

Presentations in Alphabetical Order by Student

Oral Presentation	<i>Jea I. Adams</i> Amherst College	Imaging Simulated Exoplanets With the James Webb Space Telescope	Dimitri P. Mawet <i>Professor of Astronomy; Research Scientist, JPL</i> Jason J. Wang <i>51 Pegasi b Postdoctoral Scholar in Astronomy</i>
Oral Presentation	<i>Kasey G. Adams</i> <i>J. Weldon Green SURF Fellow</i>	Developing a Simulator for Complex Quadrotor Maneuvers	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Michael O'Connell <i>Graduate Student in Aerospace</i>
Oral Presentation	<i>Maximilian C. Adang</i>	Simulating Scalar Vortex Fiber Nulling for Telescopes With Segmented Primary Mirrors	Dimitri P. Mawet <i>Professor of Astronomy; Research Scientist, JPL</i> Daniel Echeverri <i>Graduate Student in Physics</i>
Oral Presentation	<i>Gabriel P. Aguiar</i> <i>David L. Goodstein SURF Fellow</i>	NDI GUI: A Graphical Interface for Data Analysis in Neuroscience	Stephen Van Hooser <i>Associate Professor of Biology, Brandeis University</i>
Oral Presentation	<i>Nezir Alic</i>	Plasma Effects of Ioffe-Pritchard Coils for Tritium Beta Decay	Joseph A. Formaggio <i>Associate Professor of Physics, Massachusetts Institute of Technology</i> Ryan B. Patterson <i>Professor of Physics</i>
Poster Presentation	<i>Vivek Anand</i> The Pennsylvania State University	Scheduling Machine Learning Jobs in the Cloud - Performance and Energy Considerations	Adam C. Wierman <i>Professor of Computing and Mathematical Sciences</i>
Oral Presentation	<i>Shion E. Andrew</i> Harvey Mudd College <i>Carl F. Braun WAVE Fellow</i>	Determining the Precision of Prime Focus Spectrograph Measurements	Evan N. Kirby <i>Assistant Professor of Astronomy</i> Mia C. de los Reyes <i>Graduate Student in Astrophysics</i>
Oral Presentation	<i>Rahul Arun</i> <i>Brenda and Louis J. Alpinieri SURF Fellow</i>	Fast and Adaptive Simulations of Turbulent Vortex Rings	Tim E. Colonius <i>Professor of Mechanical Engineering</i> Ke Yu <i>Graduate Student in Aerospace</i>
Oral Presentation	<i>Johanna K. Baraga</i> Occidental College <i>Carl F. Braun WAVE Fellow</i>	Analysis of Fracture Orientation Trends on Earth as a Potential Analogue for Tesseria Terrain on Venus	Joann M. Stock <i>Professor of Geology and Geophysics</i>

Oral Presentation	Alexandra G. Bardon <i>Franz and Anne Nierlich SURF Fellow</i>	Modeling and Detection of Dendritic NMDA Spikes With Neuropixels Probes	Michael Hausser <i>Professor of Neural Computation, University College London</i> Thanos Siapas <i>Professor of Computation and Neural Systems</i>
Oral Presentation	Sarah L. Barrett <i>Dr. and Mrs. James M. Kendall SURF Fellow</i>	Machine Learning With Non-Linear Fluid-like Systems	Beverly J. McKeon <i>Theodore von Karman Professor of Aeronautics</i> Simon S. Toedtli <i>Graduate Student in Aeronautics</i>
Oral Presentation	Gauri Batra Cornell University	Stream Intersection in Tidal Disruption Events	E. Sterl Phinney <i>Professor of Theoretical Astrophysics</i> Wenbin Lu <i>David and Ellen Lee Postdoctoral Scholar in Theoretical Astrophysics</i>
Oral Presentation	Chase S. Blanchette <i>The Associates SURF Fellow</i>	Design of Arbitration Circuitry for a Failsafe Mechanism in Unmanned Aerial Vehicles	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Matt Anderson <i>Postdoctoral Scholar in Aerospace</i>
Poster Presentation	Eve S. Blank	Using Twitter to Predict Rates of COVID-19 Infections	K. Mani Chandu <i>Simon Ramo Professor of Computer Science, Emeritus</i>
Oral Presentation	Mihir M. Borkar <i>Carl F. Braun SURF Fellow</i>	Development of Statistically Sound Workflows for Single-Cell RNA Sequencing	Lior S. Pachter <i>Bren Professor of Computational Biology and Computing and Mathematical Sciences</i> Rebekah K. Loving Ngo <i>Graduate Student in Biology</i>
Oral Presentation	Joseph T. Cachaldora	Web-Based Spectral Visualization Tool for the Southern Stellar Stream Spectroscopic Survey (S5)	Ting Li <i>Hubble & Carnegie-Princeton Postdoctoral Fellow in Astronomy, Carnegie Institution for Science</i> Brian M. Stoltz <i>Professor of Chemistry</i>
Oral Presentation	Morgan A. Carrington University of California, Los Angeles <i>Carl F. Braun WAVE Fellow</i>	Potential Subduction in Western Astkhik Planum, Venus	Joann M. Stock <i>Professor of Geology and Geophysics</i>

