



DoD NDSEG Fellowship Program
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2022 DoD NDSEG Fellows Conference Poster and Technical Presentation Award Winners

Aeronautical and Astronautical Engineering (including Space Physics)

Name	Award	Agency	Research Topic	University	Research Discipline
Peter Sharpe	EXEMPLARY	Air Force Office of Scientific Research	Automatic Differentiation for Aircraft Design Optimization	Massachusetts Institute of Technology	Aeronautical and Astronautical Engineering (including Space Physics)
Conor Martin	HONORABLE MENTION	Army Research Office	Thermal Ignition: Effects of Fuel, Pressure, Nitrogen Dilution and Confinement	California Institute of Technology	Aeronautical and Astronautical Engineering (including Space Physics)
Samuel Maszkiewicz	HONORABLE MENTION	Air Force Office of Scientific Research	Transitional, Sharp-Fin-Induced Shock-Wave/Boundary-Layer Interactions at Mach 6	University of Maryland	Aeronautical and Astronautical Engineering (including Space Physics)
Joseph Carlson	Honorable Mention Research Impact and Relevance to DoD research Objectives	Air Force Office of Scientific Research	Curvature-Driven Favorable Pressure Gradient Effects on Shock Boundary Layer Interactions	Texas A&M University	Aeronautical and Astronautical Engineering (including Space Physics)

Biomedical Engineering

Name	Award	Agency	Research Topic	University	Research Discipline
Aditya Misra	EXEMPLARY	Army Research Office	Tissue-Encoded Principles of Host Defense in Sepsis	Massachusetts Institute of Technology	Biomedical Engineering
Carolyn	HONORABLE MENTION	Air Force Office of Scientific Research	Repeated Mild Blast TBI	Columbia University	Biomedical Engineering
Yasemin Atiyas	HONORABLE MENTION	Office of Naval Research	One-pot, time domain-multiplexed, ultrasensitive detection of single molecules in high throughput	University of Pennsylvania	Biomedical Engineering

Biosciences (Includes Toxicology)

Name	Award	Agency	Research Topic	University	Research Discipline
Rebecca Culver	EXEMPLARY	Air Force Office of Scientific Research	Profiling of the human intestinal microbiome and bile acids under physiologic conditions using an ingestible sampling device	Stanford University	Biosciences (Includes Toxicology)
Nicole Wagner	EXEMPLARY Scientific and Technical Merit of Research	Army Research Office	Evolution and Preservation of Microbial Communities in the Antarctic Lake Untersee Oasis	Georgetown University	Biosciences (Includes Toxicology)
Gavin Kuziel	HONORABLE MENTION	Air Force Office of Scientific Research	The Food Chemistry-Microbiome Axis in Health and Disease	Harvard University	Biosciences (Includes Toxicology)
Jonas Fowler	HONORABLE MENTION	Office of Naval Research	Regenerating a new blood and immune system in military personnel: production of blood-forming (hematopoietic) stem cells from pluripotent stem cells	Stanford University	Biosciences (Includes Toxicology)

Chemical Engineering

Name	Award	Agency	Research Topic	University	Research Discipline
Sarah Morgan	EXEMPLARY	Army Research Office	New Vapor-Assisted Synthesis of Metal-organic framework-Fabrics for Advanced Chemical Protection	North Carolina State University	Chemical Engineering
Holly Ekas	HONORABLE MENTION	Army Research Office	Engineering Cell-free Biosensors for Water Quality Diagnostics	Northwestern University	Chemical Engineering
Christopher Cooper	HONORABLE MENTION	Army Research Office	Supramolecular self-assembly in periodic dynamic polymers	Stanford University	Chemical Engineering

Chemistry

Name	Award	Agency	Research Topic	University	Research Discipline
James Sitter	EXEMPLARY	Office of Naval Research	Sustainable Approaches to Photo-, Electro-, and Thermo-chemical Reactions of Amines	University of South California - Columbia	Chemistry
Clare Keenan	HONORABLE MENTION	Army Research Office	Probing the Role of the Interface in Chiral Induced Spin Selectivity	University of Chicago	Chemistry
Kennedy McCone	HONORABLE MENTION	Air Force Office of Scientific Research	Conductive Metal-Organic Frameworks for Mg-Ion Battery Cathodes	University of California, Berkeley	Chemistry

