

# Austin Watkins

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## EDUCATION

### Johns Hopkins University, Baltimore, Maryland

- PhD in Computer Science Aug 2021 – present  
Advisor: Raman Arora
  - I do research in theoretical machine learning with a focus on representation learning, adversarial robustness, and implicit bias.

### University of Utah, Salt Lake, Utah

- B.S. in Computer Science - Cumulative GPA: 3.89 Jan 2018 – Dec 2020  
Thesis Supervisor: Jeff Phillips
  - B.S. in Applied Mathematics - Cumulative GPA: 3.89 Jan 2018 – Dec 2020
- ### Salt Lake Community College, Taylorsville, Utah
- A.S. in General Studies - Cumulative GPA: 4.0 May 2016 – Dec 2017

## PUBLICATIONS

- Using Existential Theory of the Reals to Bound VC Dimension. Austin Watkins and Jeff Phillips. August 2022.

## RESEARCH EXPERIENCE

### University of Utah, Salt Lake, Utah

- *Predocctoral fellow*, Computer Science Department Jan 2021 – Jul 2021
  - While hosted by Jeff Phillips, I developed high probability sample complexity bounds to protect polynomial classifiers against adversarial Euclidean perturbation.
- *Student Researcher*, Computer Science Department Aug 2019 – Dec 2020
  - I bounded the Vapnik–Chervonenkis dimension of inflated polynomials using tools from algebraic geometry. Applications include PAC bounds on learning trajectories with area-of-effect.
- *Student Researcher*, Computer Science Department May 2019 – Dec 2019
  - While advised by Ganesh Gopalakrishnan, I implemented neural networks using PyTorch to study applications of machine learning to numerical analysis on PDE models and other scientific simulations.
- *Student Researcher*, Computer Science Department Jan 2019 – May 2019
  - While mentored by Ganesh Gopalakrishnan, I studied program synthesis and verification. The projects we implemented were written in either Rosette or Alloy.
- *Student Researcher*, Mathematics Department Jan 2019 – Apr 2019
  - I studied the applications of machine learning to financial markets under the advisement of Jingyi Zhu. While working with another student researcher, I implemented an investment pipeline using Scikit-learn and Keras.

## TEACHING EXPERIENCE

### Johns Hopkins University, Baltimore, Maryland

- *Teaching Assistant - Machine Learning* Aug 2022 – present  
Taught by Mark Dredze and Anqi Liu
  - *Head Teaching Assistant - Software Testing* Jan 2022 – May 2022  
Taught by Mohammad Ali Darvish
- ### University of Utah, Salt Lake, Utah
- *Teaching Assistant - Models of Computation* Aug 2019 – Dec 2019  
Taught by Ganesh Gopalakrishnan

## WORK EXPERIENCE

### Amazon Web Services, Seattle, Washington (remote)

- *Software Engineer Intern*, DynamoDB Insights May 2020 – Jul 2020
  - As part of the insights team, my responsibilities were the visualization of big data and performing statistical analysis to develop algorithmic resource allocation strategies.

### Salt Lake Community College, Taylorsville, Utah

- *Auto-Award Specialist*, Graduation Department, Office of The Registrar Sep 2016 – Feb 2018
  - I wrote automation scripts using Auto-It to award eligible student certificates, manage graduation applications, and build graduation plans for students. In three years the college increased students awarded by 28%.

## AWARDS

- *Outstanding Undergraduate Researcher - Honorable Mention*, Computing Research Association 2021
- *Pride In Academics*, Salt Lake Community College 2017  
Awarded to accomplished students of diversity