

Milo Knell

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Education

Harvey Mudd College

B.S Computer Science + Math, emphasis in Data Science, concentration in Economics

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

Coursework: Algorithms, Data Structures, Math of ML (grad), Operations Research, Big Data, Discrete, Linear Algebra, Econometrics

Claremont, CA

Aug 2021 - May 2025

Work Experience

Jane Street Capital

QUANTITATIVE RESEARCH INTERN

New York City, NY

May 2024 - Aug 2024

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MACHINE LEARNING RESEARCH INTERN

Claremont, CA

Jan 2024 - May 2024

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

Amazon Web Services

SOFTWARE ENGINEER INTERN - AWS ELASTIC CONTAINER REGISTRY

Seattle, WA

May 2023 - Aug 2023

- Designed graceful failure path in image copy workflow to send messages to customers with detailed failure codes.
- Wrote production ready unit, integration, and canary tests. Created alarms to monitor feature.

THN Studio

SOFTWARE ENGINEER INTERN

Remote

Jan 2022 - May 2022

- Created machine learning pipeline to annotate stock photos with tags to improve searchability.
- Built backend to handle remote photo submission and facilitate tagging with Django and MySQL. Integrated with GCP.

Academic Research

AMISTAD Lab

COMPUTER SCIENCE RESEARCHER - THEORETICAL MACHINE LEARNING

Claremont, CA

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.
- Proved when transfer learning succeeds and the tradeoff between transfer success and algorithmic rigidity.

Backgammon Research Group

MATHEMATICS RESEARCHER - COMBINATORICS AND GAME THEORY

Claremont, CA

Nov 2021 - May 2022

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

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COMPUTER SCIENCE RESEARCHER - NATURAL LANGUAGE PROCESSING

Remote

May 2019 - Jul 2021

- Created process to identify political news articles on the same topic with opposing perspectives using novel machine learning.
- Implemented efficient algorithm for nearest neighbor search to build topic models. Built distributed prediction system using Google Cloud Platform. Registered CA nonprofit [paper].

Cataclysmic Variable Stars Research Group

PHYSICS RESEARCHER - ASTROPHYSICS AND COSMOLOGY

Remote

Jan 2019 - May 2020

- Developed pipeline to take 20 years of original data about cataclysmic variable star system BH- Lyn and apply Fourier transformations to find superhump period, designed efficient algorithm to minimize entropy in sliding window.

Awards

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, SQL

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