Zitong Cheng

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EDUCATION

Sun Yat-sen University, Lingnan College Guangzhou, China
Bachelor of Economics in Finance, Minor in Statistics *Expected June 2026*

Cumulative GPA: 3.8/4.0

Core Courses: Real Analysis, Stochastic Process (99/100), Machine Learning in Economics and Finance (97/100), Financial Engineering (95/100), Econometrics (90/100), Probability and Statistics, Linear Algebra, Differential Equations, Data Analysis with Python

Honors: Top 10 Nationwide - Tsinghua University "Jinjing Ledao" Economic Analysis Competition; Team Leader - UBS Financial Elite Challenge

RESEARCH EXPERIENCE

Asset Embeddings in China
Research Assistant, Co-first Author *Feb 2025 – Jul 2025*

- Led methodology design and full implementation for a project applying NLP and representation learning to model financial assets from mutual fund holdings data; manuscript under review at *Management Science*.
- Modeled institutional portfolios as "documents" and stocks as "tokens," applying Word2Vec, Recommender System, and BERT-based embedding models to capture cross-asset relationships and investor behavior patterns.
- Designed a quarterly fine-tuning workflow to address temporal dynamics: base models trained on historical data are adapted to each quarter's holdings without look-ahead bias, outperforming static embedding approaches.
- Evaluated performance across valuation accuracy, return comovement, and portfolio-level tests; contextual embeddings (AssetBERT) achieved 15–25% higher predictive power than traditional firm-characteristic models.

AttnFactorVAE: Probabilistic Factor Models with Attention and Variational Autoencoders
Undergraduate Thesis, advised by Prof. Xiaobin Liu *Sep 2024 – Present*

- Proposed AttnFactorVAE, a hybrid deep learning model integrating Variational Autoencoder (VAE) and multi-head attention mechanisms for cross-sectional stock return prediction in China's A-share market.
- Designed AttnFeatureExtractor to differentially process price-volume factors (via GRU) and fundamental factors (via self-attention), addressing the heterogeneity of financial data inputs.
- Introduced KL-divergence regularization to constrain latent factor distributions toward standard normal priors, enhancing model robustness in low signal-to-noise financial environments.
- Achieved 7% improvement in out-of-sample predictive accuracy and 10% higher Sharpe ratio in portfolio backtesting compared to baseline FactorVAE model.

MindDFT: AI Scientific Computing Platform
Research Assistant, Core Developer *Oct 2023 – Present*

- Contributed to the national Science and Technology Innovation 2030 – New Generation Artificial Intelligence program led by the Ministry of Science and Technology of China.
- Migrated the DeepDFT model from PyTorch to MindSpore, building and maintaining core MindDFT modules to expand domestic AI framework usage in scientific computing.
- Optimized data pipeline and model structure, integrating Python and C extensions for algorithm adaptation and performance tuning.

Sampler Scheduler for Diffusion Models
Author, Lead Developer *Aug 2023 – Oct 2023*

- Proposed an adaptive multistep sampling scheduler that improved diffusion model sampling efficiency and numerical stability.
- Achieved state-of-the-art FID performance with 30–40% reduction in sampling steps, accelerating image generation without compromising quality.
- Built Stable Diffusion WebUI plugin "Seniorious" (39 GitHub stars); research released as preprint on arXiv (arXiv:2311.06845).

PROFESSIONAL EXPERIENCE

Huatai Securities Remote, China
Quantitative Research Intern *Aug 2025 – Oct 2025*

- Implemented asset representation learning framework based on "Asset Embeddings in China" research to model inter-asset relationships; completed end-to-end pipeline including data preprocessing, quarterly embedding model training, backtesting, and deployment in internal research environment.
- Conducted cross-sectional analysis on embedded representations to uncover sector rotation trends, fund style drift, and risk-return asymmetries; delivered findings to senior managers to support portfolio allocation.

Shenwan Hongyuan Group Co., Ltd Shanghai, China
Quantitative Research Intern *Jul 2024 – Sep 2024*

- Reproduced and extended Duan et al.'s FactorVAE model for cross-sectional return prediction; this work directly inspired the development of AttnFactorVAE for undergraduate thesis.
- Supported weekly investment strategy research by consolidating insights from institutional reports, identifying macro themes and sector rotations for portfolio managers' tactical positioning.

SKILLS

Programming: Python (PyTorch, TensorFlow, Pandas, NumPy, Scikit-Learn), SQL, Git, C, Lua

Machine Learning: Deep Learning (VAE, Attention/Transformers, GRU/LSTM, Diffusion Models), Supervised Learning, Dimensionality Reduction, Representation Learning

Finance: Factor Models, Portfolio Optimization, Backtesting, Econometrics, Financial Econometrics

Languages: Mandarin (Native), English (Toefl 106)