

# Arman Dave

Portfolio: armandave.com

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## EDUCATION

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- **Massachusetts Institute of Technology** Cambridge, MA  
*Bachelor of Science and Engineering - Computer Science and Engineering; GPA: 4.7* Aug 2018 - Dec 2022  
*CS Courses:* Advances in Machine Vision, Applied Cryptography Security, Machine Learning, Software Construction, Design and Analysis of Algorithms, Computer System Engineering, Computation Structures  
*Math Courses:* Real Analysis, Algebra, Statistics, Probability and Random Variables, Automata and Complexity Theory, Differential Equations, Linear Algebra

## EXPERIENCE

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- **Block (Square)** San Francisco, CA  
*Software Engineering Intern* May 2022 - Aug 2022
  - **Team:** Worked on Automation Machine Learning Infrastructure
  - **Project:** Created merchant state embedding as input to several different product recommendation models to better capture the semantic relationship between features while also easing workload on models
  - **Other Work:** Re-tuned and cleaned up codebase of several models
- **Meta (Facebook)** Menlo Park, CA  
*Applied Research Science Intern* June 2021 - Sep 2021
  - **Team:** Worked on the Ads Auction Delivery Team with focus on ecommerce
  - **Project:** Built rule-based model to create a user segment for Facebook marketplace and then ran experiment to validate hypothesis on over 10 million users
  - **Other Work:** Drove exploratory work to validate the need to mitigate drop-shipping in Marketplace ecosystem and identified need for text-based clustering in addition to image clustering
- **Evavi** Dallas, Texas  
*Software Engineering Intern* June 2020 - Aug 2020
  - **Team:** Worked on Supply Chain Forecasting team.
  - **Project:** Built pipeline using Airflow to run Facebook Prophet forecasting model on GCP and dump prediction data into SQL database.
  - **Other Work:** Added several widgets to Evavi frontend dashboard UI.
- **Arches** Boulder, Colorado  
*Quantitative Trading Intern* June 2019 - Aug 2019
  - **Team:** Worked on Commodities Options Desk
  - **Project:** Analyzed natural gas futures for profit opportunities. Focused on spreads and options with strategy involving use of straddles/strangles.
  - **Other Work:** Drove exploratory work on a CNN to analyze satellite imaging data to predict natural gas supply.

## PROJECTS

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- **Exhaustive Trust Algorithm (ETA): Mitigation to Flood and Loot Attack of Lightning Network:** Designed algorithm known as ETA in order to make the security problem of Lightning Network called Flood and Loot unprofitable for attackers. Further proposed experimental design to validate the algorithm. (Spring '22)
- **Improving FreeSOLO with Weakly Supervised Training:** Added a weakly supervised layer to FreeSOLO, a self-supervised instance segmentation machine vision model, in order to improve results in fields with sparse image data, such as medical scans. (Spring '22)
- **ChessBot:** Developed AI chess bot in Java using alpha-beta pruning. Achieved ELO of 2600 (grandmaster status). (Spring '20)
- **Pokerbots:** Developed autonomous AI bot for MIT 30grand PokerBot competition (placed 7 out of 60) (Jan 2020)

## SKILLS SUMMARY

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- **Languages:** Python, Java, JavaScript, SQL
- **Tools:** Docker, Git, PostgreSQL, MySQL, Pytorch, Airflow, Poetry