DRAPER SCHOLARS™

RESEARCH SYMPOSIUM 2026

Agenda & Poster Map

OCTOBER 26, 2026

8:30 AM – 9:00 AM
Check-in/Registration

All presentations will take place in Room 1409.
Lunch and Research Poster Exhibition will take place in the Draper Atrium.

9:00 – 9:10 AM
Introductions

Dr. Christopher Yu | Education Director, Draper

9:10 – 10:10 AM
Keynote: *Technology for National Security*

Dr. Eric Evans | Former Director, MIT Lincoln Laboratory, MIT Professor of Practice and Senior Fellow

10:10 – 10:15 AM
Howard Musoff Mentor Award Presentation

Dr. Christopher Yu | Education Director, Draper

10:15-11:15 AM
Keynote: *Top Scholar Research Presentations*

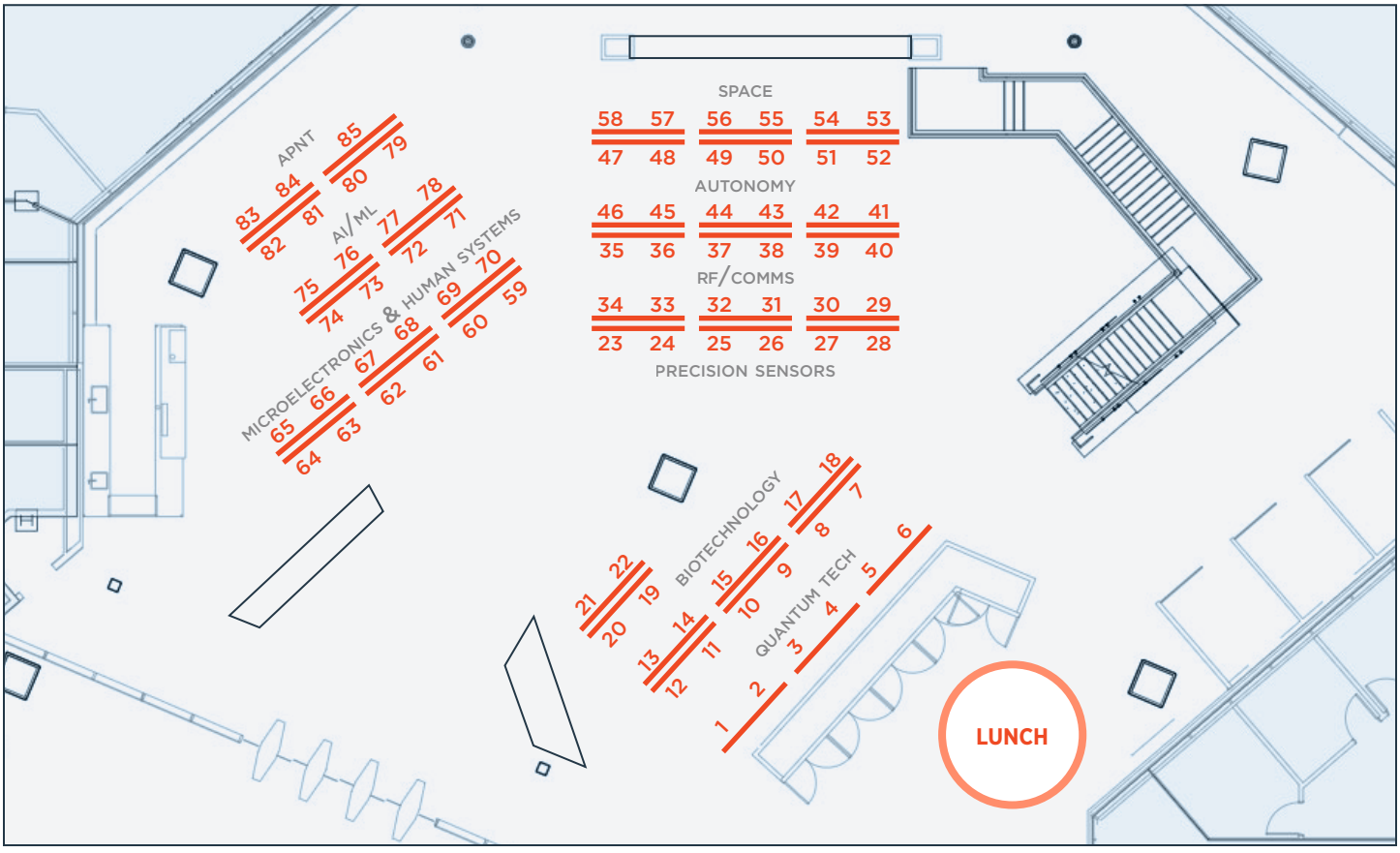
Bright Lu | CU Boulder

Junhyung Park | MIT

Jacob Myers | WPI

11:15 – 11:30 AM
Break/Walk to Atrium

11:30 – 1:00 PM
Lunch* & Research Poster Exhibition
**Refreshments Provided for Registered Attendees*



Research Poster Exhibition

DRAPER SCHOLARS POSTERS

QUANTUM TECH & PHOTONICS

1 **Richard Allen**
Quantum Computing Enhanced Sensing
MIT

2 **Alex Ungar**
Multiplexed Control and Measurement of NV Centers Using a SPAD Camera
MIT

3 **Franklin Wei**
Advanced Microwave Packaging for Superconducting Quantum Devices
MIT

4 **Alex Montes McNeil**
All-Optical Quantitative Phase Imaging of Synthetic Cells With Diffractive Optical Processors
NEU

5 **Jacob LaMountain**
Fourier Modal Method for Periodic Nonlocal Composites
UML

6 **Jacob Myers**
Quantum Sensing for Digital Signal Extraction using NV Diamond Magnetic Imaging
WPI

BIOTECHNOLOGY

7 **Philip Gaudio**
Optical Shear Sensing — Laser Speckles Elucidate a Tracerless Fluid Tracking Methodology
Brown

8 **Haley Kampert**
Advancing in Vitro Lung Models for Particulate Matter Exposure and Wound Healing
BU

9 **Christine McKee**
Cell-Produced Scaffold for Microphysiological Systems and Regenerative Medicine
BU

10 **Charlotte Misturado**
