

2. **MapExRL: Learning Efficient Indoor Mapping and Exploration using Predicted Global Map Context**
Narek Harutyunyan*, Brady Moon*, Seungchan Kim, Adam Hung, **Cherie Ho**, Sebastian Scherer
In Submission, 2024
3. **SALON: Self-supervised Adaptive Learning for Off-road Navigation**
Matthew Sivaprakasam, Samuel Triest, **Cherie Ho**, Shubhra Aich, Jeric Lew, Isaiah Adu, Wenshan Wang, and Sebastian Scherer
In Submission, 2024
4. **Deep Bayesian Future Fusion for Self-Supervised, High-Resolution, Off-Road Mapping**
Shubhra Aich, Wenshan Wang, Parv Maheshwari, Matthew Sivaprakasam, Samuel Triest, **Cherie Ho**, Jason M Gregory, John G Rogers III, Sebastian Scherer
In Submission, 2024
[\[PDF\]](#)

PEER-REVIEWED CONFERENCES

5. **Map It Anywhere: Empowering BEV Map Prediction using Large-scale Public Datasets**
Cherie Ho*, Jiaye Zou*, Omar Alama*, Sai Mitheran Jagadesh Kumar, Benjamin Chiang, Taneesh Gupta, Chen Wang, Nikhil Keetha, Katia Sycara, Sebastian Scherer
Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track, 2024
[\[PDF\]](#) [\[Website\]](#)
6. **Learning-on-the-Drive: Self-supervised Adaptation of Visual Offroad Traversability Models**
Cherie Ho*, Eric Chen*, Mukhtar Maulimov, Chen Wang, Sebastian Scherer
International Conference on Intelligent Robots and Systems (IROS), 2024
[\[PDF\]](#)[\[Video\]](#)
7. **3D Human Reconstruction in the Wild with Collaborative Aerial Cameras**
Cherie Ho, Andrew Jong, Harry Freeman, Rohan Rao, Rogerio Bonatti, Sebastian Scherer
International Conference on Intelligent Robots and Systems (IROS), 2021
[\[PDF\]](#) [\[Video\]](#)
8. **Towards a Robust Aerial Cinematography Platform: Localizing and Tracking Moving Targets in Unstructured Environments**
Rogerio Bonatti, **Cherie Ho**, Wenshan Wang, Sanjiban Choudhury, Sebastian Scherer
International Conference on Intelligent Robots and Systems (IROS), 2019
[\[PDF\]](#) [\[Video\]](#)
9. **Predicting Coordinated Group Movements of Sharks with Limited Observations using Autonomous Underwater Vehicles (AUVs)**
Cherie Ho, Kimberly Joly, Andrew P. Nosal, Christopher G. Lowe, Christopher M. Clark
Association for Computing Machinery Symposium on Applied Computing (SAC), 2017
[\[PDF\]](#)

JOURNALS

10. **Autonomous Aerial Cinematography Among Unstructured Environments With Learned Artistic Decision-Making**
Rogerio Bonatti, Wenshan Wang, **Cherie Ho**, Aayush Ahuja, Mirko Gschwindt, Efe Camci, Erdal Kayacan, Sanjiban Choudhury, Sebastian Scherer
Journal of Field Robotics (JFR), 2019
[\[PDF\]](#) [\[Video\]](#)

