Thomas Pratt

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EXPERIENCE

Crossmark Global Investments

Research Associate & Quantitative Developer   *May 2021 – Present*

- Independently derived and implemented a development platform 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.
  - Centralized logging to monitor process ownership, environment, and system status, along with realtime alerting.
- 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**.
- 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.
- 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.
- Co-managed Software Engineering and Quant Research interns, facilitating efficient onboarding and collaboration.

PROJECTS

Networking/Systems   *November 2022 - Present*

- **Hosted Servers:** Built 2layers.io using Docker for containerization, **Nginx** for routing, and **Tailscale** for remote access.

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

NLP and Embedding Projects   *August 2023 - September 2023*

- **Affogato Radar**: Created a tool to scrape and crawl restaurant websites for affogato availability using **OpenAI embeddings**, **asynchronous scraping** (Playwright), and **caching**. github/AffogatoRadar
- **DocuGraph**: Built a tool for parsing PDFs, converting text into **embeddings**, and visualizing similarity via a graph. Utilized **OpenAI embeddings**, **graph construction**, and **visualization**. github/DocuGraph

EDUCATION

Rice University   **Houston, TX**

BA in Computer Science   *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*