

# NATHAN T. HATCH

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## EDUCATION

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**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

**University of Chicago** June 2014  
B.S. in Mathematics with honors  
B.S. in Computer Science with honors

## PUBLICATIONS

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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). <https://arxiv.org/abs/1810.10667>.

**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## UNPUBLISHED RESEARCH PROJECTS

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

- foobar

*Curriculum-based learning to walk across stepping stones* May 2018 - May 2019

- Mostly on my own, review locomotion literature and invent a new ML-based approach
- Use the DART simulator to implement and iterate on the algorithm
- Gave a two-hour presentation summarizing prior work and explaining my current approach

## WORK EXPERIENCE

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**eSpark Learning** *Chicago, IL*  
*Software engineer* June 2014 - July 2017

- Full-stack software engineering in a fast-paced startup environment
- Led the annual iOS app release, removing 300ms tap delay and rewriting the video uploader
- Increased sales pipeline by 125% by integrating our product with Airwatch
- Improved academic fidelity metric from 80% to 87% by refining our app deployment system
- Implemented Apple's "Device Assignment" protocol, making our MDM first-to-market (solo project)
- Conducted ~20 interviews and code challenge reviews for recruiting

**Dept. Computer Science, University of Chicago** *Chicago, IL*  
*chiTCP developer* October 2013 - June 2014

- Implemented a TCP-over-TCP daemon for use in Borja Sotomayor's networks class
- Earned the position based on outstanding performance in that class the previous year

**Mission Street Manufacturing** *Santa Barbara, CA*  
*Software intern* June - August 2013

- Developed prototype front- and back-end software for consumer-friendly 3D printing

## CLASS PROJECTS

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N. Hatch and E. Wijmans. *Probabilistic Graphical Modeling of Data-Dependent Annotator Accuracy for Active Learning*. CS 8803 Probabilistic Graphical Models; Spring 2018.

Paper: [https://nhatch.github.io/files/Hatch.Wijmans\\_final\\_report.pdf](https://nhatch.github.io/files/Hatch.Wijmans_final_report.pdf)

Slides: [https://nhatch.github.io/files/Hatch.Wijmans\\_presentation\\_slides\\_v2.pdf](https://nhatch.github.io/files/Hatch.Wijmans_presentation_slides_v2.pdf)

N. Hatch, A. Sundaresan, M. Dutreix, R. Kuppan, and P. Pattanashetty. *Google Landmark Recognition and Retrieval Challenges*. ECE 6254 Statistical Machine Learning; Spring 2018.

Paper: [https://nhatch.github.io/files/landmarks\\_report.pdf](https://nhatch.github.io/files/landmarks_report.pdf)

Poster: [https://nhatch.github.io/files/landmarks\\_poster.pdf](https://nhatch.github.io/files/landmarks_poster.pdf)

N. Hatch. *Unsupervised Curriculum Learning for Image Clustering*. CS 7643 Deep Learning; Fall 2017.

Poster: <https://nhatch.github.io/files/image-clustering.pdf>

## AWARDS AND HONORS

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Georgia Institute of Technology, Presidential Fellowship	2017 – 2021
University of Chicago, Dean's List	2010 – 2014
University of Chicago, University Scholarship	2010 – 2014
University of Chicago, National Merit Scholarship	2010 – 2014
University of Chicago, Student Marshal	2013
Phi Beta Kappa	2013
University of Chicago, Fulton Prize for Orchestral Excellence	2012

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	Python, C++, Ruby, Javascript/HTML/CSS
<b>Robotics and Simulation Software</b>	ROS, Gazebo, DART
<b>Deep Learning Frameworks</b>	PyTorch, TensorFlow
<b>Tools</b>	Git, Vim, LaTeX
<b>Foreign Languages</b>	Spanish

## TEACHING EXPERIENCE

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**Insight Tutoring** *Chicago, IL*  
*Volunteer tutor* January 2015 - May 2017

- Reviewed homework and class material for three economically disadvantaged sixth-grade students
- Periodically revisited old material for spaced retrieval practice

**Dept. Computer Science, U. of Chicago** *Chicago, IL*  
*Homework grader* October - December 2012

- Graded twice-weekly discrete math problem sets for Laszlo Babai's graduate-level class

**Dept. Mathematics, U. of Chicago** *Chicago, IL*  
*SESAME teaching assistant* July 2012

- Assisted teaching a class for middle school math teachers on “problem-based learning”

**Dept. Mathematics, U. of Chicago** *Chicago, IL*  
*Young Scholars Program Counselor* June - July 2012

- Tutored four 9th/10th-grade math students in an advanced summer math program
- Assisted teaching a class in basic computer programming

- Gave weekly reports on student progress, including helping to write a diagnostic exam

## HOBBIES

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<b>Places visited</b>	Spain, United Kingdom, Japan, Argentina, Brazil, Taiwan, Hong Kong, Singapore, China, Peru, South Africa, Namibia, Botswana, Zimbabwe, Turkey
<b>Other interests</b>	viola performance, rock climbing, go (the board game)