WORKSHOPS AND TECH REPORTS

11. **Adaptive Safety Margin Estimation for Safe Real-Time Replanning under Time-Varying Disturbance**
Cherie Ho, Jay Patrikar, Rogerio Bonatti, Sebastian Scherer
Arxiv, 2020. Also presented at RSS Robust Autonomy Workshop 2020.
[\[PDF\]](#) [\[Video\]](#)
12. **Provably Safe in the Wild: Control Barrier Functions on a Vision-Based Quadrotor in an Outdoor Environment**
Cherie Ho*, Katherine Shih*, Jaskaran Singh Grover, Changliu Liu, Sebastian Scherer
RSS Robust Autonomy Workshop, 2020
[\[PDF\]](#) [\[Video\]](#)
13. **Autonomous Aerial Cinematography Among Unstructured Environments With Learned Artistic Decision-Making**
Rogerio Bonatti, Wenshan Wang, **Cherie Ho**, Aayush Ahuja, Mirko Gschwindt, Efe Camci, Erdal Kayacan, Sanjiban Choudhury, Sebastian Scherer
IROS Vision-based Drones Workshop, 2019
(Best Paper Finalist)
[\[PDF\]](#)
14. **Learning Reactive Flight Control Policies: From LIDAR Measurements to Actions**
Sam Zeng, Vaibhav Viswanathan, **Cherie Ho**, Sebastian Scherer
NeurIPS Imitation Learning and its Challenges in Robotics Workshop, 2018
(Spotlight Talk)

Honors & Awards

| | |
|--|------------------|
| Croucher Scholarship for Doctoral Study (Two-Year Full Scholarship, \$180K) | <i>2019-2021</i> |
| Microsoft Research PhD Fellowship Nomination, 1 out of 3 at CMU RI | <i>2020</i> |
| Best Paper Finalist, IROS Vision-based Drones Workshop | <i>2019</i> |
| Harvey Mudd Startup Incubator Inaugural Class (\$120K for 6% Equity) | <i>2017</i> |
| Harvey Mudd Excellence in Engineering Award for Entrepreneurship | <i>2017</i> |
| University of Southern California Wrigley Institute Summer Fellowship | <i>2016</i> |

Industry Experience

| | |
|---|----------------------------------|
| Zenith Robotics | <i>Spring 2017 - Summer 2018</i> |
| CO-FOUNDER AND CTO | <i>San Francisco, CA</i> |
| <ul style="list-style-type: none"> • Part of the inaugural class of HMCINQ, a Harvey Mudd startup incubator (Awarded \$120K for 6% equity). • Developed machine learning algorithms and Robot Systems for sports analytics. | |
| Google | <i>Summer 2015</i> |
| ENGINEERING PRACTICUM INTERN | <i>Mountain View, CA</i> |
| <ul style="list-style-type: none"> • Developed an internal tool for Google Analytics for trend monitoring and anomaly detection in BigTable usage. | |

Teaching Experience

Lectures:

- Visual SLAM**, Guest Lecture for CMU 16-833: Robot Localization and Mapping 2021
- Deconstructing Robots**, Outreach: Creative Tech Nights for Girls [\[Video\]](#) 2021
- Ensuring Safety in the Real World**, Air Lab Summer School [\[Video\]](#)[\[Code\]](#) 2020

Course TA / Mentors:

- Teaching Assistant**, CMU 16-720: Computer Vision 2021
- Teaching Assistant**, CMU 16-833: Robot Localization and Mapping 2020
- AI/Robotics Mentor**, Chinese International School Tech Summer School 2017
- Head Tutor and Grader**, HMC E84: Electronic and Magnetic Circuits/Devices 2017
- Lab Proctor**, HMC E80: Experimental Engineering 2017
- Lab Proctor**, HMC E79: Introduction to Engineering Systems and Signals 2016
- Tutor**, HMC CS60: Principles of Computer Science 2015
- Tutor**, HMC CS5: Introduction to Computer Science 2015
- Machine Shop Proctor**, HMC E4: Introduction to Engineering Design 2014

Academic and Professional Talks

- IROS 2024**, Contributed Talk 2024
- Perception for High-Speed Offroad Driving**, Thesis Proposal 2022
- CMU R-PAD Lab**, Invited Talk 2022
- Third Wave Automation**, Invited Talk 2021
- IROS 2021**, Contributed Talk 2021
- Apple**, Invited Talk 2021
- Lehigh University**, Invited Talk 2021
- NSF Multidrone Symposium**, Invited Short Talk 2020
- University of Illinois at Urbana-Champaign**, Invited Short Talk 2020
- RSS 2020 Workshop on Robust Autonomy**, Contributed Talk 2020
- Chinese International School Hong Kong**, Invited Talk 2018

