

Anxiang (Adam) Zhang

anxinagz@andrew.cmu.edu | (412) 897-2635 | www.anxiang-zhang.info

EDUCATION

Carnegie Mellon University, School of Computer Science

Pittsburgh, USA

M.S in Information Technology, Data Analytics Track

Expected Dec. 2020

Selected Coursework: Multimodel Machine Learning, Algorithm in NLP, Introduction to Deep Learning(PhD Level), Introduction to Machine Learning (PhD Level), Machine Learning on Large Dataset, Parallel Computing Architecture

Southwestern University of Finance and Economics

Chengdu, China

B.S in Economics, Major in Finance, minor in Computer Science; GPA: 89/100

July 2019

Selected Coursework: Probability Theory, Advanced Mathematics, Linear Algebra, Data Structure and Algorithm

RESEARCH EXPERIENCE

Carnegie Mellon University, Language Technology Institute

July 2020 – Present

Graduate Research Assistant in Machine learning for Signal Processing Lab

Advisor: Prof. Bhiksha Raj

- Formulizing a new weakly machine learning problem with semi-weakly labelled data; designing algorithm to tackle this problem.

Southwestern University of Finance and Economic

April 2018 – Present

Research Assistant in Financial Intelligence and Financial Engineering Lab

Advisor: Prof. Yu Zhao

Application of Graph Neural Network in Knowledge Graph Typing

- Built three heterogeneous relation graphs to extract structural information for entity type inference.
- Applied relation-aware graph attention network to the three sub-graphs and achieved state-of-the-art performance in entity typing with Connect-E as a decoder.

Connecting Embedding for Knowledge Graph Typing

- Optimized the existing state-of-the-art model by leveraging the relation between entity types.
- Reimplemented over 7 baseline methods on this task; Achieved over 10% performances improvement compared to SOTA on both Freebase and YAGO KG datasets.

Hong Kong University of Science and Technology

May 2020 – Aug 2020

Research Assistant

Advisor: Prof. Chen, Kani

- Designed a heuristic tree-based distributed Auto-ML training framework using successive halving algorithm; achieved at Top 10 place in Kaggle competition in the first month.

Carnegie Mellon University, Institute of Software Research

Feb 2020 – Aug 2020

Research Engineer in ABLE Lab

Mentor: Prof. David Garlan

- Lead a three-member team meeting to research the ideas of using game theory tools to visualize the dynamic process of security attack; engineered game theory-based web visualization application using D3.js and Python flask; Collaborated with [Rainbow](#) teams to support this new visualization tool.

PUBLICATIONS

- Yu Zhao* and [Anxiang Zhang](#)*, “Connecting Embedding for Knowledge Graph Entity Typing”, *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL)*, July 2020.
- Yu Zhao*, Han Zhou* and [Anxiang Zhang](#), “NIET: Exploring Neighborhood Information for Knowledge Graph Entity Typing”, *Submitted to International World Wide Web Conference 2021 (WWW)*

ACADEMIC PROJECTS

Automatic Speech Recognition

April 2020 – June 2020, Pittsburgh

- Built a character-level Listen, Attend and Spell model and used beam search to improve prediction performance.
- Implemented teacher-forcing, variational-dropout and weight tying tricks to overcome overfitting problem; ranked 14/245.

Streaming Parallel Decision Tree

April 2020 – June 2020, Pittsburgh

- Implemented a streaming and communication-efficient data-parallel version of the gradient boosting decision tree using CUDA, OpenMPI; Achieved 4x speedup using 8 cores.

Market Sentiment Analysis using Reddit Comments Data

April 2020 – June 2020, Pittsburgh

- Applied PCA and sentiment analysis to extract features from 1 TB Reddit comments using MapReduce. Created cluster on AWS EMR machine and used AWS S3 bucket to store the large data.
- Trained a logistic regression to predict the stock market trend using PySpark; obtained 65% prediction accuracy.

Dual-Track Music Generation Using LSTM

May 2019 – Jan. 2020, Pittsburgh

- Designed a novel (LSTM + MLP)-based dual-track architecture for generating classical piano music, which is able to model the inter-dependency of left-hand and right-hand piano music; evaluated different models and training tricks in Nottingham dataset and achieved comparable results with state-of-the-art.

COMPETITION EXPERIENCE

Fraud Detection Kaggle Challenge

Sept. 2019 – Jan. 2020

- Applied LightGBM with hyper-parameter searching and feature engineering techniques to predict purchase fraud; ensembled LightGBM, XGboost, Catboost to increase the performance;
- Awarded with a **silver medal (Top 3%)** among 1800 participants.

Statistical Software Application and Statistical Modeling Contest

March 2018 – Sept. 2018

- Implemented an ensembled model to predict the traffic flows of 132 roads in Guiyang City; Engineered features based on topological characteristic, time-series statistics and clustering characteristic.
- Won the **championship (1/84)**.

China Undergraduate Mathematical Contest in Modeling

Aug. 2017 – Sept. 2017

- Built a novel pricing model for a crowdsourcing company to optimize its business. Created a nonlinear programming model and developed a genetic algorithm into approximate the numerical solution. Results of our model showed a 10% improvement.
- Won the **National First Prize (Top 1%)** among over 3000 participants.

INTERNSHIPS

Shanxi Securities LLC., Ltd

Shanghai, China

Research Intern

June 2018 – Sept. 2018

- Developed a Bi-LSTM-based adversarial model to predict the winning stock between two stocks; applied Page Rank algorithm to determine the portfolio weights; back-test results showed a positive smart-beta return of 7% and volatility of 2%.

TEACHING

- **Teaching Assistant** for 11785 – Introduction to Deep Learning (PHD - level)
Carnegie Mellon University

May 2020 – Present
Mentor: Prof. Bhiksha Raj

SKILLS

- **Programming & Software Skills:** Python, C/C++, CUDA, OpenMPI, OpenMP, Java, Spark
- **Frameworks:** Pytorch, Keras, NLTK, Stanford CoreNLP, Deep Graph Library (DGL).