Oral Presentation	<i>Jacqueline V. Castellanos</i> Santa Monica College <i>Base 11 WAVE Fellow</i>	Efficient, Scalable Numerical Simulation of Formation Flying Spacecraft Swarm	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Kai Matsuka <i>Graduate Student in Aerospace</i> Vincenzo Capuano <i>Postdoctoral Scholar in Aerospace</i>
Oral Presentation	<i>Doralia F. Castillo</i> Rutgers University - Newark <i>Carl F. Braun WAVE Fellow</i>	Visualizing and Analyzing Pressure Fluctuations in Turbulent Channel Flows With Varying-Phase Opposition Control	Beverly J. McKeon <i>Theodore von Karman Professor of Aeronautics</i> Simon S. Toedtli <i>Graduate Student in Aeronautics</i>
Oral Presentation	<i>Ali Cataltepe</i>	Developing Feedback-Based Coding Schemes for Stochastic Bit Arrival Times	Victoria Kostina <i>Professor of Electrical Engineering</i> Nian Guo <i>Graduate Student in Electrical Engineering</i>
Oral Presentation	<i>Antoine Chamoun-Farah</i> Washington University and St. Edward's University	Molecular Dynamics Simulations of Nanocrystalline Additively Manufacture Zinc Oxide	Julia R. Greer <i>Ruben F. and Donna Mettler Professor of Materials Science, Mechanics, and Medical Engineering</i> Rebecca Gallivan <i>Graduate Student in Materials Science</i> Kai Narita <i>Graduate Student in Materials Science</i>
Oral Presentation	<i>Katherine Chang</i> <i>Soli Deo Gloria SURF Fellow</i>	Impact of Forced Exploration on Habit Persistence	Colin F. Camerer <i>Robert Kirby Professor of Behavioral Economics</i> Aniek Fransen <i>Research Technician Assistant in Economics</i>
Oral Presentation	<i>Wenjun Chang</i> <i>Hugh F. and Audy Lou Colvin SURF Fellow</i>	DigitAnalysis: An R Statistical Package for Detecting Data Manipulation	Jetson Leder-Luis <i>Assistant Professor of Markets, Public Policy, and Law, Boston University</i> Jean E. Ensminger <i>Edie and Lew Wasserman Professor of Social Science</i>
Oral Presentation	<i>Peter H. Chea</i> <i>Ronan Armaan Mack SURF Fellow</i>	Modeling the Dynamics and Control of Airborne Virus in Hospital Rooms	Richard C. Flagan <i>Irma and Ross McCollum-William H. Corcoran Professor of Chemical Engineering and Environmental Science and Engineering</i>

Oral Presentation	<i>Kristine W. Chelakkat</i> <i>Frederick W. Drury, Jr., SURF Fellow</i>	Redeveloping the DARPA Quadcopter	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Matt Anderson <i>Postdoctoral Scholar in Aerospace</i>
Oral Presentation	<i>Victoria Chen</i> <i>Larson Scholar</i>	Investigating Mutational Breakage in Spatial Patterning Circuits	Richard M. Murray <i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i> John P. Marken <i>Graduate Student in Bioengineering</i>
Oral Presentation	<i>Seunghee Cho</i>	Implementation of RRT Motion Planning Algorithms for Stochastic Model Predictive Control in Spacecraft Simulators	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Yashwanth Nakka <i>Graduate Student in Aeronautics</i>
Oral Presentation	<i>Haeyoung Choi</i> <i>Kiyo and Eiko Tomiyasu SURF Scholar</i>	Viscoelastic Characterization of Jellyfish Mesoglea Using Finite Element Modeling (FEM)	Julia R. Greer <i>Ruben F. and Donna Mettler Professor of Materials Science, Mechanics, and Medical Engineering</i> Jane Zhang <i>Graduate Student in Mechanical Engineering</i>
Oral Presentation	<i>Devin M. Chotzen-Hartzell</i>	Data Structure Visualizer for Introductory Computer Science Courses	Adam Blank <i>Teaching Assistant Professor of Computing and Mathematical Sciences</i>
Oral Presentation	<i>Miya Y. Coimbra</i> University of California, San Diego <i>Carl F. Braun WAVE Fellow</i>	Analysis of the Near-Wall Region in Turbulent Channel Flow With Wall Transpiration	Beverley J. McKeon <i>Theodore von Karman Professor of Aeronautics</i> Yuting Huang <i>Graduate Student in Mechanical Engineering</i>
Oral Presentation	<i>Jonathon E. Corrales de Oliveira</i>	An Investigation on Machine Teaching Schemes for Continued Fraction Regression	Pablo A. Moscato <i>Professor of Computer Science, University of Newcastle Australia</i> Mohammad Haque <i>Research Associate in Computer Science, University of Newcastle Australia</i>

