James Yihan Zhang

617-691-9580 | jzhang72@terpmail.umd.edu | linkedin.com/in/jamesyzhang | github.com/thejameszhang

Career Core Values

Collaboration - I prioritize fostering an environment where teamwork and individual responsibility are seamlessly integrated to achieve collective success. I consistently work to empower others and drive team-oriented results.

Integrity - I adhere to the highest standards of honesty, transparency, and accountability in all professional dealings, ensuring ethical decision-making at every stage.

Innovation - I consistently seek out innovative solutions, striving to challenge conventional thinking and adopt forward-looking approaches to complex problems.

Growth - I am committed to continuous professional and personal development, constantly enhancing my skills while supporting the growth and success of my colleagues.

Service - I maintain a results-oriented approach, dedicated to delivering exceptional outcomes for both clients and collaborators, ensuring long-term value and satisfaction.

Technical Skills

Languages: Python, C, C++, CUDA, Rust, Java, OCaml, Matlab, HTML/CSS, Javascript, MIPS Assembly, LaTeX
Tools & Frameworks: Git, Docker, AWS, Jenkins, FastAPI, Flask, Django, React.js, Pydantic, SQLAlchemy, Conda, VS Code, Eclipse, Vim, Figma
Systems: Linux/Unix, Windows, MacOS
Data & Analytics: Jax, Sklearn, Statsmodels, Pandas, NumPy, TensorFlow

Project-Based Achievements

State-Augmented RL Framework - Feb 2024 – May 2024

- Teamed up with IBM researchers to craft a next-gen state-augmented RL framework using sentiment analysis from financial reports to optimize portfolio management.
- Harnessed PPO & DDPG algorithms on AWS clusters via Gym & StableBaseline3, slashing training time by 40% while boosting performance.
- Developed an efficient, scalable Flask/React.js application for users to easily interact with the RL agent and track financial insights.

Capital One Remediation Dashboard - Jun 2024 – Aug 2024

- Led development of a scalable, real-time dashboard with a refined UI for data lake remediation requests with FastAPI and AWS Fargate—cutting dev workload by 20%.
- Optimized API built with Pydantic & SQLAlchemy, achieving a 15% reduction in database query times.
- Built a SlackBot using websockets to facilitate ultra-fast, team-wide communication, leveling up collaboration across the board.

Pairs Trading Alpha - Dec 2022 – Jun 2023

- Created a statistical arbitrage model utilizing PCA, clustering, and Hurst Exponent tests, with an average of 12% annualized returns in backtests.
- Improved pair identification speeds by 200x, thanks to optimized algorithms and smarter data structures.

Custom Jax GPU Ops for Infinite-Width NNs - Oct 2023 – Present

- Wrote C++/Cuda ops optimized for XLA compiler to support infinite-width neural networks, squeezing out a 25% speedup by integrating Jax's jit and vmap.
- Applied the framework to neural network kernel approximations in financial asset pricing models.

Quantitative Finance API Suite - Smith Investment Fund - Sep 2022 – Jul 2024

- Led the development of a quant finance API suite, migrating code from Python to Golang, cutting backtest times by 30%.
- Organized recruitment, ran workshops, and delivered lectures on advanced financial modeling and algo trading.