Adam C. Sanders

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Education

Princeton University, A.B. in Computer Science   June 2009
Interests: Data Mining, Machine Learning

Professional and Research Experience

Engineers Gate L.P., *2013 - Present*
Lead Portfolio Manager - Global Equity Trading Team
-   Developed and managed a new PM team at EG. Created all aspects of the production and research platform from alpha development, model creation, portfolio optimization, risk management, simulation, and production deployment.
-   Launched and managed trading strategy making extensive use of custom linear and non-linear hierarchical ML models.

Senior Quantitative Researcher - Global Equity Trading Team
-   Launched a new trading group within EG. Developed and maintained a research platform, production, and trading processes in three regions. Aided in strategy development, backtesting, data ingestion, and research.
-   Produced a distributed regression and analysis framework in Spark to load and manipulate data in-memory across a cluster of computers allowing for interactive and near-instantaneous intraday equity research.
-   Developed domain-specific language for distributed time-series manipulation and signal definition to aid alpha development.
-   Created asynchronous distributed model creation, evolution, scoring and deployment system enabling researchers and computers to collaborate on feature definition, model architecture evolution, and hyperparameter exploration.
-   Developed a variety of new features including forecasts in events, fundamentals, technical analysis, news, sentiment, and other areas. Used linear and non-linear approaches to aggregate hundreds of self-developed features into production forecasts.

Senior Software Development Engineer - Core Technology Team
-   First employee and lead developer for the research platform team at a new hedge fund. Made extensive use of AWS to create all the technology needed to get up and trading including monitoring, alerts, cron-like processes and long-running services.
-   Created firm-wide data platform capable of merging terabytes of bitemporal data from multiple sources to produce highly curated security master, pricing, and other market datasets. Pipeline took advantage of Spark, Mesos, and S3 for data management.
-   Created custom Mesos framework for running distributed backtests and other cpu/io intensive tasks. Framework handled dependency management, resource utilization, and code sharing in a clustered environment.

Amazon.com, *2009 - 2013*
Software Development Engineer - Recommendations Team
-   Created the scalable closed-loop optimization pipeline and initial machine-learned models responsible for ranking recommendations at Amazon. Pipeline integrated billions of new training examples into our ML models on a daily basis. Iterated on feature and model development to improve the accuracy of Amazon Recommendations, generating significant incremental revenue in online A/B tests.
-   Designed and implemented the distributed processing environment used by 40+ developers to easily and flexibly process the terabytes of data each day required by the algorithms that power personalization features at Amazon. Utilized advancements to create distributed model evaluation framework, as well as distributed implementations of ALS matrix factorization and SGD logistic regression.
-   Developed a new online recommendations service to power recommendations features, improving flexibility and dropping latencies for key components of our existing service by between 3 and 10x.

Software Development Engineer - Fact Extraction Team
-   Worked with a team that specializes in using information retrieval and NLP to extract high quality structured product attributes from billions of merchant contributions with the aim of improving Amazon's global catalog.

Natural Language Processing Research, *2008 - 2009, Senior Independent Work*
Developed platform that automatically aggregates, analyzes, and visualizes thousands of RSS feeds using Latent Dirichlet Analysis.

Demographic Data Mining Research, *2006 - 2009, Princeton University*
Performed cluster and correlation analysis on popular interactive websites like eBay, Facebook, LiveJournal, and MySpace.

Liquid Chromatography/Mass Spectrometry Data Analysis, *2007 - 2008, Junior Independent Work*
Developed more efficient and effective means to clean, analyze, and view mass spectrometry protein scans.

Biofuel Flux Balance Analysis, *2008, Harvard University*
Applied linear programming and networking techniques in order to model the production of biofuels in algae.

American Indian Science and Engineering BPC Research Program, *2007, University of Michigan*
Developed an artificial intelligence agent to compete in annual ORTS AI competition.

Skills

Languages: Java, Python, C/C++   **Technologies**: AWS, Mesos, Hadoop, Spark, Pandas, Docker
Certifications: Eagle Scout, WFR   **Patents**: 6 patents granted, 11 patents filed at USPTO