Oral Presentation	<i>Sofia M. Covarrubias</i> California State University, Los Angeles	Modeling Planet-Planet Interactions in Planetary Astronomy	Dimitri P. Mawet <i>Professor of Astronomy; Research Scientist, JPL</i> Jason J. Wang <i>51 Pegasi b Postdoctoral Scholar in Astronomy</i>
Oral Presentation	<i>Aneel M. Damaraju</i> Rice University	A Geotechnical Approach to Early Landslide Detection	Katherine L. Bouman <i>Assistant Professor of Computing and Mathematical Sciences and Electrical Engineering; Rosenberg Scholar</i> Aviad Levis <i>Postdoctoral Scholar in Computing and Mathematical Sciences</i>
Oral Presentation	<i>Devin J. Dean</i> Cornell University <i>Google Quantum WAVE Fellow</i>	A Low-Energy Saturable Absorber: Saturable Absorption via Nonlinear Mirror Modelocking in Nanophotonic Waveguides	Alireza Marandi <i>Assistant Professor of Electrical Engineering and Applied Physics</i>
Oral Presentation	<i>Cassandra M. Decosto</i> California State University, Los Angeles <i>Genentech WAVE Fellow</i>	Calculating Reaction Barriers for Electrochemical CO ₂ RR on α -Brass Surfaces with Aryl- Pyridinium Molecular Additives	Jonas C. Peters <i>Bren Professor of Chemistry</i> Nicholas B. Watkins <i>Graduate Student in Chemistry</i>
Poster Presentation	<i>Berlin A. Del Aguila</i> Humboldt State University <i>Southern California Edison WAVE Fellow</i>	Developing Reliable Testing Methods for Autonomous Vehicles in an Automated Valet Parking Lot	Richard M. Murray <i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i> Apurva Badithela <i>Graduate Student in Control and Dynamical Systems</i>
Oral Presentation	<i>Gabrielle M. Dituri</i>	Study of Low Mass LLP Decaying in the Muon System	Maria Spiropulu <i>Shang-Yi Ch'en Professor of Physics</i>
Poster Presentation	<i>Phillip J. Donnelly</i> Carleton College	Material Testing in Autonomous Labs	Harry A. Atwater <i>Howard Hughes Professor of Applied Physics and Materials Science</i>
Oral Presentation	<i>Sergio Escobar</i> <i>Mellon Mays SURF Fellow</i>	Wormholes, Black Hole Scattering, QIS With QCCFP, Coding on CIRQ	Maria Spiropulu <i>Shang-Yi Ch'en Professor of Physics</i>
Oral Presentation	<i>Sarah E. Feil</i> University of California, Los Angeles	Predicting Vertical Accretion in Wax Lake Delta, Louisiana	Michael P. Lamb <i>Professor of Geology</i> Gerard L. Salter <i>Postdoctoral Scholar in Geology</i>

Oral Presentation	<i>Joshua A. Field</i> Northeastern University	Development of Predictive Maintenance Methods for Anomaly Detection and an Application for Mobile Monitoring and Repair	Michael R. Hoffmann <i>John S. and Sherry Chen Professor of Environmental Science</i> Clement A. Cid <i>Graduate Student in Environmental Science and Engineering</i>
Poster Presentation	<i>Hannah M. Fisher</i>	An Interactive Visualization Tool for Transmission Clustering Across All TN93 Thresholds	Niema Moshiri <i>Assistant Teaching Professor of Computer Science & Engineering, University of California, San Diego</i> Claire Ralph <i>Lecturer in Computing and Mathematical Sciences</i>
Poster Presentation	<i>Sasha E. Fishman</i> Pasadena City College & The University of Texas at Austin <i>Thomas Lauritsen SURF Fellow</i>	Sustainable Epoxy Resin Alternative: Castable and Optically Clear Biocomposite From Chitosan and Hagfish Slime Fibers	Julia A. Kornfield <i>Elizabeth W. Gilloon Professor of Chemical Engineering</i> Priya K. Chittur <i>Graduate Student in Chemistry</i>
Oral Presentation	<i>Yadira S. Gaibor</i> Missouri State University <i>Southern California Edison WAVE Fellow</i>	The Stochasticity of r-Process Enrichment Events in Galaxy Formation	Philip F. Hopkins <i>Professor of Theoretical Astrophysics</i>
Oral Presentation	<i>Elisabeth T. Gallmeier</i> <i>Marcella Bonsall SURF Fellow</i>	Spin-Phonon Coupling in Optically Addressable Molecular Qubit Candidates	Ryan G. Hadt <i>Assistant Professor of Chemistry</i> Alexandra Barth <i>Graduate Student in Chemistry</i>
Poster Presentation	<i>Michelle Garcia</i> Pomona College <i>Genentech WAVE Fellow</i>	A Three-Dimensional Convolutional Neural Network to Predict Fluorescent Protein Maximum Emission Wavelengths	Stephen L. Mayo <i>Bren Professor of Biology and Chemistry</i>
Oral Presentation	<i>Allison T. Glynn</i>	Determining Levels of Immune and Neurotransmitter Gene Expression in the Gut of a Mouse Model of Autism Spectrum Disorder	Sarkis K. Mazmanian <i>Luis B. and Nelly Soux Professor of Microbiology; Investigator, Heritage Medical Research Institute</i> Jessica A. Griffiths <i>Graduate Student in Bioengineering</i>
Oral Presentation	<i>Matthew R. Gonzalgo</i> <i>James G. and Elaine Peterson SURF Fellow</i>	Neuroscience Data Interface (NDI)	Stephen Van Hooser <i>Associate Professor of Biology, Brandeis University</i>

Oral Presentation	Forrest H. Graham <i>Kevin and Susan Crook SURF Fellow</i>	Nanoparticle Transport by Thermophoresis and Turbulence	Guillaume Blanquart <i>Professor of Mechanical Engineering</i> Joseph Ruan <i>Graduate Student in Mechanical Engineering</i>
Oral Presentation	Leah E. Griffith <i>Michael and Edwenna Werner SURF Fellow</i>	Supernova Classification With Deep Learning Using Zwicky Transient Facility Alert System	Matthew J. Graham <i>Research Professor of Astronomy</i> Dmitry Duev <i>Research Scientist in Astronomy</i>
Oral Presentation	Nora G. Griffith <i>Bristol-Myers SURF Fellow</i>	Building and Implementing Biologically-Inspired Spiking Neural Networks for Neuromorphic Computing	Matthew W. Thomson <i>Assistant Professor of Computational Biology; Investigator, Heritage Medical Research Institute</i>
Oral Presentation	Tomas P. Grossmark <i>BaBar SURF Fellow</i>	Understanding Differences in Error for Separate Formulations of Chi Squared Minimization in the Presence of Systematic Uncertainties	Ryan B. Patterson <i>Professor of Physics</i>
Oral Presentation	Joshua T. Grosso <i>Arthur R. Adams SURF Fellow</i>	Development of Caltech Curricula for Interactive Theorem Proving	Michael C. Vanier <i>Teaching Professor of Computing and Mathematical Sciences</i>
Oral Presentation	Nicole J. Heflin <i>Robert J. McEliece and David Rutledge SURF Fellow</i>	Automated Voltammogram Analysis for a Potentiostatic Electrochemical Sensor Capsule	Wei Gao <i>Assistant Professor of Medical Engineering</i> Jihong Min <i>Graduate Student in Medical Engineering</i>
Oral Presentation	Sarah Y. Hoback Pomona College <i>VURP Fellow</i>	A New Proposal for Feynman Rules for Conformal Blocks	Sarthak Parikh <i>Olga Taussky and John Todd Instructor in Mathematics</i>
Poster Presentation	Andrew M. Hoffman University of California, Berkeley	Adding a Robotic Telescope to the ZTF Time-Domain Survey	Shrinivas R. Kulkarni <i>George Ellery Hale Professor of Astronomy and Planetary Science</i>
Oral Presentation	Alexandria Hong <i>David S. Koons SURF Fellow</i>	Mathematical Modeling of Natural Selection in Cancer	Paul K. Newton <i>Professor of Engineering, Mathematics, and Medicine, University of Southern California</i>

