

KEJILI

DATA SCIENTIST | QUANTITATIVE PROGRAMMER

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SUMMARY

Hands-on Senior Quantitative Developer and Data Scientist with solid statistics, neuroscience, and finance background. Expertise in end-to-end data pipeline development, combined with experience maintaining large codebases. Highly effective at creating visualization and automation tools to support domain experts. Proficient in Python, C/C++ and Rust. Brings a sound understanding of pre-clinical trials and various imaging methods used in neuroscience to the table. Strengths in transitioning smoothly from data research to real-world applications. Experienced in working with complex modeling of data and image processing. Permanent resident in US, no visa sponsorship needed.

AREAS OF EXPERTISE

QUANTITATIVE PROGRAMMING AND DEVOPS

- End-to-end data pipeline development from data acquisition to model productionization.
- Development of data visualization and trade automation tools for portfolio managers and traders.
- Experience with Airflow, ActiveBatch, Github Actions, Gitlab CI/CD, Docker, and AWS S3/ESC.

STATISTICS

- Proficient in Structural Equation Models (SEM), Hidden Markov Models (HMM), and basic Partial Differential Equation (PDE).
- Image processing including manual feature detection and CNN-based object detection/motion tracking.
- Experience with Recurrent Neural Networks (RNN) and Variational Autoencoders (VAE).

PROGRAMMING LANGUAGES AND MAJOR LIBRARIES

- Python: Pandas Polars Airflow Sklearn CVXOPT PySpark OpenCV XGBoost PyTorch SQLAlchemy
- Rust: ndarray pyo3
- C/C++: Boost Qt4 Qt5 OpenGL-ES-2.0
- Matlab, SQL, Spark, R: lavaan nlme

FINANCIAL INVESTMENT RESEARCH

- Factor research and model estimation for commodity models.

HARDWARE DEVELOPMENT

- Independent development of animal experiment rigs for motor learning experiments using: Digital circuit design. 3D modeling with AutoCAD/FreeCAD/Blender for 3D printing/laser cutting/assembly/rendering.

NEUROSCIENCE RESEARCH

- Light, confocal and electron microscopy; 2-photon and 3-photon Ca^{2+} and Cl^{-} imaging of awake animals
- 3D reconstruction of brain areas and neural projections
- Optical imaging of BOLD or Ca^{2+} signal

PROFESSIONAL EXPERIENCE

Acadian Asset Management Boston, MA Quantitative Developer Aug 2020-Oct 2023

- Led upgrade to ~300k LOC codebase safely from Python 2 to Python 3, then from Pandas 0.25 to 2.0. Improved ad-hoc integration test framework and trained team members for the upgrade.
- Developed and productionized commodity models through close collaboration with portfolio managers.
- Established a robust data pipeline for model estimation, including data retrieval, parsing, cleaning, transformation, and aggregation.
- Turned previously loss-making models into profitable ones.
- Contributed to the development of transaction cost integration in models across equity, bonds, and foreign exchange sectors.
- Participated in the migration of pipeline orchestration from ActiveBatch to Airflow.
- Automated and enhanced the trade generation system for variance swaps, reducing manual interventions from PM's and traders.

Massachusetts Institute of Technology Cambridge, MA Post-doctoral fellow Aug 2015-Aug 2020

- Collaborated in neuroscience projects, analyzing neuronal encoding with vector regression (SVR), RNN and particle filtering; evaluated with a continuous estimate of mutual information. Developed behavioral task rigs integrated with 2p microscopy.
- Directed a team in a translational project for a novel drug to treat Rett Syndrome, leading pre-clinical tests and statistical analysis using mixed linear models and non-parametric tests.
- Created an automated pipeline for two-photon imaging data processing using both conventional and deep learning-based object detection/segmentation techniques.

EDUCATION

Vanderbilt University Nashville, TN PhD in Psychology, neuroscience focus/quantitative methods secondary focus Aug 2015

Fudan University Shanghai BS in Life Sciences Jul 2009