YIMING PENG

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EDUCATION

Columbia University **NY**
MS in Financial Engineering Dec 2025
Course: Optimization, Deep Learning, Stochastic Calculus, Simulation, Dynamic Programming

New York University Shanghai **Shanghai, CN**
BS in Honor Mathematics and Data Science | Dean's List | GPA: 3.857 May 2024
Course: Linear Algebra, Stochastic Process, Probability, Statistics, Differential Equation, Data Structure, Deep Learning

WORK EXPERIENCE

Ineurotech **Shanghai, CN**
LLM Engineer Intern Apr-Sep 2024

- Pioneered fine-tuning of Qian-wen (14, 32 billion parameters) and GPT-4o mini LLMs applying innovative Low-Rank Adaptation (**LoRA**), introducing a human-like tone to enhance user interaction
- Implemented a **reward model** for Proximal Policy Optimization (**PPO**) in reinforcement learning, providing effective reward signals to guide optimization of dialogue generation
- Initiated application of Direct Preference Optimization (**DPO**) in reinforcement learning, leveraging human feedback to improve LLMs' response quality and user satisfaction
- Collaborated with 2 engineers to build a multi-agent chatbot system with **LlamaIndex**, integrating specialized agents for summarization, translation, sales, and engagement, improving system efficiency
- Consolidated company knowledge base into LLMs using Retrieval-Augmented Generation (**RAG**), overhauling LLMs' contextual accuracy

FrontierFund **Shanghai, CN**
Hedge Fund Quant Researcher Intern Jun 2023-Apr 2024

- Spearheaded transformation of tick and trade data for BTC, stock index futures, and oil futures into innovative candlestick structures, enabling multidimensional alpha signal extraction
- Applied **Kalman filtering**, **moving averages**, and **PDE** techniques to increase stability and accuracy of minutes frequency trading signals across different time horizons
- Developed new alpha extraction techniques by synthesizing **candlestick pattern analysis**, **statistical testing**, and **technical indicators**; delivered weekly alpha factor reports to the portfolio manager
(Identified **6 alphas** in **BTC** into fund's factor library, all passing correlation tests and yielding over **2.1** annual Sharpe ratios over 3 years' time horizons)

Guangfa Futures Co., Ltd **Guangzhou, CN**
Quant Researcher Intern Jun-Aug 2022

- Led the development of a **genetic programming** framework to identify high Sharpe Ratio / Turnover Rate alpha factors, coordinating with quant teams to deploy 42 features and 68 operators, resulting in **12 factors** demonstrating an annual Sharpe ratio above **1.57** in test set
- Designed a **CNN** model to predict daily future prices, transforming price-volume data into images-like data structures

PROJECT EXPERIENCES

Deep Learning Solution to Master PDE for Krusell-Smith model, Research Assistant Jan-May 2024

- Designed a novel deep learning network to solve the Krusell-Smith model Master PDE system
- Optimized network parameters using **Optuna**, **Grid Search**, and various optimizers (**Adam**, **Adagrad**, **RMSProp**)
- Leveraged advanced **sampling** and **perturbation** techniques to revamp numerical stability and model accuracy

Algorithms' Implicit Regularization under Over-parameterization, Research Assistant Jun-Dec 2023

- Analyzed implicit regularization in underdetermined matrix factorization models, identifying nuclear norm as implicit regularizer in gradient descent optimization
- Conducted simulations showing how gradient descent favors well-generalizing solutions under over-parameterization

LANGUAGE AND IT SKILLS

Programming & Libraries: Python, C++, SQL, R, Linux, Flask, PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas
Dev Tools & Cloud: GIT, Docker, SSH, AWS, Google Cloud, Microsoft Azure, Selenium, Llamaindex, Hugging face
Certificate & Awards: Bloomberg Market Concept, Meritorious Mention (Top6%) Interdisciplinary Contest in Modeling