Cherie Ho

cherieh@cs.cmu.edu www.cherieho.com

Education

Carnegie Mellon University (CMU) *Aug. 2018 -*
PH.D. IN ROBOTICS *Pittsburgh, PA*
Advisor: Prof. Sebastian Scherer

Harvey Mudd College (HMC) *Aug. 2013 - May 2017*
B.S. IN ENGINEERING *Claremont, CA*

Honors & Awards

Croucher Scholarship for Doctoral Study (Two-Year Full Scholarship) *2019-2021*
Microsoft Research PhD Fellowship Nomination, 1 out of 3 at CMU Robotics Institute *2020*
Best Paper Finalist, IROS Vision-based Drones Workshop *2019*
HMCINQ (Harvey Mudd Startup Incubator) Inaugural Class, $120K for 6% Equity *2017*
Harvey Mudd College Johnson Excellence in Engineering Award *2017*
University of Southern California Wrigley Institute Graduate Summer Fellowship *2016*
Jude and Eileen Laspa Fellowship in Autonomous Systems *2014 - 2017*

Publications

UNDER REVIEW

1. **Adaptive Tube Library for Safe Online Planning Under Unknown Tracking Performance**
   C. Ho, J. Patrikar, R. Bonatti, S. Scherer
   Submitted to International Symposium on Experimental Robotics (ISER), 2020
   [Preprint] [Video]

JOURNALS

2. **Autonomous Aerial Cinematography Among Unstructured Environments With Learned Artistic Decision-Making**
   R. Bonatti, W. Wang, **C. Ho**, A. Ahuja, M. Gschwindt, E. Camci, E. Kayacan, S. Choudhury, S. Scherer
   Journal of Field Robotics (JFR), 2019
   [PDF] [Video]

PEER-REVIEWED CONFERENCES

3. **Towards a Robust Aerial Cinematography Platform: Localizing and Tracking Moving Targets in Unstructured Environments**
   R. Bonatti, **C. Ho**, W. Wang, S. Choudhury, S. Scherer
   International Conference on Intelligent Robots and Systems (IROS), 2019
   [PDF] [Video]
4. **Predicting Coordinated Group Movements of Sharks with Limited Observations using Autonomous Underwater Vehicles (AUVs)**
   C. Ho, K. Joly, A.P. Nosal, C.G. Lowe, C.M. Clark
   Association for Computing Machinery Symposium on Applied Computing (SAC), 2017
   [PDF]

Workshops

5. **Provably Safe in the Wild: Control Barrier Functions on a Vision-Based Quadrotor in an Outdoor Environment**
   C. Ho*, K. Shih*, J. Grover, C. Liu, S. Scherer
   RSS Robust Autonomy Workshop, 2020
   [PDF] [Video]
6. **Autonomous Aerial Cinematography Among Unstructured Environments With Learned Artistic Decision-Making**
   R. Bonatti, W. Wang, **C. Ho**, A. Ahuja, M. Gschwindt, E. Camci, E. Kayacan, S. Choudhury, S. Scherer
   IROS Vision-based Drones Workshop, 2019
   (Best Paper Finalist)
   [PDF]
7. **Learning Reactive Flight Control Policies: From LIDAR Measurements to Actions**
   S. Zeng, V. Viswanathan, **C. Ho**, S. Scherer
   NeurIPS Imitation Learning and its Challenges in Robotics Workshop, 2018
   (Spotlight Talk)

Research Experience

Guaranteed Safe Navigation in Unknown Environment *Fall 2018 -*
Researcher w/ Prof. Sebastian Scherer (CMU) *Pittsburgh, PA*

- Developing robot learning and control algorithms that provide theoretical safety guarantees in the real world.

Shark Aggregation Tracking with Autonomous Underwater Vehicles [Link] *Spring 2014 - Spring 2017*
Researcher w/ Prof. Christopher Clark (HMC) *Claremont, CA*

- Designed a decentralized, multi-robot motion planning controller that enables cooperative tracking of shark aggregations by AUVs. The control system was successfully deployed on OceanServer Iver2 AUVs in Catalina Island, California. Developed a multi-stage aggregation model state estimation architecture based on Particle Filters to predict shark aggregation position.

Autonomous Lizard Tracking and Habitat Mapping *Fall 2013 - Fall 2014*
Researcher w/ Prof. Christopher Clark (HMC) *Claremont, CA*

- Fabricated a PCB with GPS and radio that can be worn by a lizard to communicate its GPS locations to a robot.

Industry Experience

Zenith Robotics [Link] *Spring 2017 - Summer 2018*
Co-Founder and CTO *San Francisco, CA*

- Part of the inaugural class of HMCINQ, a Harvey Mudd startup incubator.

Google *Summer 2015*
Engineering Practicum Intern *Mountain View, CA*

- Developed an internal tool for Google Analytics for trend monitoring and anomaly detection in BigTable usage.

Teaching Experience

Teaching Assistant, CMU 16-833: Robot Localization and Mapping *2020*
AI/Robotics Mentor, Chinese International School Technology 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*
Machine Shop Proctor, HMC E4: Introduction to Engineering Design and Manufacturing *2014*
Tutor, HMC CS60: Principles of Computer Science *2015*
Tutor, HMC CS5: Introduction to Computer Science *2015*

Leadership and Outreach

Media Chair, CMU Robotics Institute Student Government *2018-2020*
Student Organizer, Southern California Robotics (SCR) Symposium *2017*
Executive Committee Member, HMC Asian Pacific Islander Sponsor Program *2017*
Lead Organizer, MuddHacks (Harvey Mudd Hardware Hackathon) *2016-2017*
Mentor, Society of Women Engineers *2016-2017*