

UC **SANTA BARBARA**

Research Mentorship Program

Summer Sessions

2020

Research Symposium Proceedings



2020 Research Symposium Schedule

Wednesday, July 29

Time	Talk
9:00 AM	Welcome – Morning Session
9:04 AM	Analysis of Single-nuclei RNA Sequencing Data on Different Brain Cell Types Carrying the PSEN1 Mutation Olivia Dods
9:16 AM	Analysis of RNA Sequencing Data on Glial Cells Carrying PSEN1 Mutation Gilbert Herrera
9:28 AM	Integrating Biochemical and Bioinformatics Tools to Characterize the Substrate Storage System in the Bioluminescent Sea Pansy Rachel Xu
9:40 AM	Hidden Connection of Alzheimer's and Type 2 Diabetes: Simulation of Amyloid β(25-35) and IAPP Interactions Hongwen (Lucas) Chen
9:52 AM	Secondary Structure Analysis on Amyloids using Molecular Simulation Aden Sun
10:04 AM	A Superconducting Paradigm Shift: Design and Test of Temporal ERSFQ Circuits Samuel Bishop
10:16 AM	Intermission
10:36 AM	Zimmerman's Assimilation Model: Moral Obligations in Animals Tiburón Batriedo
10:48 AM	The Role of Pretense in the Pragmatic Analysis of Belief Jake North
11:00 AM	Challenging Racism Abroad: Youth Activism in the American Anti-Apartheid Movement (1970s–1980s) Ishikaa Kothari

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Time	Talk
11:12 AM	Bombing Them With Books: How Literature Shaped the Cultural Cold War (1952–1978) Kalidev Choudhury
11:24 AM	Unlocking the Fourth Dimension: Sonically Rendering a Tesseract for Virtual Haptics Meha Gupta
11:36 AM	iFeel: Vibrotactile Feedback Using the iPhone to Identify Objects in Augmented Reality Eric Zhu
11:48 AM	Impacts of a 100% Renewable Energy System on Energy Supply and Economic Inequality Anlon Zhu
12:00 PM	Adjourn
4:00 PM	Welcome – Afternoon Session
4:04 PM	Investigating the Effect of Syntactic Distribution on Grammatical Gender Assignment in German Language Serena Mao
4:16 PM	Investigating the Role of Syntactic Distributional Information in Gender Assignment in Spanish Alexa Theofanidis
4:28 PM	Reality Distortion Room: Developing 3D Models of AR Distortion Effects on User Input Jerry Shi
4:40 PM	Agent-Based Modeling of Evolutionary Systems to Understand Optimal Resource Division Patterns Arjun Patrawala
4:52 PM	Mathematically Modeling Optimal Fitness Strategies for Resource Distribution and Bacterial Aging Heather Wei
5:04 PM	Reproductive Trade-Off: How Parity and Thyroid Disease Affect Immune Response Rachel Rothschild

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Time	Talk
5:16 PM	Effects and Implications of Parity on Female Immune Response to Human Papillomavirus Hillary Hsu
5:28 PM	Intermission
5:48 PM	Improving Label Noise Robustness with Data Augmentation and Semi-Supervised Learning Kento Nishi
6:00 PM	Effect of Label Noise on Multimodal State-Of-The-Art Model Connie Xu
6:12 PM	A User-Friendly Interface for Relating Timbre and Scale Using Dissonance Curve Analysis Mingyu Deng
6:24 PM	The Effect of Hybridization on Quantum Confined 3D Topological Dirac Semimetal Cd_3As_2 Snikitha Banda
6:36 PM	Effect of Inversion Asymmetry on Quantum Confinement of Dirac Semimetal Cd_3As_2 Christopher Chou
6:48 PM	Revenue Forecasting And Risk Management For Alphabet Incorporated Alexander Du
7:00 PM	Forecasting Costco's Revenue and Risk Using Time Series Statistical Models FengYu Li
7:12 PM	Closing Remarks
7:15 PM	End of Day One

