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EXPERIENCE

Crossmark Global Investments

Research Associate & Quantitative Developer

May 2021 – Present

- Independently derived and implemented a comprehensive programming infrastructure built on **Windows Server 2019**:
 - Set up **Anaconda** on a central server, enforcing consistent Python package management across environments and systems.
 - Created development, staging, and production environments, enabling multiple developers to collaborate effectively.
 - Utilized **Git** for version control to centralize code, reduce duplication, ensure logging of changes, and isolated testing.
- Created a **Python** optimizer with step-by-step logging and efficient hashing to manage **\$400M AUM** across 18 distinctly constrained portfolios with up to 50 constraints and 3000 securities, enhancing decision-making and debugging capabilities.
- Automated trade preparation processes in **Aegis Portfolio Manager** for **\$2.5B AUM**, reducing portfolio manager workload by **60-70%**. Implemented batch scripts for preparing trade and attribution reports for over 120 accounts before market open.
- Constructed a centralized data repository to reduce duplicate data, verify data integrity, and standardize delivery:
 - Leveraged external IT's **IBM DB2** database to execute **SQL** queries using **Python**.
 - Integrated **FactSet**'s Symbologies for symbol continuity throughout time and delivered results as Pandas DataFrames.
- Reworked the construction and handling of the firm's restricted securities:
 - Integrated **FactSet's Security Master** to keep the restrictions up-to-date with splits and other financial data complexities.
 - Enabled detailed analysis of the impact of restricted securities on portfolio performance.
- Developed a centralized logging system utilizing IBM DB2 to track process ownership, environment, and system status. Built an alerting system to report on program status, including error detection and completion notifications.
- Co-managed Software Engineering and Quant Research interns, facilitating efficient onboarding and collaboration.

PROJECTS

Networking/Systems

November 2022 - Present

- **Hosted Servers**: Built and maintained servers ([2layers.io](#), Minecraft server [hub.2layers.io](#), and LLMs) on my home network using Docker for containerization, **Nginx** for routing VPNs/proxies, and **Tailscale** for secure, decentralized SSH access.
- **Cost-Effective Infrastructure**: Integrated **Linode**-hosted proxies with my local network via Tailscale, enabling worldwide connections through Nginx tunnels. This setup supports a dynamic website and on-demand Minecraft server for just \$10/month.

Cython Texas Hold'em Solver

May 2023 - June 2023

- **Developed NL-Holdem solver with CFR**: Approximate **Nash-Equilibrium** with a modified CFR implementation. Custom abstraction algorithm, customizable bet sizing, and depth-limited searching. [github/Texas Hold'em & NCFR](#)

EDUCATION

Rice University

BA in Computer Science

Houston, TX

May 2024

- **Relevant Coursework**: Operating Systems & Concurrent Programming • Advanced OOP & Programming Design • Quantitative Finance Risk Management • Quantitative Financial Analytics • Computational Finance • Principles of Economics

SKILLS

Development

- **Languages**: Python/Cython, C/C++, Java, SQL, Batch, Shell | **Tools**: Git, Docker, Nginx, IBM DB2, FactSet API

Finance

- **Tools**: Aegis Portfolio Manager, BarraOne, FactSet | **Data feeds**: Morningstar, Sustainalytics, MSCI, BERT, Lipper

HONORS

NeurIPS 2023 - Machine Unlearning - Top 6%

2023

Conference USA Commissioner's Honor Roll

2019-2021