Oral Presentation	Kevin E. Huang <i>Arthur R. Adams SURF Fellow</i>	Linear Regression Methods for Fitting a Continued Fraction Regression Model	Pablo A. Moscato <i>Professor of Computer Science, University of Newcastle Australia</i> Mohammad Haque <i>Research Associate in Computer Science, University of Newcastle Australia</i> Adam Blank <i>Teaching Assistant Professor of Computing and Mathematical Sciences</i>
Oral Presentation	Joren D. Husic <i>University of Chicago</i>	Modification of Y-Factor Method for Measuring Low Noise Amplifier Performance	Austin J. Minnich <i>Professor of Mechanical Engineering and Applied Physics</i> Alex Choi <i>Graduate Student in Mechanical Engineering</i>
Oral Presentation	Michelle M. Hyun <i>Heather and Paul Haaga SURF Fellow</i>	Regime Change With Analytical Focus on Models of Overlapping Generations	Jonathan Bendor <i>Walter and Elise Haas Professor of Political Economics and Organizations, Stanford University</i> Steven Callander <i>Professor of Political Economy, Stanford University</i> R. Michael Alvarez <i>Professor of Political and Computational Social Science</i>
Oral Presentation	Victoria Ignacio <i>Cypress College Base 11 WAVE Fellow</i>	Flow Visualization of Vortices Transcribed by Artists	Mory Gharib <i>Hans W. Liepmann Professor of Aeronautics and Bioinspired Engineering</i> Chris Roh <i>Research Engineer in Aerospace</i>
Poster Presentation	Qixuan Jin <i>William Hassenzahl Family SURF Fellow</i>	Active Domain Randomization for Robust Control	Yisong Yue <i>Professor of Computing and Mathematical Sciences</i> Anqi Liu <i>Postdoctoral Scholar in Computing and Mathematical Sciences</i>
Oral Presentation	Ishani A. Karmarkar <i>Stanley and Chenmei Hsu SURF Fellow</i>	Graph-Based Semi-Supervised Learning	Andrew M. Stuart <i>Bren Professor of Computing and Mathematical Sciences</i> Bamdad Hosseini <i>Postdoctoral Scholar in Computing and Mathematical Sciences</i>

Oral Presentation	<i>Tiernan J. Kennedy</i> University of Massachusetts, Amherst	Brownian Dynamics Simulation at the Interface of Phase Separation and Active Matters	Paul W.K. Rothemund <i>Research Professor of Bioengineering, Computing and Mathematical Sciences, and Computation and Neural Systems</i> Tyler D. Ross <i>Graduate Student in Biology</i>
Oral Presentation	<i>Rebecca Kyer</i> University of Washington <i>GROWTH SURF Fellow</i>	Spectroscopy of Nova Shells	Matt Darnley <i>Reader in Time Domain Astrophysics, Liverpool John Moores University</i> Éamonn J. Harvey <i>Instrument Scientist, Liverpool John Moores University</i>
Oral Presentation	<i>Albert Y. Kyi</i> <i>Warren and Katharine Schlinger SURF Fellow</i>	Modelling Reactor Dynamics for Oceanic Carbon Dioxide Sequestration With Limestone Weathering	Jess F. Adkins <i>Smits Family Professor of Geochemistry and Global Environmental Science</i> Sijia Dong <i>Postdoctoral Scholar in Environmental Science and Engineering</i>
Oral Presentation	<i>Conor J. Larison</i> Franklin & Marshall College <i>Carl F. Braun WAVE Fellow</i>	A Search for Surviving Stars From SNe 1a in PTF and ZTF Surveys	Mansi M. Kasliwal <i>Assistant Professor of Astronomy</i> Daniel Goldstein <i>Hubble Postdoctoral Scholar Research Associate in Physics</i>
Oral Presentation	<i>Juan Lazaro</i> University of California, Santa Barbara <i>Carl F. Braun WAVE Fellow</i>	Separating Photon-Initiated and Neutron-Initiated Showers in the Light Dark Matter Experiment	David G. Hitlin <i>Professor of Physics</i>
Poster Presentation	<i>Christina E. Lee</i> Columbia University <i>KNI SURF-the-WAVE Prize Fellow</i>	Implementation of Acoustically Targeted Chemogenetics (ATAC) in Mice and Nonhuman Primates	Mikhail G. Shapiro <i>Professor of Chemical Engineering; Investigator, Heritage Medical Research Institute</i> Hongyi Richard Li <i>Graduate Student in Biology</i>
Poster Presentation	<i>Katelyn S. Lee</i>	Connectomics-Based Investigation of Chemical Information Integration in Fly Olfactory Neurons	Elizabeth J. Hong <i>Clare Booth Luce Assistant Professor of Neuroscience</i>