Engineering in Vitro Models to Study Lymphatic Endothelial Mechanobiology
BU

11 **Scott Malloy**
In Silico Platform for Flow and Transport Analysis in Extracorporeal Membrane Oxygenators
CU Boulder

12 **William Mo**
From Structure-Accurate to Function-Accurate Analyses of Unknown DNA
CU Boulder

13 **Joseph Urban**
Designing a Platform for Controlling Cell State Using Synthetic Gene Circuits
Harvard

14 **Juan Pablo Garcia**
A Long-Term Vascular Microphysiological System to Model Cyclic Chemotherapy Exposure
MIT

15 **Lennart Justen**
Deep Untargeted Wastewater Metagenomic Sequencing for Pathogen-Agnostic Biothreat Detection
MIT

16 **Jessica Schneider**
A Living Bioprotectant: Engineering S. Epidermidis for On-Skin Organophosphate Degradation
MIT

17 **Aaron Coppeta**
Development of a Multi-Sample Cantilever Beam System for Mechanotransduction Studies in Cancer Cell Culture
Purdue

18 **Haripriya Sakthivel**
Smartphone Photo-Based Quantification of Bulbar Conjunctival Microvascular Features Associated With Blood Pressure During Pregnancy
Purdue

19 **Peter Hsi**
Focused Ultrasound-Induced Cavitation in a Human Brain Microphysiological System Produces Injury Signaling Biomarkers Consistent With Blast Trauma
Tufts

20 **Michaela Welch**
Autonomous Living Skin Sensomes: Development of a Three-Dimensional Immune-and-Neuro-Competent Human Skin Model for in Vitro Testing
Tufts

21 **Molly Zgoda**
Continuous and Non-Invasive Measurement of Oxygen Consumption in Muscle to Prevent Injury by Fatigue in High-Performance Individuals
UML

22 **Nicole Petersen**
Oceans to Molecules: Designing Saltwater Cell Factories With Combinatorial DNA Assembly for Distributed Manufacturing of DoW Critical Chemicals
WPI

PRECISION SENSORS, INSTRUMENTATION, & ADVANCED MATERIALS

23 **Kennalee Orme**
Modular, Bio-Inspired Templation of Multiscale Electrodes for HER Catalysis
Brown

