Hunter Damron

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Education

University of South Carolina (U of SC) Honors College (SCHC) **Columbia, SC**
BS, Computer Science and Mathematics Double Major, GPA: 3.975 Major GPA: 4.0 *May 2021*
- Graduation with Distinction in Mathematics
- Graduation with Leadership Distinction in Research

Research Experience

Computer Science Department, U of SC **Columbia, SC**
Capstone Project (Team of 4) under Dr. Ioannis Rekleitis and Dr. Joshua Cooper *August 2020–present*
- Developed robot path planning algorithm for efficient coverage of a lakebed when sensor width varies with depth.

Mathematics Department, U of SC **Columbia, SC**
Undergraduate Researcher under Dr. László Székely *May 2020–present*
- Enumerated domino tilings of a rectangle up to symmetry.

Autonomous Field Robotics Laboratory, U of SC **Columbia, SC**
Undergraduate Researcher under Dr. Ioannis Rekleitis *November 2017–present*
- Developed and tested methods for localization and path planning for underwater robots.
- Collaborated with other lab members as co-author on [3] and [2].
- Submitted peer review for IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). *April 2020*
- Presented [5] as first author at the U of SC Summer Research Symposium. *August 2019*
- Conducted field trials and participated in conference at Bellairs Research Institute, Barbados. *January 2019*
- Presented [1] as first author at IROS 2018 conference in Madrid, Spain. *October 2018*

NavLab Group, Carnegie Mellon University **Pittsburgh, PA**
Robotics Institute Summer Scholar (RISS) under Dr. Christoph Mertz *May 2020–August 2020*
- Developed methods for traffic detection and localization for updating high definition maps used by self-driving cars.
- Led communications team to deliver a scholar introduction booklet, a midsummer update, weekly videos, and journal.
- Presented [4] at the University of Minnesota REU 2020 Poster Symposium. *August 2020*

Marine Stable Isotope Biogeochemistry Laboratory, U of SC **Columbia, SC**
Undergraduate Researcher under Dr. Annie Bourbonnais *July 2019–November 2019*
- Set up and calibrated autosampler equipment for chemical oceanography research.
- Wrote operation manual for autosampler.

German Research Center for Artificial Intelligence (DKFI) **Kaiserslautern, Germany**
Research Intern under Marco Hirsch, M.Sc. *June 2016–July 2016*
- Designed non-linear method of administering questionnaires for improved efficiency.

Relevant Experience

Association of Computing Machinery, U of SC **Columbia, SC**
Student Chapter President *June 2019–June 2020*

Mathematics Department, U of SC **Columbia, SC**
Grader for Discrete Mathematics I *August 2018–December 2019*

Computer Science Department, U of SC **Columbia, SC**
Introductory Computer Science Lab Teaching Assistant *August 2018–December 2018*

Skills

Programming Languages: (proficient) Python, C/C++, Rust, Java, Bash, LaTeX; (familiar) Haskell, MATLAB
Environments/Tools: Linux, Git, Make, CMake, NumPy, Matplotlib, TensorFlow, ROS, OpenCV, Eigen, Docker
Graduate Coursework: Discrete Mathematics I, Analysis of Algorithms

Honors and Awards

◦ Magellan Scholar Research Grant	*December 2020*
◦ SCHC Science Undergraduate Research Fellowship (SURF) Grant	*May 2019 & August 2020*
◦ Phi Beta Kappa Honor Society	*April 2020*
◦ Victor W. Laurie Undergraduate Math Research Scholarship	*April 2020*
◦ DAAD RISE Germany Internship (Cancelled due to COVID-19 Pandemic)	*March 2020*
◦ CRA Outstanding Undergraduate Researcher – Honorable Mention	*December 2019*
◦ McNAIR Junior Fellows Research Grant	*May 2019*
◦ Phi Beta Kappa Freshman Award	*April 2019*
◦ Tau Beta Pi Engineering Honor Society	*November 2018*
◦ Carolina Scholar Award	*August 2017*

Publications and Presentations

Fully Refereed Conference Articles

[1] **H. Damron**, A. Quattrini Li, and I. Rekleitis, "Underwater Surveying via Bearing only Cooperative Localization," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Oct. 2018, pp. 3957–3963.

[2] M. Xanthidis, N. Karapetyan, **H. Damron**, S. Rahman, J. Johnson, A. O'Connell, J. O'Kane, and I. Rekleitis, "Navigation in the Presence of Obstacles for an Agile Autonomous Underwater Vehicle," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2020, pp. 892–899.

[3] B. Joshi, M. Modasshir, T. Manderson, **H. Damron**, M. Xanthidis, A. Quattrini Li, I. Rekleitis, and G. Dudek, "DeepURL: Deep Pose Estimation Framework for Underwater Relative Localization," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020, pp. 1777–1784.

Preprint Articles

[4] **H. Damron** and C. Mertz, "Traffic Sign Detection and Localization on the Edge for HD Map Updating," *Carnegie Mellon RISS Working Papers Journal*, vol. 8, pp. 58–62, 2020.

Presentations

[5] **H. Damron** and I. Rekleitis, "Hierarchical State Estimation of an Underwater Robot," Aug. 2019, poster presented at the University of South Carolina Summer Research Symposium, Columbia, South Carolina.