ion Channel Activity Using Machine Learning Techniques</b> Wency Suo
5:28 PM	<b>Intermission</b>

## 2021 Research Symposium Schedule

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Time	Talk
6:00 PM	<b>Investigating Means of Minimizing Bending and Scattering Losses in Optical Fibers</b> Shrishti Kulkarni
6:12 PM	<b>Sequential Dependencies in Recognition Memory: An Analysis of the Effect of Criterion Manipulations</b> Lucy King
6:24 PM	<b>Untangling the Ecology of Cosmopolitan Sedimentary Heterotrophic Archaea</b> Dhruv Nanda
6:36 PM	<b>Microbial Adaptations In Hypersaline Environments: Proxies For Extraterrestrial Life</b> Megan Njeri
6:48 PM	<b>Water Resources in an Arid Environment: Analyzing Livestock and Wildlife Interactions</b> Adam VanLeeuwen
7:00 PM	<b>Harnessing Camera Trap Data to Understand Wildlife Dynamics at Water Sources: Effect of Predation Risk on Prey Behavior</b> Serena Yeh
7:12 PM	<b>Closing Remarks</b>
7:15 PM	<b>End of Day One</b>

## 2021 Research Symposium Schedule

Thursday, July 29

Time	Talk
9:00 AM	Welcome – Morning Session
9:04 AM	<b>Hunger Relief Organizations and the Framing of Food Insecurity: Food Banks' Conflicting Portrayal of Hunger in the U.S. (2020–Present)</b> Daniel Wang
9:16 AM	<b>Food Sovereignty as Anti-Colonial Resistance: Culinary Reappropriation of Poppy Seeds in Bengal</b> Eshwar Venkataswamy
9:28 AM	<b>Cuisine as Heritage: The Role of Food in the Postcolonial Macanese Identity</b> Grace Wong
9:40 AM	<b>The Male Gaze in Japanese Art: From Ukiyo-e to Contemporary</b> Emily Chan
9:52 AM	<b>A Comparison of Neural Network Architectures for Univariate Time Series Forecasting of Groundwater Level</b> Ria Jain
10:04 AM	<b>A Low-Rank Neural Network for Multimodal Sentiment Analysis</b> Jonathan Tao
10:16 AM	Intermission
10:36 AM	<b>The Value of Infinite Sums for Decision-Making</b> Hayden Gold
10:48 AM	<b>What Kind of Control Do We Have Over Our Beliefs?</b> Jay Morales
11:00 AM	<b>Deducing Family and Genealogical Relationships in the PSEN1 E280A Kindred</b> Kawthar Al Janabi
11:12 AM	<b>Identifying Pathogenic Genetic Variants in Patients with Alzheimer's Disease and Frontotemporal Dementia</b> Tamar Peleg

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Time	Talk
11:24 AM	<b>Mechanics of Deformations During Cooking of Rice Noodles</b> Minh-Hoang Bach-Nguyen
11:36 AM	<b>A Biomimetic Piezoelectric Sensor for Diagnosing and Monitoring Diseases Through Breath Analysis</b> Harrison Kane
11:48 AM	<b>Optics Modeling For Ion Trap Applications</b> Amulya Bhattaram
12:00 PM	<b>Adjourn</b>
4:00 PM	<b>Welcome – Afternoon Session</b>
4:04 PM	<b>Optimization of Resource Distribution Models for Animal and Plant Reproduction</b> Kevin Guo
4:16 PM	<b>Modeling the Evolution of Multi-Host Multi-Strain Viruses</b> Nihanth Pinnaka
4:28 PM	<b>Quantifying the Economic Consequences of Climate-Driven Distribution Shifts on Mexican-Pacific Fisheries</b> Mihir Takalkar
4:40 PM	<b>Multimodal Self-Supervised Learning for Noisy Labels</b> Claire Luo
4:52 PM	<b>Unsupervised Loss Modeling for Noise-Robust Multimodal Networks</b> Oliver Ni
5:04 PM	<b>Interpolating Latent Representations to Increase Label Noise Tolerance</b> Mason Wang
5:16 PM	<b>Understanding Sources of Label Noise and Uncertainty in Multimodal Datasets</b> Jacob You
5:28 PM	<b>Intermission</b>

