Jason F. Petri

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Education

- **University of Texas** — Austin, TX
  Master of Science in Business Analytics — *May 2021*
- **University of Akron** — Akron, OH
  Bachelor of Business Administration in Financial Management — *May 2020*

Experience

- **KeyBanc Capital Markets** — Cleveland, OH
  Quantitative Analyst — *July 2021 - Present*
  - **Trading Application**: Built a realtime fixed income trading application using React, AgGrid, Kafka, and FastAPI that supports thousands of updates per second, tens of millions of messages per day, matrix pricing, formulas, and 5 concurrent corporate bond traders to manage risk and respond to RFQs.
  - **Pricing Engine**: Built a microservice API with Refinitiv bond fundamental data, QuantLib, and BPIPE treasury curves to support over 3000 calculations per second of duration, yield, price, net present value, and yield-to-worst for investment grade corporate bonds.
  - **Spread Modeling**: Generated model features in BigQuery from various sources with window functions to detrend and predict g-spread dynamics using Random Forest models. Deployed models in real-time trading and analytics.
  - **Visual Analytics**: Deployed 8 Streamlit, React, or Tableau applications with over 20 daily active users improving reporting accuracy to regulators and clients.
  - **Vendor Management**: Consulted with vendors to gather firewall, connectivity, public/private key details from OneTick, Refinitiv, Bloomberg, and MarketAxess to enable connectivity between internal cloud environments and vendor APIs, FIX engines, and data products.
  - **Data Transformation**: Productionized 11 ETL pipelines using Airflow, BigQuery, Cloud Storage, and Postgres.
  - **Unstructured Data**: Ideated usage of internal, terabyte-scale consumer transaction dataset to track over 1100 unique companies. Utilized BigQuery to build weekly sell-side research products sent to investment community.
  - **Trading Infrastructure**: Architected and wrote Java application to interface with MarketAxess FIX engine to send algorithmically-generated spread to benchmark levels for investment grade bonds and connected to TOMS API to retrieve realtime trades and positions data.
  - **Cloud Migration**: Gathered requirements from internal team, designed, and implemented a cloud-native solution to promote usability and cost savings. Collaborated with internal technology teams to abide by security model for publicly available endpoints and data loss prevention initiatives.
  - **Generative Modeling**: Trained a generative adversarial network (GAN) with TensorFlow to simulate equity order flow data. Used synthetic data to backtest market impact models.
  - **Volatility Modeling**: Implemented equity volatility models and produced an automated Airflow job to store volatility estimations for our tradable universe. Used volatility models and Monte-Carlo simulations to estimate probability of limit order fills.

Projects

- **Dun & Bradstreet Natural Language Processing**: Extracted mergers and acquisition activity details from news feeds using TensorFlow and feature vectors derived from large language models.
- **Factor Modeling**: Constructed long-short portfolios on default probability and regressed returns to impute alpha.
- **Portfolio Management Web Application**: Portfolio visualization tool to monitor live performance of University of Akron's student managed fund.
- **Honors Thesis**: Analyzed country-linked ETFs and the influence of culture and governance on financial crash risk. Research resulted in a published work at an institution.

Technical Skills

- **Languages**: Python, Javascript, Java, SQL
- **Technologies**: BigQuery, Linux, Docker, git, React, Kafka, Redis, Flask
- **Licenses**: Securities Industry Essentials, Series 7