

Travis McVoy
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Double Major
Mathematics
Computer Science

RESEARCH INTERESTS

• Learning Theory • Natural Language Processing • Computer Vision • Bayesian Inference • Time Series Analysis

EDUCATION

Skidmore College, Saratoga Springs, NY
Bachelor of Arts in Mathematics, Computer Science

Sep. 2021 — Present
Cumulative GPA: 3.96/4.00

DISTINCTIONS

- Inducted into Pi Mu Epsilon (Honorary National Mathematics Society)
- Dean's Honor List 5/6 Semesters (7/8 Anticipated)
- Competed in 2023 Putnam and scored 9 points (roughly 50th percentile)

PAST RESEARCH EXPERIENCE

Uncertainty Quantification of Diffusion Coefficient Estimation
Summer Scholars Fellow

Carnegie Mellon University
May 2024 — August 2024

- Implemented Monte Carlo Simulations
- Implemented Regression Corrections
- **Results:** Regression average miscalibration reduced from roughly 50% to less than 10%
- Poster Presentation at Joint Math Meeting 2025

Cryptographic Image Security
Undergraduate Research Assistant

Skidmore College
Jan. 2023 — May 2023

- Literature Search
- Implemented Encryption and Decryption Algorithm
- Results were presented at Skidmore's Academic Festival

SELECTED PROJECTS

Statistical Learning Theory and Monte Carlo Simulations
Honors Senior Thesis in Computer Science

Sept. 2024 — May 2025

Simulations of main results from *Understanding Machine Learning from Theory to Algorithms* by Shai Shalev-Shwartz and Shai Ben-David. Simulations will include, but aren't limited to, PAC learnability of finite hypothesis classes, the optimality of the Bayes predictor, the No Free Lunch Theorem, and the Fundamental Theorem of Learning Theory. Will conclude with examination of open problems from 2024 Conference of Learning Theory.

Infinitely Coupled Pendula and Lagrangian Dynamics
Final Project for PY 345: Mechanics

Skidmore College
Nov. 2022 — Dec. 2022

Constructed generalized coordinates ϕ_i (pendulum angle) and r (radius) for each mass. Derived a Lagrangian for a system with arbitrarily many masses. Generalized equations of motion for each mass using Lagrange-Euler equations. Presented results at the Hudson River Valley Math Conference (Spring 2023).

SKILLS

- **Coding:** Python, NumPy, PyTorch, Julia, Arduino Sketches (Simplified C++), Pandas, R Programming Lang
- **Typesetting:** L^AT_EX, Tikz, Matplotlib, BibLaTeX

RELEVANT COURSEWORK

- MA 305: Probability • MA 303: Analysis • CS 316: Machine Learning • CS 376: Deep Learning
- MS 204: Statistical Methods • CS 305: Design and Analysis of Algorithms • MA 316: Numerical Analysis
- CS 306: Theory of Computation • MA 302: Graph Theory

For all other work and projects, please visit tmcvoy.com