## 2021 Research Symposium Schedule

Thursday, July 29

Time	Talk
5:48 PM	<b>The Impact of COVID-19 Workplace Policies on Gender Disparities Across Socioeconomic Strata</b> Anushka De
6:00 PM	<b>The Impact of the Chinese Cultural Revolution on Women's Intimate Relationships</b> Catherine Zhao
6:12 PM	<b>YouTube as an Alternative Tool to Physical Religious Practices: American Sufism as a Model</b> Sophia Lopez
6:24 PM	<b>Depicting the Black Box: How the News Media's Portrayal of AI Transparency Shifted Over Time</b> Howard Yu
6:36 PM	<b>Neglect, Association, Relation: Closing the Mentorship Gap Through the Formation of Effective Latinx Student Networks of Encouragement</b> Riya Anand
6:48 PM	<b>Experiences of Migrant Essential Workers: Analyzing Frameworks of Support During the COVID-19 Pandemic</b> Santosh Areti
7:00 PM	<b>Exploring the Peer Relational Dynamics: Latinx and White Students</b> Zijie (Harry) Zhu
7:12 PM	<b>Closing Remarks</b>
7:15 PM	<b>End of Day Two</b>

## 2021 Research Symposium Schedule

Friday, July 30

Time	Talk
9:00 AM	<b>Welcome – Morning Session</b>
9:04 AM	<b>Jazz Sculptures: Cognitive Science-Informed Mappings of Structure and Performance to 3D Form</b> Siddharth Banerjee
9:16 AM	<b>Effects of HCM-Associated Genetic Mutations on Human iPSC-Derived Cardiomyocytes</b> Evan Kim
9:28 AM	<b>Doxorubicin-Induced Cardiotoxicity: Contractile Dysfunction Analyzed Through Human iPSC-Derived Cardiomyocytes</b> Andrew Yang
9:40 AM	<b>Exploring Solvation Effects on Molecular Excitations in the Liquid Phase Using Quantum-Chemical Methods</b> Amanda Pang
9:52 AM	<b>Employing Lung Organoid Models to Model and Develop a Therapeutic for Congenital Diaphragmatic Hernias</b> Mahek Patel
10:04 AM	<b>Leveraging Neural Tube Organoids to Untangle the Mechanoresponsive Role of the YAP/TAZ Pathway</b> Samantha Staudinger
10:16 AM	<b>Intermission</b>
10:36 AM	<b>Assessing Degree of Sex Bias in COVID-19 Morbidity and Mortality Across Populations</b> Delaney Nystrom
10:48 AM	<b>Age-Dependent Effects of Obesity on Immune Function</b> Iris Xue
11:00 AM	<b>Textual Analysis: Black Students' Perceptions of Respect on UC Campuses</b> Julian Ibarra
11:12 AM	<b>Book Bombs: Exploring the Cultural Cold War in the Middle East</b> Claire Qiu
11:24 AM	<b>Alliance of Enemies?: Examining the Intersections of Race and Gender on the Far-Right</b> Andrea Villafuerte

## 2021 Research Symposium Schedule

Friday, July 30

Time	Talk
11:36 AM	<b>Mapping and Contextualizing Global Black Lives Matter Protests</b> Charlotte Cao
11:48 AM	<b>Water, Fire, and Mars: An Ecocritical Interrogation of the Syrian Refugee Crisis Through Contemporary Islamic Art</b> Melody Luo
12:00 PM	<b>Adjourn</b>
4:00 PM	<b>Welcome – Afternoon Session</b>
4:04 PM	<b>Analysis of Retinal Implants On Object Recognition Using Phosphene Distortion Model in Simulated Prosthetic Vision</b> Chitsein Htun
4:16 PM	<b>Using a Depth-Based Model for Navigation in Simulated Bionic Vision with Retinal Implants</b> Surya Jasper
4:28 PM	<b>On Radar Clustering Algorithms for Autonomous Vehicle Object Detection</b> Joe Lin
4:40 PM	<b>Supervised Noise Reduction for Clustering on Automotive Radar Data</b> Michael Lutz
4:52 PM	<b>The Influence Of The Strawberry Anemone (<i>Corynactis californica</i>) on Purple Urchin Foraging Behavior</b> Kayla Caplin
5:04 PM	<b>Microbial Degradation of Alkanes in the Global Ocean Microbiome</b> Joshua Qin
5:16 PM	<b>Genomic Reconstruction and Phylogenetic Analyses of Cycloclasticus, a Dominant Microbe at the Deepwater Horizon Oil Spill</b> Sasvath Ramachandran
5:28 PM	<b>Intermission</b>

## 2021 Research Symposium Schedule

Friday, July 30

Time	Talk
5:48 PM	<b>Teresa Teng: Redefining Enka by Breaking Tradition as a “Modern Girl” and a “New Woman” from 1984 to 1989</b> Daniel Song
6:00 PM	<b>Feminism in South Korea: Generating Solidarity between “Comfort Women” Activism and the #MeToo Movement</b> Eunice Zhang
6:12 PM	<b>Characterizing Quantum Dot Lasers Grown on Silicon</b> Kaden Tro
6:24 PM	<b>A Third Shift? Evaluating the Influence of Gender in Childcare Division During COVID-19</b> Cindy Zhu
6:36 PM	<b>Closing Remarks</b>
6:40 PM	<b>End of Research Symposium</b>