2020 Research Symposium Schedule

Thursday, July 30

Time	Talk
9:00 AM	Welcome – Morning Session
9:04 AM	Computational Analysis of Gene Expression in mESC derived Motor Neurons Vishnu Sampathkumar
9:16 AM	Computational Transcriptome Analysis of Trypsinized Stem Cell-Derived Motor Neurons Roshan Pillai
9:28 AM	Reality Distortion Room: 3D Visualization in an AR Projection Mapped Environment Emma Lin
9:40 AM	Reality Distortion Room: Mapping Movement in a 3D Projection Environment Jacqueline Mei
9:52 AM	The Foundations of Polarization: Analyzing the Impact of Morality on the Perception of Hyperpartisan News Media Anshi Arora
10:04 AM	Hidden Figures: The Successes and Implications of Russian Foreign Policy in 2019 Cindy Zhu
10:16 AM	Intermission
10:36 AM	Investigating Antiviral Strategies Against SARS-CoV-2 by Leveraging Publicly Available Databases Melody Chan
10:48 AM	Generating and Analyzing gRNA Sequences to Investigate Fibronectin in Lung Organogenesis Taekyeong David Jeong
11:00 AM	The Effects of <i>Corynactis Californica</i> on the Foraging Behavior of Purple Urchins of Various Starvation States Carlyn Hamel
11:12 AM	Accelerated Protein Evolution in Cyanobacteria: Using Bioinformatics Tools to Identify Diversity-Generating Retroelements Anakha Ganesh

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Time	Talk
11:24 AM	Mitigating Light Propagation Loss in Photonic-Integrated Circuit (PIC) Waveguides Kaden Tro
11:36 AM	Implementing a Thermo-Optic Phase Shifter for Optical Phase Modulation in Photonic Chips Phoung Pham
11:48 AM	Amyloid Fibril Prediction Based on Amino Acid Sequence with Neural Network Eunice Zhang
12:00 PM	Adjourn
4:00 PM	Welcome – Afternoon Session
4:04 PM	Training Neural Network Encoders with Gradient-Free Evolutionary Algorithms Jiahua “Will” Liang
4:16 PM	Creating an Optimal Policy for a Multipurpose Hydro System Using Computer Models Linda Youn
4:28 PM	Synthesis of Small Molecules Being Considered to Treat COVID-19: Efficiency and Sustainability Annika Bridge
4:40 PM	Eco-Friendly Approach Towards the Syntheses of Copiktra, Janus Kinase 1 Inhibitor, and ATR Inhibitor Phillip Ma
4:52 PM	Analyzing the Effect of Social Media on the Anxiety Levels of Typically Developing Males and Females Mary McManus
5:04 PM	The Great Leap Backward: A Feminist Analysis of Chinese Famine Politics from 1958–1961 Elaine Cheng
5:16 PM	Apples to Albums: Comparing Food Iconography in R&B and Rock Music Covers, 1967–1979 Eric Gottlieb

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Time	Talk
5:28 PM	Intermission
5:48 PM	Accuracy Analysis of Classical Lamination Theory and Finite Element Method for Fiber-Reinforced Composites Under Thermomechanical Loading Junho Park
6:00 PM	Human Face Infrared Imaging to Detect Vital Signs Using Neural Networks Preetha Kumar
6:12 PM	A Novel Health Metric Evaluation System Based on Human Face Infrared Imaging and Deep Learning Liangyuan Chen
6:24 PM	Optimization of a Real Time Axon Based VR Simulation of Bionic Vision Ethan Gao
6:36 PM	Measuring Field of View in Virtual Reality Versha Rohatgi
6:48 PM	Converting 2D Images to 3D Shapes via Variational Autoencoder and 3D Generative-Adversarial Modeling Haozhe Chen
7:00 PM	3D Generative Modeling Using Regularized Latent Spaces Jonathan Qin
7:12 PM	Closing Remarks
7:15 PM	End of Day Two

