Mingzhe **Zhang**

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Summary

I am currently a master's student at the University of Queensland (UQ) with scholarship support (Summer Research Scholarship). My **GPA is 6.33/7.0** and is awarded **Dean's Commendation for Academic Excellence**. Before joining UQ, I received my bachelor's degree from Shanxi University (a "Double First-Class" University in China, universities and disciplines are recognised at the world-class level by the Ministry of Education of China) in 2019. My current **research interests include machine learning and its applications in the medical domain**.
In the last one year, I have produced **two first-author publications**, including one journal paper- Journal Machine Learning (Core A) and a conference paper - 18th International Conference Advanced Data Mining and Applications (Core B). In addition, I have actively participate research project and gain teaching experience, I **worked as a research assistant** on multiple projects at UQ, and I was **employed as a tutor** for INFS3202/7202 Web Information System with positive feedback from the course coordinator and students.

Education

Master of Engineering Science (Software Engineering)

Brisbane, Australia

The University of Queensland

Feb. 2022 - Feb. 2023

- GPA: 6.33 / 7
- Dean's Commendation for Academic Excellence

Bachelor of Software Engineering

Taiyuan, China

Shanxi University

Sep. 2015 - Jun. 2019

- GPA: 84 / 100
- Represented the university in a Semi-Pro E-sports League and won the **Championship**

Publication

- **M. Zhang**, L. Yue, M. Xu. "ESTD: Empathy Style Transformer with Discriminative mechanism." Accepted by The 18th International Conference on Advanced Data Mining and Applications (ADMA'22). **(CORE B, First Author, Accepted)**
  - In this work, Mingzhe contributed to designing and implementing the proposed Empathy Style Transformer with Discriminative mechanism (ESTD). **This is the first work on the empathy style transfer using transformer.**

- S. Shen, **M. Zhang**, W. Chen, A. Bialkowski, M. Xu. "Words Can be Confusing: Stereotype Bias Removal in Text Classification at the Word Level." The 27th PACIFIC-ASIA Conference On Knowledge Discovery And Data Mining (PAKDD'23) **(CORE A, Accepted)**
  - In this paper, Mingzhe contributed to designing and implementing the proposed mehtod, and conceived and conducted the experiments to get the results, and analyzed the experiment results.

- Y. Zhao, **M. Zhang**, C. Zhang, W. Chen, Y. Nan, M. Xu. "A Boosting Algorithm for Positive-Unlabeled Learning." Accepted by Springer Machine Learning Journal. **(CORE A, Co-First Author, Accepted)**
  - In this paper, Mingzhe as co-first author contributed to **implementing the proposed boosting algorithm for PU learning**, conceived and conducted the experiments to get the results, and analyzed the experiment results.

Research Experience

Towards positive emotion: artificial intelligence-based expression rephrasing

Brisbane, Australia

UQAI ECR Project in The University of Queensland

May. 2022 - Dec. 2022

- Sentiment in language expression is one critical factor that impacts mental health. Compared to harsh or aggressive expressions, expressions with a high empathetic level can produce positive emotions. Unfortunately, non-empathetic expressions are generated every day, even without intention, causing negative feelings. This project aims to develop an advanced technique that upon receiving a language expression in text form can automatically evaluate its empathetic level and rephrase it such that the resulting text conveys the same meaning but with a higher empathetic level. The outcome of this project will be a prototype communication tool that in the future could help create a friendly and inclusive online environment if used in communication such as emails or instant messages.

A Boosting Algorithm for Learning from Positive-Unlabelled Data

Brisbane, Australia

Summer Research Project in The University of Queensland

Nov. 2021 - Feb. 2022

- Machine learning is one of the major players in the AI-enabled economy according to Australia's AI Action Plan 2021.
- This project aims to develop a boosting-style machine learning methodology when only positive and unlabelled data is available. This novel methodology will be adapted to cyber security problems as an application.
- Be awarded the **summer research scholarship** at UQ

Service and Social Activity

Academic Conference Reviewer — *Brisbane, Australia*

The 6th APWeb-WAIM International Joint Conference on Web and Big Data, CORE B — *May. 2022 - May. 2022*

- Reviewer for the Industry-Track

Candidate for Postgraduate Coursework Student Member — *Aug. 2022*

UQ Academic Board and Committees — *Brisbane, Australia*

- Join the Academic Board Elections Briefing session.
- Nomination for Postgraduate Coursework Student Member.

Volunteer Service for coal mine wastewater treatment — *Shanxi, China*

SHANXI COKING COAL GROUP CO.,LTD. — *Sep. 2015 - Jun. 2019*

- Assist staff in completing quality testing of industrial wastewater from coal mines.

Work Experience

Research Assistant — *Brisbane, Australia*

The University of Queensland — *May. 2022 - Dec. 2022*

- Text style transfer: Developed an advanced technique that upon receiving a language expression in text form can automatically evaluate its empathetic level and rephrase it such that the resulting text conveys the same meaning but with a higher empathetic level.
- Empathy Detection: Implemented classification model for detecting empathy utterance with adversarial training and PU learning methods.
- Design algorithms that can enlarge the labeled empathy dataset from other data resources without the empathy label.
- Develop a prototype system to integrate all developed techniques, with a showcase of its performance.

Data Analyst — *Beijing, China*

QianFeng Education Group — *Feb. 2019 - Jun. 2019*

- User Repurchase Forecast: Predict the probability of repeat purchases by processing and analyzing the user's shopping preferences and the importance of the item.
- E-commerce data analysis and mining project: Analyze e-commerce data and use time series models (RNN, LSTM and GRU) to predict the hotness of products in different quarters.

Teaching Experience

Tutor (INFS3202/7202 Web Information System) — *Brisbane, Australia*

The University of Queensland — *Feb. 2022 - Jun. 2022*

- Assist the Course Coordinator for tutorial delivering, assignment marking, final exam marking, and student consultation.

Honors & Awards

2022	**Dean's Commendation for Academic Excellence**, Semester 1, 2022	*Brisbane, Australia*
2021	**Summer Research Scholarship**, in summer semester at UQ	*Brisbane, Australia*
2017	**Dux of the program**, Shanxi University	*Taiyuan, China*
2017	**1st Winner**, 2017 Overwatch CSL (Provincial League) Shanxi	*Taiyuan, China*
2017	**1st Winner**, 2017 Overwatch CSL (City League) Taiyuan	*Taiyuan, China*
2017	**1st Winner**, 2017 Overwatch NSC (City League) Taiyuan	*Taiyuan, China*

Skills

- **Programming Languages:** Python, PHP, C/C ++, JAVA, C#, and JavaScript
- **Data Analysis Tools:** Oracle, PostgreSQL, Spark, MonkeyLearn
- **Machine Learning Tools:** Pytorch, TensorFlow, Caffe, Pandas, Numpy, Scipy, Scikit-Learn
- **Experienced Fields:** Natural Language Processing, PU Learning, Boosting Algorithm, Time Series Prediction, and Causality
- **Other Skills:** Back-End Development, Linux, Web Design, UI Design, and Graphic Design