Oral Presentation	<i>Regina E. Lee</i> <i>Robert T. Herzog SURF Fellow</i>	The Development of Test Mechanisms for Earth-Analog Mars Helicopter Mid-Air Deployment	Joel W. Burdick <i>Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering and Bioengineering; Research Scientist, JPL</i> Skylar X. Wei <i>Graduate Student in Control and Dynamical Systems</i>
Oral Presentation	<i>Janette N. Levin</i> Columbia University	Isolating the Role of Volatiles in the Erosion of Bedrock Chutes on Fresh Martian Crater Rims: 3D Comparisons Between Mars and the Moon	Michael P. Lamb <i>Professor of Geology</i> James L. Dickson <i>Research Scientist in Geological and Planetary Sciences</i>
Oral Presentation	<i>Victoria Liu</i> <i>J. Kent Clark SURF Fellow</i>	A Woman's Place in Victorian Era Medicine	Kevin M. Gilmartin <i>William R. Kenan, Jr., Professor of English</i>
Oral Presentation	<i>Nathan E. Lopez</i> <i>Carl F. Braun SURF Fellow</i>	Approximating Enzyme Kinetic Systems	Dinakar Ramakrishnan <i>Taussky-Todd-Lonergan Professor of Mathematics</i> Robert D. Tanner <i>Visiting Associate in Chemical Engineering</i>
Oral Presentation	<i>Kelvin N. Martinez</i> Santa Monica College <i>Base 11 WAVE Fellow</i>	Developing a Simulation Platform for Flow Phenomena With Lagrangian/Eulerian Frames of Reference	Mory Gharib <i>Hans W. Liepmann Professor of Aeronautics and Bioinspired Engineering</i> Cong Wang <i>Graduate Student in Aeronautics</i>
Oral Presentation	<i>Krystyna R. Maruszko</i> <i>Richard H. Cox SURF Fellow</i>	The Atomistic Level Structure for the Activated Glucagon-Like Peptide 1 (GLP1) Receptor Bound to the Full Gs Protein and the GLP1 Ligand	William A. Goddard III <i>Charles and Mary Ferkel Professor of Chemistry, Materials Science, and Applied Physics</i> Soo-Kyung Kim <i>Director, Biomacromolecular Modeling Center</i>
Oral Presentation	<i>Robin M. McDonald</i>	Multi-Scale Analysis of Mechanical Properties of <i>Arabidopsis thaliana</i> VASCULAR-RELATED NAC-DOMAIN7	Eleftheria Roumeli <i>Assistant Professor of Materials Science and Engineering, University of Washington</i> Chiara Daraio <i>Professor of Mechanical Engineering and Applied Physics</i>

Oral Presentation	<i>Esmir Mesic</i>	Sensor Fusion for Object Detection on Autonomous Vehicles	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Anthony Fragoso <i>Postdoctoral Scholar in Aerospace</i>
Poster Presentation	<i>Jessie M. Miller</i> Michigan State University <i>Southern California Edison WAVE Fellow</i>	Investigating Returning Radiation in Black Hole X-ray Binaries Using NuSTAR Data	Fiona A. Harrison <i>Harold A. Rosen Professor of Physics</i>
Oral Presentation	<i>Grady Morrissey</i> Yale University	Precise Simulation of the High-Contrast Coronagraphic Testbed for Segmented Telescopes Using PROPER	Dimitri P. Mawet <i>Professor of Astronomy; Research Scientist, JPL</i> Jorge Domingo Llop Sayson <i>Graduate Student in Physics</i>
Oral Presentation	<i>Daniel A. Neamati</i> <i>Homer J. Stewart SURF Fellow</i>	Fast and Robust Trajectory Optimization for the Rocket Soft-Landing Problem	Zachary Manchester <i>Assistant Professor of Aeronautics and Astronautics, Stanford University</i> Melany L. Hunt <i>Dotty and Dick Hayman Professor of Mechanical Engineering</i>
Oral Presentation	<i>Jack T. Nguyen</i> <i>Peter A. Lindstrom, Jr., SURF Fellow</i>	Developing an Accurate Deep Learning Based Approach to 3D Nuclear Segmentation Using Image-to-Image Translation	David A. Van Valen <i>Assistant Professor of Biology and Biological Engineering</i>
Oral Presentation	<i>Tyler D. Nguyen</i>	Development of a Novel Robotic Fish Fin Propulsor for Autonomous Underwater Vehicles	Mory Gharib <i>Hans W. Liepmann Professor of Aeronautics and Bioinspired Engineering</i> Cecilia Huertas Cerdeira <i>Postdoctoral Scholar in Aerospace</i>
Oral Presentation	<i>Franz R. O'Meally</i> Johns Hopkins University <i>Southern California Edison WAVE Fellow</i>	Comparison of Multiphase Flow Simulations of Acoustic Wave Propagation Through Bubbly Liquids	Tim E. Colonius <i>Frank and Ora Lee Marble Professor of Mechanical Engineering</i> Spencer Bryngelson <i>Senior Postdoctoral Scholar in Mechanical and Civil Engineering</i>
Oral Presentation	<i>Xin Hui Ooi</i> <i>Kiyo and Eiko Tomiyasu SURF Scholar</i>	Influences of Sand Grain Kinematics During Shearing	José E. Andrade <i>George W. Housner Professor of Civil and Mechanical Engineering</i> Fernando E. Garcia <i>Postdoctoral Scholar in Mechanical and Civil Engineering</i>