Civil Engineering

Name	Award	Agency	Research Topic	University	Research Discipline
Jarett Poliner	EXEMPLARY	Air Force Office of Scientific Research	Mechanistic geometric learning for energetic metamaterials	Columbia University	Civil Engineering
Joshua Harmon	HONORABLE MENTION	Army Research Office	Analysis and Design of Steel-Plate Concrete Composite (SC) Panels under Blast Loading	Purdue University	Civil Engineering
Ruby Diaz	HONORABLE MENTION	Army Research Office	Enhancement of nutrient removal from wastewater through the generation of VFAs from primary sludge	University of Utah	Civil Engineering

Cognitive, Neural, And Behavioral Sciences

Name	Award	Agency	Research Topic	University	Research Discipline
Daniel Griffin	EXEMPLARY	Army Research Office	The Impact of Team Social and Cognitive Networks on Resilience and Performance	Michigan State University	Cognitive, Neural, And Behavioral Sciences
Margaret McMullin	HONORABLE MENTION	Office of Naval Research	Dimensionality of Natural Auditory Scene Perception: A Factor Analysis Study	University of Nevada, Las Vegas	Cognitive, Neural, And Behavioral Sciences
Matthew Keefe	HONORABLE MENTION	Air Force Office of Scientific Research	Characterizing the Development of Mature Network Activity in Human Neurons	University of California, San Francisco	Cognitive, Neural, And Behavioral Sciences

Computer and Computational Sciences

Name	Award	Agency	Research Topic	University	Research Discipline
Daniel Fu	EXEMPLARY	Army Research Office	Multimodal Information Processing for Video	Stanford University	Computer and Computational Sciences
Nicholay Topin	Honorable Mention Scientific and Technical Merit of Research	Office of Naval Research	Unifying State and Policy-Level Explanations for Reinforcement Learning	Carnegie Mellon University	Computer and Computational Sciences
Randolph Linderman	HONORABLE MENTION	Air Force Office of Scientific Research	Fine-grain Inference on Out-of-Distribution Data with Hierarchical Classification	Duke University	Computer and Computational Sciences
Cassidy Laidlaw	HONORABLE MENTION	Army Research Office	Perceptual Adversarial Training	University of California, Berkeley	Computer and Computational Sciences

Electrical Engineering

Name	Award	Agency	Research Topic	University	Research Discipline
David Munzer	EXEMPLARY For DOD Research Collaboration	Office of Naval Research	VSWR Resilient Sensors for Beamforming Applications	Georgia Institute of Technology	Electrical Engineering
Ester Lomeli Bentley	EXEMPLARY	Army Research Office	High-Q, Highly Symmetric 3D Fused Silica Shell Resonators for Navigation-Grade Micro-Gyroscopes	University of Michigan, Ann Arbor	Electrical Engineering
Jonathan Scott	HONORABLE MENTION	Office of Naval Research	Spin Resonance in Organic Thin Films and Applications to Devices	Princeton University	Electrical Engineering
Matthew Belz	HONORABLE MENTION	Air Force Office of Scientific Research	A 14 GHz Sub-Sampling Phase Locked Loop	University of Michigan	Electrical Engineering

Geosciences (includes terrain, water, and air)

Name	Award	Agency	Research Topic	University	Research Discipline
Riley Culberg	EXEMPLARY Research Impact and Relevance to DoD research Objectives	Army Research Office	Ice-penetrating radar analysis shows that extreme melt seasons on the Greenland Ice Sheet lead to persistent structural changes in the near-surface firn that may limit the meltwater storage capacity of the ice sheet	Stanford University	Geosciences (includes terrain, water, and air)
Zoe Krauss	EXEMPLARY	Office of Naval Research	Offshore Earthquake Monitoring using Cabled Instruments	University of Washington	Geosciences (Includes Terrain, Water, And Air)
Kara Hartig	HONORABLE MENTION	Office of Naval Research	Processes Contributing to North American Cold Air Outbreaks	Harvard University	Geosciences (Includes Terrain, Water, And Air)
Eric Szymanski	HONORABLE MENTION	Army Research Office	Sparsity Promoting Methods for Coseismic Slip Inversions of Geodetic Data	University of Michigan	Geosciences (Includes Terrain, Water, And Air)

