Milo Knell

mknell@g.hmc.edu | (626) 710-5864 | miloknell.com

Education

Harvey Mudd College — *Claremont, CA*

B.S Computer Science + Math, emphasis in Data Science, concentration in Economics — *Aug 2021 - May 2025*

3.97 major GPA. Dean's List and Harvey Mudd Merit Scholar. Data Science Club, ICPC

Coursework: Math of Machine Learning (grad), Operations Research, Mathematics of Big Data, Big Data Engineering, Mathematical Data Sci, Econometrics, Algorithms, Data Structures, Computer Systems, Advanced Linear Algebra

Work Experience

Jane Street Capital — *New York, NY*

Quantitative Researcher — *Aug 2025 - Future*

- Joining full-time in summer 2025.

Quantitative Research Intern — *May 2024 - Aug 2024*

- Participated in manual and algorithmic trading activities, modeling challenges, and worked on options and equities.

United States Department of Agriculture (USDA) — *Claremont, CA*

Machine Learning Research Intern — *Sep 2024 - May 2025*

- Performed time series segmentation using convolutional neural networks to identify feeding patterns in arthropods.

Dasion — *Claremont, CA*

Machine Learning Research Intern — *Jan 2024 - May 2024*

- Developed system to match employers to resumes, and improve the job searching process by providing resume tips.

Amazon Web Services — *Seattle, WA*

Software Engineer Intern - AWS Elastic Container Registry — *May 2023 - Aug 2023*

- Designed graceful failure path in image copy workflow to send messages to customers with detailed failure codes.

Academic Research

Hope Lab — *Claremont, CA*

Computer Science Researcher - machine learning — *August 2024 - Present*

- Applied Structured Variational Autoencoders to support a linear dynamical system prior.

AMISTAD Lab — *Claremont, CA*

Computer Science Researcher - theoretical machine learning — *May 2022 - Jul 2022*

- Presented orally at ICAART 2024: "From Targets to Rewards: Continuous Target Sets in the Algorithmic Search Framework" by **Milo Knell**, Sahil Rane, Forrest Bicker, Tiger Che, Alan Wu, George Montanez. [paper].
- Proved generalization of prior theorems on continuous space to model machine learning.

Backgammon Research Group — *Claremont, CA*

Mathematics Researcher - optimization and game theory — *Nov 2021 - May 2022*

- Created 3x improvement in state of the art for predicting doubling cube actions over the board using linear models.

Cataclysmic Variable Stars Research Group — *Remote*

Physics Researcher - astrophysics and cosmology — *Jan 2019 - May 2020*

- Analyzed 20 years of original data about cataclysmic variable star BH- Lyn using Fourier transformations.

Awards

IMC Prosperity 2 1st Place and $25,000 prize
1st/9,000 teams. Traded a variety of assets over 5 rounds.

Citadel's Datathon Global Championship 1st Place and $100,000 prize [story]
Used WLS fixed effects model to analyze factors influencing post-grad income and debt among undergraduate institutions.

National Security Agency (NSA) Cybersecurity Data Science Challenge: 1st Place and $500 prize
Designed algorithm to analyze incoming internet traffic to detect and ban malicious agents.

International Collegiate Programming Contest (ICPC): top 10 SC NAQ, top 50 USA, invited to NA Championship
Solved challenging algorithms problems.

Correlation One's TERMINAL Global Championship: 4th Place and $5,000 prize [story]
Designed banking heuristic to determine when to attack vs save, and simulator to compute optimal unit placements.

Citadel's West Coast Regional Datathon: 1st Place and $10,000 prize [report] [story]
Created clickbait detector, used fake news dataset to detect language that drives vitality. Sensitive to editorial practice.

Skills

Languages: Python, Java, C++, Haskell, HTML/CSS

Frameworks: Numpy, Pandas, PyTorch, Scikit-Learn, statsmodels, LaTeX, AWS/GCP, Django, Dagger