Oral Presentation	Elsa K. Palumbo <i>Harold and Mary Zirin SURF Fellow</i>	Automating a Search for Young Planets	Benjamin Montet <i>Lecturer in Physics, University of New South Wales</i> Lynne Hillenbrand <i>Professor of Astronomy</i>
Poster Presentation	Katherine C. Pan	System Identification of Bacterial Gene Expression as a Function of Population Dynamics	Richard M. Murray <i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i> Chelsea Hu <i>Postdoctoral Scholar in Biology and Biological Engineering</i>
Poster Presentation	Kimberly Paragas Wesleyan University	Detection of Metastable Helium Reveals Ongoing Mass Loss for the Hot Jupiter HAT-P-18b	Heather A. Knutson <i>Professor of Planetary Science</i> Shreyas Vissapragada <i>Graduate Student in Planetary Science</i>
Oral Presentation	James Park <i>Sung-Hsien Chen Shih SURF Fellow</i>	Computational Modeling of Two-Stage and Fluidized Bed Reactors for Carbon Sequestration in Cargo Ships	Jess F. Adkins <i>Professor of Geochemistry and Global Environmental Science</i> Sijia Dong <i>Postdoctoral Scholar in Environmental Science and Engineering</i>
Oral Presentation	Shih Wei Peng <i>John Stauffer SURF Fellow</i>	Atomistic Identification of Next-Generation Hh Cancer Therapeutics	Alison E. Ondrus <i>Assistant Professor of Chemistry</i> Yu-Shiuan Cheng <i>Postdoctoral Scholar Research Associate in Chemistry</i>
Poster Presentation	Marcos A. Perez <i>Holo Family SURF Fellow</i>	Mapping Water Ice on the Lunar Surface: Combined Results From Existing Remote Sensing Datasets	Bethany L. Ehlmann <i>Professor of Planetary Science; Research Scientist, JPL</i> Jasper Miura <i>Research Technician Assistant in Planetary Science</i>
Oral Presentation	Martin F. Peticco <i>The Aerospace Corporation SURF Fellow</i>	Simulation of Fuel Transfer for Applications in In-Orbit Spacecraft Servicing	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Yashwanth Nakka <i>Graduate Student in Aeronautics</i>
Oral Presentation	Anthony L. Pineci <i>Samuel P. and Frances Krown SURF Fellow</i>	EUV-Net: Predicting Extreme Ultraviolet Solar Emission From He I Absorption Lines Using Deep Learning	Peter Sadowski <i>Assistant Professor of Computer Science, University of Hawaii at Manoa</i> Chris M. Umans <i>Professor of Computer Science</i>

Oral Presentation	Geoffrey M. Pomraning	Developing a Gerdien Condenser for Atmospheric Ion Measurement	Paul M. Bellan <i>Professor of Applied Physics</i>
Poster Presentation	Aelin D. Preuss	Searching for Magnetic Waves in Historical Astronomical Images	Anthony C. Readhead <i>Robinson Professor of Astronomy, Emeritus</i> Georgia Panopoulou <i>Hubble Postdoctoral Scholar in Theoretical Astrophysics</i>
Oral Presentation	Sydney D. Richardson <i>Mr. and Mrs. Robert C. Loschke SURF Fellow</i>	Tracking Meandering Streaks in Wall-Bounded Turbulence	Beverly J. McKeon <i>Theodore von Karman Professor of Aeronautics</i> Jane Bae <i>Postdoctoral Scholar in Aerospace</i>
Oral Presentation	Philippa A. Richter	Determining the Effect of COVID-19-Associated Cytokines on the Drug Responses of Immune Cells	Matthew W. Thomson <i>Assistant Professor of Computational Biology</i>
Poster Presentation	Ankita Roychoudhury <i>Samuel P. and Frances Krown SURF Fellow</i>	Modeling a Glucose Metabolic Pathway and an ATP Synthase Mechanism Shows ATP Life Extension in Synthetic Cells	Richard M. Murray <i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i>
Oral Presentation	Patrick J. Saade Moreno Valley College <i>Base 11 WAVE Fellow</i>	Implementing the SINDy Algorithm to Identify a Model for Passive Vortex Induced Motion of Airfoil	Beverly J. McKeon <i>Theodore von Karman Professor of Aeronautics</i> Morgan L. Hooper <i>Graduate Student in Aerospace</i>
Oral Presentation	Aditi Seetharaman <i>Ray Owen SURF Fellow</i>	3D Object Encoding in Deep Neural Networks and the Brain	Doris Y. Tsao <i>Professor of Biology; Investigator, Howard Hughes Medical Institute</i> Erin M. Koch <i>Postdoctoral Scholar in Biology and Biological Engineering</i>
Poster Presentation	Julian A. Sennette The University of Texas at Austin <i>Southern California Edison WAVE Fellow</i>	Can LYSO Target Help on Identifying Fake Dark Matter Events?	David G. Hitlin <i>Professor of Physics</i> James Oyang <i>Guest in Physics</i>
Oral Presentation	Giovanna Silveira Amorim Rocha University of Maryland	Guaranteeing Safe Behavior for Self-Driving Vehicles	Richard M. Murray <i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i> Karena X. Cai <i>Graduate Student in Control and Dynamical Systems</i>