Materials Science and Engineering

Name	Award	Agency	Research Topic	University	Research Discipline
William Livernois	EXEMPLARY	Air Force Office of Scientific Research	Modeling Charge Transport Through Organometallic Biological Molecules	University of Washington	Materials Science and Engineering
Andrew Ye	HONORABLE MENTION	Army Research Office	Robotic manufacturing of combinatorial van der Waals solids	University of Chicago	Materials Science and Engineering
Hetal Patel	HONORABLE MENTION	Army Research Office	Automated Electrolyte Decomposition Pathways Using Chemical Research Networks for the Applications of Battery Solid Electrolyte Interphase	University of California, Berkeley	Materials Science and Engineering

Mathematics

Name	Award	Agency	Research Topic	University	Research Discipline
Mallory Gaspard	EXEMPLARY	Army Research Office	Optimal Driving Under Traffic Signal Uncertainty	Cornell University	Mathematics
Sarah Sundius	HONORABLE MENTION	Army Research Office	Novel quantitative approaches for understanding microbial dynamics and interactions in heterogeneous environments	Georgia Institute of Technology	Mathematics
Douglas Stryker	HONORABLE MENTION	Air Force Office of Scientific Research	Probing Geometry and Topology with Stable Minimal Surfaces	Princeton University	Mathematics

Mechanical Engineering

Name	Award	Agency	Research Topic	University	Research Discipline
Ellande Tang	HONORABLE MENTION For DOD Research Collaboration	Air Force Office of Scientific Research	Studies on Off-Nominal Rotor Aerodynamics for eVTOL Aircraft	California Institute of Technology	Mechanical Engineering
Erik Braun	Honorable Mention Scientific and Technical Merit of Research	Air Force Office of Scientific Research	Advancements of hybrid fs/ps coherent anti-Stokes Raman scattering (CARS) for hypersonic flow applications	Purdue University	Mechanical Engineering
Jennifer Shum	EXEMPLARY	Army Research Office	Sustainable Approaches to Photo-, Electro-, and Thermo-chemical Reactions of Amines	Harvard University	Mechanical Engineering
Nick Montes	HONORABLE MENTION	Air Force Office of Scientific Research	Investigations of the Electronic Properties of Polycyclic Army Research Officematic Hydrocarbons	Stanford University	Mechanical Engineering
Sage Fulco	HONORABLE MENTION	Army Research Office	Enhancing toughness through geometry and architected plasticity	University of Pennsylvania	Mechanical Engineering

Naval Architecture and Ocean Engineering (Includes Undersea Systems)

Name	Award	Agency	Research Topic	University	Research Discipline
Mark Langhirt	Honorable Mention Research Impact and Relevance to DoD research Objectives	Office of Naval Research	Three-dimensional ocean acoustics propagation modeling using energy flux methods	The Pennsylvania State University	Naval Architecture and Ocean Engineering (Includes Undersea Systems)

Oceanography (includes ocean acoustics, Remote Sensing, and Marine Meteorology)

Name	Award	Agency	Research Topic	University	Research Discipline
Tricia Light	EXEMPLARY	Office of Naval Research	Advancing marine barite as a paleoproductivity proxy	University of California, San Diego	Oceanography (includes ocean acoustics, Remote Sensing, and Marine Meteorology)
Brandon Lee	HONORABLE MENTION For DOD Research Collaboration	Office of Naval Research	Estimating transmission loss uncertainty in the ocean using machine learning	University of Michigan	Oceanography (includes ocean acoustics, Remote Sensing, and Marine Meteorology)
Kathryn Halloran	HONORABLE MENTION	Office of Naval Research	Probing the distribution and function of unique Prochlorococcus-derived cyclic peptides	Massachusetts Institute of Technology/Woods Hole Oceanographic Institution	Oceanography (Includes Ocean Acoustics, Remote Sensing, and Marine Meteorology)
Anne Leal	HONORABLE MENTION	Office of Naval Research	Reconstructing dust fluxes using long-lived thorium isotopes	Columbia University	Oceanography (Includes Ocean Acoustics, Remote Sensing, and Marine Meteorology)

Physics (including optics)

Name	Award	Agency	Research Topic	University	Research Discipline
Alexander Atanasov	EXEMPLARY	Office of Naval Research	Statistical Mechanics of Deep Learning	Harvard University	Physics (including optics)
William Eckner	HONORABLE MENTION	Army Research Office	Graduate research assistant	University of Colorado Boulder	Physics (Including Optics)
Erin Morissette	HONORABLE MENTION	Air Force Office of Scientific Research	Coupling High-Quality, 2D Heterostructures with Microwaves to Detect Novel Quantum Phenomena	Brown University	Physics (Including Optics)