Jesse Farnham, Ph.D.

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Technical Skills

- **Languages**: Python (experienced), Scala (intermediate), Microsoft SQL Server (familiar), C# (familiar)
- **Technologies**: AWS, Flask, Docker, DC/OS, HTCondor, SQLite, Axioma, Mosek, Spray

Experience

- **Citadel Americas, LLC** — Greenwich, CT
  Lead Quantitative Developer, Commodities — Apr 2020 – present

- **AQR Capital Management, LLC** — Greenwich, CT
  Quantitative Software Engineer — Oct 2013 – Jan 2020
  - **Technical Lead, Economic Model Deployment**: Lead developer of a team of four. Migrate deployment of economic models from a legacy SQL-based system to a git-based process with JSON files. Collaborate with researchers in development of model configuration read/write API. Provide API to detect and resolve merge conflicts between deployments. Create JSON-to-SQL translation layer for compatibility with legacy processes.
  - **Deployment Management Service**: Migrated Python back end that manages code and economic model deployments from local process to Flask service running on internal PaaS framework. Add environment awareness and integration with firmwide configuration service, allowing end-to-end testing of deployments for the first time.
  - **Chair, Code Quality Working Group**: Chaired working group of eight colleagues tasked with issuing recommendations on improving quality of the Research Engineering codebase. Group issued standards for testing, style, Python type annotations, pull requests, code reviews, and pre-merge checks, with code examples.
  - **Mean-Variance Opt**: Implemented a mean-variance portfolio optimization in Scala with Mosek, and in Python with Axioma. Collaborated with researchers to define requirements and validate results.
  - **Intraday Trading Platform**: Maintained and improved AQR's only portfolio construction platform that supported intraday trading. Built AQR's first cloud backtesting framework on AWS, with automated daily backtests and validity checks against golden copy data. Built order generation interface to firmwide OMS. Built webservice framework for performance attribution and volatility reporting using Python and Scala.
  - **Parallelization of Timing Model Regressions**: Implemented a view generation process that runs regressions of economic factors in parallel on internal high-throughput computing platform. Integrated this computation into existing portfolio definition system to enable use in backtests and production trading.
  - **High-Throughput Computing Modernization**: Conceived, prototyped, and developed a stable, scalable high-throughput computing framework using Python and HTCondor for research and production batch jobs. Began the migration of compute jobs off the legacy framework.
  - **Education and Outreach**: Co-created the "First Semester Tech Series," a lecture series to teach new researchers computer science and software engineering basics. Created a computer science interest group for occasional discussion of relevant topics. Ran "Python Office Hours" to help researchers improve coding skills.

- **Google, Inc.** — Mountain View, CA
  Software Engineer Intern — Jun 2012 – Sept 2012
  - **Biological data standardization pipeline**: Built an ETL pipeline for biological datasets to improve efficiency of bioinformatics research using BigTable, Borg, and internal RDBMS query language.

Education

- **Princeton University** — Princeton, NJ
  Ph.D. in Computer Science — Sept 2008 – Sept 2013
  - **Research topic**: Relationships between protein-to-protein physical interaction networks and gene expression

- **Wesleyan University** — Middletown, CT
  B.A. Computer Science and Molecular Biology; GPA: 3.96; CS GPA: 4.0 — Sept 2004 – Jun 2008

Other

- **Interests**: Aircraft owner and pilot