Oral Presentation	<i>Anna M. Simpson</i> University of Michigan, Ann Arbor <i>Carl F. Braun WAVE Fellow</i>	Evaluating Potential High Albedo Jupiter Trojan Asteroids	Michael E. Brown <i>Richard and Barbara Rosenberg Professor of Planetary Astronomy</i>
Poster Presentation	<i>Catherine M. Slaughter</i> Dartmouth College	Analyzing Straylight X-ray Binary Candidates With NuSTAR	Fiona A. Harrison <i>Benjamin M. Rosen Professor of Physics</i> Brian W. Grefenstette <i>Postdoctoral Scholar in Physics</i>
Oral Presentation	<i>Julia C. Sloan</i> <i>Samuel P. and Frances Krown SURF Fellow</i>	Increasing Efficiency of Memetic Algorithms	Pablo A. Moscato <i>Professor of Computer Science, University of Newcastle Australia</i> Mohammad Haque <i>Research Associate in Computer Science, University of Newcastle Australia</i> S. George Djorgovski <i>Professor of Astronomy; Director, Center for Data- Driven Discovery</i>
Oral Presentation	<i>Whitney W. Sloneker</i>	Identifying Novel dCas9 Guide RNAs to Target Repetitive Regions of DNA for Optical Barcodes	David A. Van Valen <i>Assistant Professor of Biology and Biological Engineering</i>
Oral Presentation	<i>Nina Solovyeva</i>	Effects of Visual Saliency in Human Behavior	Colin F. Camerer <i>Robert Kirby Professor of Behavioral Economics</i> Xiaomin Li <i>Graduate Student in Social Science</i>
Oral Presentation	<i>Johnathon F. Soro</i> <i>Laurence J. Stuppy SURF Fellow</i>	Developing a Pipeline for the Measurement of Signaling Dynamics and Patterns of Gene Expression Upon Introduction of Pooled Barcoded Knock-Downs	David A. Van Valen <i>Assistant Professor of Biology and Biological Engineering</i>
Oral Presentation	<i>Ysaris A. Sosa</i> Hunter College <i>Southern California Edison WAVE Fellow</i>	Thermometry Program Optimization for Cosmic Microwave Background Kinetic Inductance Detectors	Sunil Golwala <i>Professor of Physics</i>
Oral Presentation	<i>Emily A. Springer</i> <i>Bill Davis SURF Fellow</i>	Interfacing Wavemeter for Stabilization of Multiple External Cavity Diode Lasers	Nick R. Hutzler <i>Assistant Professor of Physics</i> Yi Zeng <i>Graduate Student in Physics</i>

Oral Presentation	<i>Nathan M. Suiter</i> Azusa Pacific University	Evaluation of F1-ATPase Rotary Motion Using Automated Methods to Detect Hidden States	Sandor Volkan-Kacso <i>Research Scientist in Chemistry</i> Rudolph A. Marcus <i>John G. Kirkwood and Arthur Amos Noyes Professor of Chemistry</i>
Oral Presentation	<i>Jeremiah Lyn L. Susas</i> California State University, Northridge	Liposomes and the Communication of Genelet Circuits	Richard M. Murray <i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i> Melissa K. Takahashi <i>Assistant Professor of Biology, California State University, Northridge</i>
Poster Presentation	<i>Brandan Taing</i> University of California, Los Angeles <i>KNI SURF-the-WAVE Prize Fellow</i>	Simulation of Battery Cycling of Different Electrode Architectures Using Porous Electrode Theory	Julia R. Greer <i>Ruben F. and Donna Mettler Professor of Materials Science, Mechanics, and Medical Engineering</i> Kai Narita <i>Graduate Student in Materials Science</i>
Oral Presentation	<i>Rachel W. Tham</i> University of Illinois at Urbana-Champaign <i>KNI SURF-the-WAVE Prize Fellow</i>	Highly Efficient, Two-Dimensional Transition Metal Dichalcogenide Emitters for Luminescent Solar Concentrator Photovoltaics	Harry A. Atwater <i>Howard Hughes Professor of Applied Physics and Materials Science</i> David R. Needell <i>Graduate Student in Materials Science</i>
Oral Presentation	<i>Marc A. Touraev</i> Indiana University Bloomington	Non-Relativistic Geometry of the Gravitational Field	Anton N. Kapustin <i>Earle C. Anthony Professor of Theoretical Physics and Mathematics</i> Po-Shen Hsin <i>Postdoctoral Scholar in Theoretical Physics</i>
Oral Presentation	<i>An N. Tran</i>	Creating Framework to Support Fluid Online Workspaces	Santiago V. Lombeyda <i>Senior Computational Scientist in the Center for Data-Driven Discovery</i>
Oral Presentation	<i>Hoang T. Tran</i> Mt. San Antonio College <i>Genentech WAVE Fellow</i>	Designing Corroles to Target Cancerous Tissue	Harry B. Gray <i>Arnold O. Beckman Professor of Chemistry</i> Scott C. Virgil <i>Manager, Center for Catalysis and Chemical Synthesis</i>