24 **Bright Lu**
Chalcogenide Microresonator Gyroscopes
CU Boulder

25 **Eliana Mann**
EARRing: A New Class of Low-SWaP Gyroscope Technology for High Dynamic Environments
Harvard

26 **Zihan Lin**
Radiation Damage and Effects of Thermal Treatment in AlScN: A Structural Study of N+-Ion Irradiation
MIT

27 **Oliver Rayner**
Geometry-Based Modeling Approach to Capacitive Resolver Electrode Design
MIT

28 **Ethan Larsen**
Near-Zero-Standby-Power Underwater pH Event Detection Using Electrolytic H_2 Generation and a Palladium Nanogap Switch
Utah

RF & COMMUNICATIONS

29 **Chloe Stults**
Far-Field Beam Steering with Near-Field Beams
Brown

30 **Samuel Silberman**
RF Lens Synthesis Methods
CU Boulder

31 **Augustus Richter**
Clean as a Whistle: Extracting Whistler-Mode Waves from Very Low Frequency Radio Data
GA Tech

32 **Allan Ko**
Characterizing Performance of Congestion Control Protocols Under Periodic Interference
MIT

33 **Melania St.Cyr**
Microwave Liquid Characterization Towards Blood Oxygenation Monitoring
MIT

34 **Srivatsan Mukunthraj**
AETHER: Open Wireless Network Emulation Platform Integrating Space, Aerial, and Ground Operating Environments
WPI

AUTONOMY

35 **Madison Ritsch**
Distributed Autonomous Robotic Information Gathering (DARING)
CU Boulder

36 **Eric Elias**
Illumination-Robust Navigation Around Unknown Space Objects Using Multi-spectral Imagery
MIT

37 **Alyssa Hargis**
Precise Trajectory Tracking Across Heterogeneous Fixed-Wing UAV Platforms for Autonomous Missions
MIT

38 **Luke Kenworthy**
ctBurton: A Constraint-Based Generative Planner With Flexible Time
MIT

39 **Ben Rossano**
Multi-Robot Coordination in Unknown and Uncertain Environments
MIT

40 **Aneesa Sonawalla**
Visual Global Localization in Coastal Environments Using Digital Surface Models
MIT

41 **Jeremy Wenger**
Observability-Aware Plume Tracking and Estimation on Unmanned Surface Vehicles
MIT

42 **Bang-Shien Chen**
PnP: A Global Solver for Perspective-n-Point*
NEU

43 **Kevin Wu**
Slip-Based Traversability Label Generation
NEU

44 **Robin Kee**
AC-DC: Adaptive Communication for Scalable Dynamic Average Consensus in Multi-Robot Ergodic Search
UMICH

45 **Maria Wojciechowski**
Cooperative Navigation via Trajectory Optimization by Solving the HJB Equation with PINNs
WPI

SPACE TECHNOLOGIES & HYPERSONICS

46 **Kristen Amarell**
Robust Guidance for Cislunar Spacecraft Under Sensor and Thrust Uncertainty
CU Boulder

47 **Ryan Menges**
Constellation Design for Autonomous Cislunar Navigation and Target Tracking Using Relative Measurements
CU Boulder

48 **Ireland Brown**
Horizon-Based Heading Observability for Improved Astronaut Navigation on the Lunar Surface
MIT

49 **Zachary Durocher**
Reentry CFD With Transient Surface Heating
MIT

50 **Grace Mao**
Design and Modeling of Magnetic Window Strategies for Hypersonic Communication Blackout Phenomena
MIT

51 **Andrew Nguyen**
Real Gas Modeling for Hypersonic Flows Utilizing Output-Based Mesh Adaptation
MIT

52 **Pavel Shilenko**
Modeling Stirling Engine Performance and Radiation Damage Effects
MIT

53 **Aaron Liao**
Enhancing Autonomous Navigation in Cislunar Spacer
Purdue

54 **Austin Thombs**
High-Fidelity Simulations of the Boundary Layer and Wake of an Ablating Vehicle
Texas A&M

55 **Kevin Zhang**
Image Scheduling and Catalog Curation for Optical Navigation on Multi-Camera Spacecraft
Texas A&M

