NATHAN T. HATCH

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EDUCATION

University of Washington, Seattle January 2020 - expected 2023
Ph.D. in Computer Science & Engineering; Advisor: Dr. Byron Boots

Georgia Institute of Technology August 2017 - December 2019
Ph.D. student in Machine Learning; Advisor: Dr. Byron Boots
Presidential Fellowship

University of Chicago September 2010 - June 2014
B.S. in Mathematics and Computer Science with honors
National Merit Scholarship, University Scholarship, Dean's List 2010 - 2014

PUBLICATIONS

A. Shaban, C. Cheng, **N. Hatch**, and B. Boots. "Truncated Back-Propagation for Bilevel Optimization." *Proceedings of the 22nd International Conference on Artificial Intelligence and Statistics (AISTATS 2019).* http://proceedings.mlr.press/v89/shaban19a.html.

N. Hatch. "Group Theory: An Introduction and an Application." *University of Chicago VIGRE REU*; 2011. http://www.math.uchicago.edu/~may/VIGRE/VIGRE2011/REUPapers/Hatch.pdf.

UNPUBLISHED RESEARCH PROJECTS

High-speed obstacle avoidance for autonomous vehicles June 2019 - present

- Adapted model-predictive path-integral control to a goal-seeking navigation and mapping stack
- Sped up the LIDAR processing pipeline to 10Hz to support 3m/s vehicle velocities
- Designed and ran three days of experiments on Clearpath Jackal robots with Ouster LIDAR sensors

Curriculum-based learning for bipedal locomotion over rough terrain May 2018 - May 2019

- Invented an algorithm to learn a real-time, dynamic bipedal locomotion controller
- Tested the algorithm on challenging "stepping stone" environments using the DART simulator

SELECTED PERSONAL PROJECTS

https://github.com/nhatch/slam	Factor graph SLAM implemented from scratch
https://github.com/nhatch/rrt	RRT motion planning implemented from scratch

WORK EXPERIENCE

eSpark Learning *Chicago, IL*
Full-stack software engineer June 2014 - July 2017

- Led the annual iOS app release, removing 300ms tap delay and rewriting the video uploader
- Increased sales pipeline by 25% by integrating our product with Airwatch
- Conducted ~20 interviews and code challenge reviews for recruiting

TECHNICAL STRENGTHS

Programming Languages	Python, C++, Javascript/HTML/CSS, Ruby
Robotics and Simulation Software	ROS, Gazebo, DART
Deep Learning Frameworks	PyTorch, TensorFlow