Oral Presentation	<i>Avedis A. Tufenkjian</i> University of California, Berkeley	Identification of Neuronal Action Potential to Explore Electrophysiology in Head-Fixed Mice	Michael L. Roukes <i>Frank J. Roshek Professor of Physics, Applied Physics, and Bioengineering</i> Alice Hsu <i>Graduate Student in Bioengineering</i>
Oral Presentation	<i>Valeria Villa</i> University of California, Los Angeles <i>Carl F. Braun WAVE Fellow</i>	Using Gravity Measurements to Map Structure in the San Gabriel and San Bernardino Basins	Robert W. Clayton <i>Professor of Geophysics</i>
Oral Presentation	<i>Amy-Doan P. Vo</i> <i>Thomas C. Hays SURF Fellow</i>	The Atomistic Level Structure for the Activated Smoothened Receptor Bund to the Full Gi Protein and Agonist	William A. Goddard III <i>Charles and Mary Ferkel Professor of Chemistry, Materials Science, and Applied Physics</i> Soo-Kyung Kim <i>Director, Biomacromolecular Modeling Center</i>
Oral Presentation	<i>Jackie J. Wang</i>	Investigating Giant-Celled Biology Using Serial Block-Face Electron Microscopy and Image Processing	Elliot M. Meyerowitz <i>George W. Beadle Professor of Biology; Investigator, Howard Hughes Medical Institute</i> William T. Gibson <i>Research Specialist in Biology</i>
Oral Presentation	<i>Maya M. Watts</i> Michigan State University <i>Google Quantum WAVE Fellow</i>	Designing a Magnetic Field Coil for the Nuclear MQM Experiment	Nick R. Hutzler <i>Assistant Professor of Physics</i> Chandler Conn <i>Graduate Student in Physics</i>
Poster Presentation	<i>Emily A. Whittaker</i> University of Maryland, College Park <i>GROWTH SURF Fellow</i>	Error Analysis of the Positional Accuracy of the Zwicky Transient Factory Streaking Near-Earth Asteroid Fitting Method	George Helou <i>Research Professor of Physics; Executive Director of IPAC</i> Gerbs Bauer <i>Research Professor of Astronomy, University of Maryland</i>
Oral Presentation	<i>Sulan Wu</i> <i>Rossum Family SURF Fellow</i>	Artificial Intelligence in Radiology: Deep Learning for Automated Localization and Segmentation of Abdominal Organs in Magnetic Resonance Imaging	Albert Hsiao <i>Assistant Professor of Radiology, University of California, San Diego</i> Rob B. Phillips <i>Fred and Nancy Morris Professor of Biophysics, Biology, and Physics</i>

Poster Presentation	George T. Wythes	Myt1l as a Promising Transcription Factor for Beta Cell Transdifferentiation	Marc Montminy <i>Professor of Biology, The Salk Institute for Biological Studies</i> Sam Van de Velde <i>Research Associate, The Salk Institute for Biological Studies</i> Kaihang Wang <i>Assistant Professor of Biology and Biological Engineering</i>
Oral Presentation	Yuanzhe Xie <i>Joseph L. Koo and Helen C. Koo SURF Fellow</i>	Construction of Chemical Database From Total Synthesis Articles Through Data Mining	Sarah E. Reisman <i>Professor of Chemistry; Investigator, Heritage Medical Research Institute</i>
Oral Presentation	Elizabeth M. Yam <i>Carl F. Braun SURF Fellow</i>	2D U-Net CNN Segmentation of the Blood Vessel Lumen	Albert Hsiao <i>Assistant Professor of Radiology, University of California, San Diego</i> Adam Blank <i>Teaching Assistant Professor of Computing and Mathematical Sciences</i>
Oral Presentation	Evan P. Yamaguchi <i>University of Maryland, College Park KNI SURF-the-WAVE Prize Fellow</i>	Designing Resonant Metasurface-Based Optical Modulators	Andrei Faraon <i>Professor of Applied Physics and Electrical Engineering</i> Tianzhe Zheng <i>Graduate Student in Applied Physics</i>
Oral Presentation	Frank Y. Yang <i>Rice University</i>	Coupling Hexagonal Boron Nitride Quantum Emitters to Dielectric Metasurfaces	Harry A. Atwater <i>Howard Hughes Professor of Applied Physics and Materials Science</i>
Poster Presentation	Michael S. Yao <i>Larson Scholar</i>	Thermal Bioswitches For Localized Activation of Microbes	Mikhail G. Shapiro <i>Professor of Chemical Engineering; Investigator, Heritage Medical Research Institute</i> Mohamad Abedi <i>Graduate Student in Biology</i>
Oral Presentation	Jessica Z. Ye <i>Rossum Family SURF Fellow</i>	Wearable "Team Flow" Real-Time Monitoring and Modulation System	Shinsuke Shimojo <i>Gertrude Baltimore Professor of Experimental Psychology</i> Mohammad Shehata <i>Visiting Associate in Biology</i>
Oral Presentation	Mei Yi Y. You <i>Janet Lai SURF Fellow</i>	Engineering Macrophages as Cellular Cancer Sensors With Mammalian Acoustic Reporter Gene Expression	Mikhail G. Shapiro <i>Professor of Chemical Engineering; Investigator, Heritage Medical Research Institute</i> Justin Lee <i>Graduate Student in Bioengineering</i>

Oral Presentation	Jannie Yu <i>Carl F. Braun SURF Fellow</i>	Power-Aware Scheduling of Precedence-Constrained Tasks on Multiple Machines	Adam C. Wierman <i>Professor of Computing and Mathematical Sciences</i>
Oral Presentation	Tianyi Zhang <i>Ernest H. Swift SURF Fellow</i>	Theoretical Investigation of Oxidative Addition Mechanism in Asymmetric Tsuji-Trost Allylic Alkylation of β -Ketoester Substrate Class	Brian M. Stoltz <i>Professor of Chemistry</i> Alexander Q. Cusumano <i>Graduate Student in Chemistry</i>
Oral Presentation	David Zheng <i>Mr. and Mrs. Robert C. Loschke SURF Fellow</i>	Smooth Pathing and Dynamic Learning for Swarm Spacecrafts	Soon-Jo Chung <i>Bren Professor of Aerospace; Research Scientist, JPL</i> Yashwanth Nakka <i>Graduate Student in Aeronautics</i>
Oral Presentation	Zhaoyi Zheng Brown University	Superconducting Qubits Control and Measurement Optimization	Oskar J. Painter <i>John G Braun Professor of Applied Physics and Physics</i> Xueyue Zhang <i>Graduate Student in Applied Physics</i>