56 **Tim Cheng**
Fabricating Micro-Stirling Engine Components
Tufts

DRAPER

SCAN & LEARN MORE ABOUT THE DRAPER SCHOLARS PROGRAM

57 **Adam Jones**
Robust Operation With Air-Breathing Electric Propulsion in Very Low Earth Orbit Under Atmospheric Disturbances
UMICH

58 **Anja Sheppard**
Enabling Terrain Super-Resolution for Lunar Landing With Schrödinger Bridges
UMICH

HARDENED MICROELECTRONICS & MATERIALS DESIGN

59 **Audrey Smith**
A Thermo-Kinetic Model to Describe the Corrosion of Metal in Seawater
Brown

60 **Charles Wade**
Rethinking Design for Multi-Material Printing: Bridging Digital Models and Fabrication With OpenVCAD
CU Boulder

61 **Laurel Hilger**
Developing Polyimide Nanocomposite Inks for Direct-Ink-Write (DIW) Printing
GA Tech

62 **Christian Yoon**
Performance Evaluation of Protective Coatings for Glass-to-Metal Seals in Subsea Electrical Connectors
MIT

63 **Owen Prinster**
Thermal Management of High Heat-Flux Electronics for Defense and AI Systems
Purdue

64 **Ahmed Ibreljic**
Radiation-Hard β-Ga_2O_3 Power Diodes on Sapphire via Plasma-Free LPCVD Growth and Etching
UML

65 **Chris Rincon**
Polymer-based Ruggedized Integrated Systems for Miniaturized Electronics
UML

HUMAN SYSTEMS TECHNOLOGY & CYBER

66 **Sarah Leary**
Evaluating a Novel Wearable Sensor System in a Mars Analog: A Proof-Of-Concept Study
CU Boulder

67 **Nicole Rote**
Prediction of Recognized and Unrecognized Spatial Disorientation Using Physiological Measures
CU Boulder

68 **Caroline Wendt**
Acoustic and Linguistic Analysis of Objective and Subjective Team Functioning Outcomes
CU Boulder

69 **Allison Naaktgeboren**
PIPE-Cleaner-C2TC: Developer-centric Configurable Fuzzing for Software Vulnerability Discovery
PSU

70 **Arthur Middlebrooks**
A System of Systems Approach to Evaluating Human-Machine Teaming Architectures for Extended Lunar Surface Exploration
Purdue

71 **Samuel Dodson**
Secure-by-Construction Partitioning of LLVM Programs for Intel SGX, ARM TrustZone, and RISC-V Keystone
UML

72 **Brendaliz Gonzalez Morell**
Bridging Technical Readiness and Human Adoption of AI-Assisted Inspection in Shipbuilding and Manufacturing
UML

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

73 **Jiho Lee**
Hybrid Adaptive Kalman Filtering for Data-Efficient Joint Tracking and Classification
CU Boulder

74 **Alex Moody**
Machine Learning LEO Satellite Orbit Prediction With Uncertainty Quantification
CU Boulder

75 **Elliot Lim**
Machine Learning Methods for Satellite Maneuver Detection in GEO
MIT

76 **Connor McLaughlin**
AP-LoRA: Efficient and Generalizable Distributed LLM Fine-Tuning via Asymmetric Pruning
NEU

77 **Eugene Seok**
Hyperthermal Gas-Surface Dynamics Reveal Critical Limitations of Universal MLIPs
UMICH

78 **Varad Nevasekar**
Weld-PICA: Traceable, Uncertainty-Aware Artificial Intelligence for Weld Inspection
UML

ASSURED POSITION, NAVIGATION & TIMING (APNT)

79 **Kian Shakerin**
Higher-Oder Square Root Information Filtering
CU Boulder

80 **Saikrishna Manojkumar**
Uncertainty-Aware Target Detection and Tracking for Celestial Navigation on Mobile Platforms
MIT

81 **Junhyung Park**
Adaptive UAV Navigation Using LEO Signals
MIT

82 **Drew Siciliano**
Online Space-Based Object Detection
Purdue

83 **Joanna Halfhill**
Path Integrals for Modeling the Ionosphere in LEO PNT
Tufts

84 **Nathan Bradley**
Leveraging RF/mmWave Retrodirective Backscatter for Satellite PNT
UMICH

85 **Sriram Krishnamoorthy**
Drone Acoustics: Data Sets, Spectral Features and Survey of Prior Research
UML