Pranav Ahluwalia

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LINKS

Portfolio, Blog, Linkedin, GitHub

EDUCATION

Sep 2021 — May 2023

MS Applied Mathematics, Northeastern University — Boston

GPA: 3.7, College of Science Scholarship

Courses: Probability I, Statistical Learning Theory, Point Estimation Theory

Activities: NU Systematic Alpha, NU Math Club

Sep 2017 — May 2022

BS Computer Science and Mathematics, Northeastern University — Boston

Courses: Calc 3, Algorithms, Real Analysis, Linear Algebra, Diff-eqs, AI, Group Theory, Stochastics, Probability and Stats, Logic and Computation, AI, Software Development, Computation Theory

SKILLS

Python, R, SQL, C++, Java, Git, Bash, Machine Learning, Probabilistic Modeling, Algorithm Design

EXPERIENCE

Sep 2020 — Dec 2020

Software Engineer Co-op, Acadia — Norwell, MA

- Designed software infrastructure for **OTC derivatives** risk management strategies using **Python** and **SQL**
- Leveraged **numerical algorithms** to automate cleaning of data containing peer-metrics/exposure/risk
- Reduced margin call data latency by 15% to boost client-side performance

Jun 2020 — Jul 2020

Software Engineer Intern, Dell Technologies — Hopkinton, MA

- Constructed an internal cyber threat intelligence platform using Python and flask
- Mapped 1,000,000+ emerging network vulnerabilities to model real-time asset exposure
- Enhanced threat remediation by 20% through automated CVE risk analysis

Jul 2019 — Dec 2019

Cyber Security Co-op, MITRE — Bedford, MA

- Developed command line parsing software for large-scale server activity monitoring
- Created Kibana dashboards for **40% uptake** in user-based anomaly detection
- Ported millions of server queries into a well organized elastic search database

May 2018 — Aug 2018

Cyber Security Intern, MITRE — Bedford, MA

- Engineered an interactive visualization suite to process live radar signal data
- Performed **cluster analysis** on 500,000 compromised binaries across 8 factors

Jun 2016 — Jul 2016

Research Mentorship Program, UCSB Statistics Dept. — Santa Barbara, CA

- Co-Authored research paper on ARIMA trading strategies and time series analysis

PROJECTS

Online Poker/Poker Theory Youtube Channel

- Generated a **5 bb/100 win-rate** across a 50,000 hand sample
- Researched **quantitative poker strategies** using GTO+ and statistical libraries in Python
- Started a youtube channel dedicated to game theory optimal poker with **> 1500 subscribers**
- Cashed $20,000 USD playing 2/5, 1/2, and .5/1 stakes both online and live (heads up and 6-max)

Volatility Index Markov Model

- Built a custom module for time series to Markov model conversion
- Derived a stationary distribution from 10 years of VIX data and performed a monte carlo simulation
- Tested the model's two-step transition probabilities against the empirical distribution using Chi-squared

Colonel Blotto Toy Game Solver

- Implemented a solver for a variant of the Colonel Blotto game
- Devised an algorithm combining **no-regret learning** and **Monte Carlo optimization**
- Assembled a loss function based on the expected value of an agent's intermediary strategy