

QUNYING ZHANG

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EDUCATION

CARNEGIE MELLON UNIVERSITY

Master of Computational Finance

GPA: 3.6/4.3

Pittsburgh, PA

12/19

Courseworks:

Calculus, Linear Algebra, Regression, Optimization, Ordinary and Partial Differential Equations, Numerical Methods
Stochastic Process, Advanced Probability Theory, Data Science, Machine Learning, Deep Learning, Advanced NLP

SHANGHAI JIAO TONG UNIVERSITY

Bachelor of Science in Physics, Honor Program

GPA: 4.0/4.3

Shanghai, CN

6/18

- Top 0.01% on the National College Entrance Exam, 1st Prize of National Physics Olympiad
- 2015 Kaiyuan Academic Excellent Award (top 1%), 2015 & 2016 Shanghai Jiao Tong University Scholarship (top 5%)
- Mathematical Contest in Modeling (MCM) Meritorious Winner (top 10% worldwide, team leader)
- Excellent research exchange student at National University of Singapore (NUS)

SKILLS

Programming: Python (Numpy, Scipy, Pandas, Scikit-learn, Keras, Tensorflow, HuggingFace), SQL, C++, R, MATLAB

System & Cloud: Linux (basic administration), AWS Elastic Compute Cloud (EC2)

WORK EXPERIENCE

MACKENZIE INVESTMENTS

Senior Investment Analyst (Quant Research)

Boston, MA

3/20 – present

- **Infrastructure & Pipeline:** Managed 100+ daily alpha factor computation programs and underlying data infrastructure, ensuring seamless live trading and equity portfolio rebalancing
- **NLP Research & Development:** Developed topic modeling system using Latent Dirichlet Allocation to analyze 4500+ company annual disclosures and extract topic-wise firm similarity. Enable downstream applications, alpha factors reached over 10% annualized return
- **LLM Sentiment:** Engineered end-to-end sentiment analysis pipeline for US and China earnings call transcript. Sentiment inferences were run with multiple NVIDIA A100 GPUs on Amazon Elastic Compute Cloud (EC2)
Fine-tuned **Llama-3-8B** model using **LoRA** on Financial PhraseBank dataset, improved classification accuracy by 6%
Conducted comprehensive experimentation on **prompting** techniques, achieving final test accuracy of 84%
The sentiment factors constructed has 12% annualized return in US, and added to live trading model
- **Fine-tuned BERT:** Developed a BERT-based sentiment classifier on broker research reports
- **Innovation:** Integrated high-performing models into live production systems with measurable impact on real-time decision making
- Collaborated cross-functionally with data engineering and portfolio management teams to align model output with downstream requirements

ARCH CAPITAL GROUP

Data Science Intern

Raleigh, NC

6/19 – 8/19

- **Statistical Modeling:** Built regression and GAM models to predict pricing spreads of CRT and MILN deals, achieving 90% R-squared on existing data and 81% precision on new deals
- Improved model performance by 38% through non-linear modeling and feature engineering (Generalized Additive Model)
- Combined multiple credit ratings (Fitch, S&P, Morningstar) into unified features via statistical analysis

SCHOOL PROJECTS

Predicting S&P 500 Index Using Machine Learning Techniques

2/19 – 5/19

- Modeled the return using past trends of fundamental economic indicators and momentum indicators (lagged return, WMA...)
- Built single stage prediction models (LR, Multi-layer Perceptron, Random Forest Regressor), cross validated parameters
- Predicted future values of indicators, built a two-stage hybrid ML model (MSE reduced by 31% compared with single stage)

Glaucoma Diagnosis Using Variational Auto-encoder (VAE)

8/17 – 10/17

- Built Variational Auto-encoder (VAE) on 20,000 crosscut pictures with Keras
- Optimized VAE, trained network with Stochastic Gradient Descent, observed clustering in latent variables distribution
- Built a picture generator sampling from latent distribution to help provide output diagnosis of glaucoma

ADDITIONAL INFORMATION

- Volunteer Activities: Habitat for Humanity volunteer, Cambodia Countryside Children Organization International Volunteer Teacher, 2015 & 2016 Shanghai International Marathon Excellent Volunteer
- Hobbies: Tennis, Kick-boxing, Painting, Photography