Mentoring

Research Mentoring:

- Yifei Liu (Master's)**, Currently at CMU 2024
- Nithya Sampath (Undergrad)**, Currently at CMU 2024
- Jiaye Zou (Undergrad)**, Currently at CMU 2024
- Ben Chiang (Master's)**, Currently at CMU 2024
- Bangjie Xue (Master's)**, Currently at CMU 2024
- Nathan Litzinger (Master's)**, Currently at CMU 2024
- Haoyang He (Master's)**, Currently at CMU 2024
- Omar Alama (Master's)**, Now: EE PhD at CMU 2023
- Sai Mitheran (Master's)**, Now: ML at Latent AI 2023
- Eric Chen (Undergrad)**, Now: CS Master's at Stanford 2023
- Rupanjali Kukal (Master's)**, Now: Data Scientist at Microsoft 2023
- Rohan Rao (Master's)**, Now: ML Engineer at NVIDIA 2021
- Harry Freeman (Master's)**, Now: Robotics PhD at CMU 2021
- Andrew Jong (Master's)**, Now: Robotics PhD at CMU 2021

Master's Capstone Project Mentoring:

Autonomous Urban Wheelchair, Chaol Tuan, Chiawen Liao, Haoyang He, Sonic Kuo, Thomas Chan

2024-2025

CMU Masters Thesis / PhD Qualifier Committees:

| | |
|---|------|
| Nikhil Keetha (PhD) , High-fidelity Reconstruction with Gaussian Splatting | 2024 |
| Aditya Rauniar (Masters) , Planning for 3D and 4D Reconstruction | 2024 |
| Conner Pulling (Masters) , Stereo Vision and Tactical Reinforcement Learning | 2024 |
| Emily Kim (PhD) , 3D Human Pose Estimation | 2023 |
| Dominic Guri (PhD) , Force-Torque Sensors for Agriculture | 2023 |
| Seungchan Kim (PhD) , Incorporating Interestingness for Object Detection | 2023 |
| Sam Triest (PhD) , Learning for Offroad Driving | 2023 |
| Tushar Kusnur (Masters) , Multi-robot Viewpoint Planning | 2023 |
| Saumya Saxena (PhD) , Graph Neural Networks for Manipulator Control | 2022 |
| Ruohai Ge (Masters) , Indoor Localization with 360° Images | 2022 |
| Sourish Ghosh (Masters) , Detect-and-Avoid for Aircrafts | 2022 |
| Jay Patrikar (PhD) , Socially-aware Motion Planning for Aircrafts | 2021 |

Service and Outreach

Interdisciplinary Activities:

| | |
|--|------|
| Organizer , CMU Workshop on Assessment of Robotics Capabilities <i>In collaboration with OECD, hosted an interactive workshops for robotics students to debate and formulate a framework for evaluating robotics progress. Results are in preparation as a chapter in an upcoming OECD whitepaper.</i> | 2024 |
| Organizer , Special Meeting on Assessing Robotics Capabilities [Link] <i>In collaboration with OECD, hosted a meeting with robotics leaders to discuss proposed measures of robotics capabilities for policy makers</i> | 2023 |

Committees and Outreach:

| | |
|--|-----------|
| Creator , Meta-Resources on Graduate School and Research [Link] | 2020- |
| Organizer , ICRA 2024 Workshop on Resilient Off-road Autonomy [Link] | 2024 |
| Climate Committee , CMU Robotics Institute <i>Action committee for systemic issues in RI. Led efforts to better align advisor-advisee expectations. Contributed to webinars on grad school admissions.</i> | 2022-2023 |
| Robotics PhD Admissions Committee , CMU Robotics Institute | 2020-2022 |
| Session Co-Leader , CMU Creative Tech Nights for Girls [Video] <i>STEM outreach program targeting middle-school female students</i> | 2021 |
| Mentor , Society of Women Engineers | 2016-2017 |

Conference and Journal Reviewing:

ICRA, IROS, RA-L, AURO, NeurIPS, ISER, CHI, JFR, SSRR