2020 Research Symposium Schedule

Friday, July 31

Time	Talk
9:00 AM	Welcome – Morning Session
9:04 AM	Wayfinding in Haptic Virtual Environments: Impacts of Spatial-Based Frequency Envelopes in Navigable Sonic Scores Anoushka Srivastava
9:16 AM	Optimizing the Reactant Geometry of Methanol Disproportionation to Formaldehyde on a Rutile TiO₂(110) Supported VO Catalyst Jonathan Zhou
9:28 AM	Investigating Spectral Distortion of Remote Volcano Infrasound by Nonlinear Propagation at Nabro Volcano, Eritrea Yiyi Cai
9:40 AM	A Visualization of Interferon-Alfa /Ribavirin and Its Effect on Hepatitis C Patients Leslie Quiroz-Pineda
9:52 AM	The Ideal Soviet Engineer: Technocratic Tendency and Soviet Marxist Ideology Jieming Shi
10:04 AM	Revolting Bodies: The Evolution of Queer Activism After the 2011 Egyptian Revolution Marissa Oaks English
10:16 AM	Intermission
10:36 AM	Robust Multimodal EEG-Based Authentication During Physical Activity Matthew Lee
10:48 AM	EEG-Based Emotion Recognition for Social Skills Training Jennifer Yin
11:00 AM	Quantitative Modeling of Cardiovascular Mechanobiology Through Automated Data Extraction and Database Creation Annie Liu

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Friday, July 31

Time	Talk
11:12 AM	Quantitative Modeling of Endothelial Molecular Responses to Shear Stress Through Meta-Analysis Emily (Bingrui) Xie
11:24 AM	Identifying Animals and Poachers in Infrared Photographs Using Convolutional Neural Networks Daniel Wang
11:36 AM	Analysis and Multi-Objective Optimization of Laminated Continuous-Fiber Composites Using the Classical Lamination Theory Alexander Kwandou
11:48 AM	Optimizing Knitted-Fiber Reinforced Composite Carabiners William Fu
12:00 PM	Adjourn
4:00 PM	Welcome – Afternoon Session
4:04 PM	Agent Based Model of Host-Microbiome Coevolution Junle (Richard) Chen
4:16 PM	Skinny Genes: Investigating the Effects of Energy Stress on Microbial Characteristics in Hypersaline Lakes Poornima Dorairaj
4:28 PM	Correlation or Causation: The Effects of Hormone Production on Rheumatoid Arthritis Gavin Lee
4:40 PM	The Effects of Hormonal Variation on Herpesviruses Disease Susceptibility and Immune Function Gabriella Lui
4:52 PM	Investigating Social Support: A Comparison of the Effects of Verbal Support and Affectionate Touch Receipt on Stress-Buffering Aleksa Jarasunas
5:04 PM	Medical Institutions as Necropolitical Systems: Examining Racism Against African-Americans, 1800–1940 Sidney Suh

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Friday, July 31

Time	Talk
5:16 PM	A Twitter Analysis of the Relationship Between COVID-19 and Anti-immigrant Hate Speech Kevin Chen
5:28 PM	Intermission
5:48 PM	Pepe, Hitler, and the KKK: Comparing Alt-Right Memetic Propaganda Techniques to Historical Predecessors Eric Hwang
6:00 PM	Photorealistic Image Generation Using Deep Learning: Exploring the Impacts of Normalization and Loss Functions Shreya Ganti
6:12 PM	Using Gaussian Processes to Synthetically Evolve a Biofuel-Producing Photoenzyme Samarth Kadaba
6:24 PM	Environmental Concerns Around U.S. Military Facilities in Okinawa: Three Perspectives Kimberly Shirai
6:36 PM	Investigating Charge and Optical Excitations of Charge-Transfer Complexes using Range Separated Density Functional Theory Rushil Mallarapu
6:48 PM	Closing Remarks
6:55 PM	End of Research Symposium