

# AOQI ZUO

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## RESEARCH INTEREST

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I am a PhD student at the School of Mathematics and Statistics, the University of Melbourne, supervised by Dr. Mingming Gong and Dr. Susan Wei. My research mainly focuses on causal inference and its applications to fair and trustworthy machine learning.

## EDUCATION

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**Doctor of Philosophy - Science** February 2021 - Ongoing  
School of Mathematics and Statistics, University of Melbourne, Melbourne, Australia.

**Master of Data Science** February 2019 - December 2020  
University of Melbourne, Melbourne, Australia. GPA: 87.1%

**Bachelor of Engineering in Computer Science and Technology** September 2014 - July 2018  
Sichuan University, Chengdu, China. GPA: 88.2%

## PUBLICATIONS

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### **Counterfactual Fairness with Partially Known Causal Graph,**

*Accepted by NeurIPS 2022 and is available at <https://arxiv.org/abs/2205.13972>*

- Contribution: Proposing the first approach for achieving counterfactual fairness on partially known causal graphs, specifically maximal PDAG.
- Significance: As fairness is an important aspect in machine learning powered predictions and true causal graph is not always available, our research is considerably significant.

### **Interventional Fairness with Partially Known Causal Graph,**

*In preparation*

- Contribution: Proposing the first approach and framework for achieving interventional fairness on partially known causal graphs, specifically maximal PDAG.

## PROJECTS

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**Adversarial BERT and Domain Separation Network for Cross-Domain Sentiment Analysis,**  
March 2020 - November 2020

*Research Project, supervised by Dr. Mingming Gong*

- Applying adversarial BERT to improve cross-domain sentiment analysis accuracy.
- Tuning and improving the stability of the classifiers.
- Optimizing classifier with Domain Separation Network and Maximum Mean Discrepancy.

**Development and Research of Soft-wrist-strap for Android Mobile Phone Based on Text Analysis Technology,**

September 2017 - June 2018

*National University Student Innovation and Entrepreneurship Training Project, supervised by Dr. Yu Chen*

- Developing a mobile APP on Android platform.
- Monitoring users' emotion trends based on soft keyboard monitor.
- Designing sentiment analysis algorithm to analyze the user's emotion trend.

## TUTORING ROLES

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### MAST90083 - Computational Statistics & Data Science

- A 12.5-credit graduate course on modern machine learning, offered by the School of Mathematics and Statistics, the University of Melbourne.
- Responsible for creating assignment solutions, delivering practise and consultation sessions, and grading assignments and the final exam.

## MENTORSHIP

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**Yiqing Li - B.S. student at Fudan University, China (Exchange Student at University of Melbourne)** January 2023 - Ongoing  
Collaborating closely with Yiqing on the project *Interventional Fairness with Partially Known Causal Graph*, providing guidance on research methods, data analysis, experimental design and academic writing.

## INTERNSHIP/TRAININGS

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**Summer Training – National University of Singapore.** July 2017- August 2017  
Attended the one-month subject *Business Analysis in the era of Big Data*.

**Summer Internship - Chengdu Tuosi Ainuo Technology Co., Ltd.** June 2017 - July 2017  
Completed the project *Big Data Observatory in E-commerce*.

## HONOURS AND AWARDS

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**Melbourne Research Scholarship - University of Melbourne.** 2021 – 2024  
Highly competitive four-year grant providing stipend, tuition and travel funds, approximately \$32,400 AUD per year.

**NeurIPS 2022 Scholar Award.** 2022  
A complimentary in-person registration for the entire conference and the Hotel stay (room and tax only) provided by NeurIPS 2022.

**Science Abroad Travelling Scholarship (SATS) - University of Melbourne.** 2022  
This scholarship supports PhD students in the Faculty of Science at the University of Melbourne undertaking travel to attend conferences, fieldwork with \$2000 AUD.

**Dean's Honour List 2020 – Master of Data Science, University of Melbourne.** 2021  
The Dean's Honour List acknowledges outstanding academic achievement and endeavour in undergraduate and graduate coursework degrees in the Faculty of Science at the University of Melbourne.

## ACADEMIC SERVICE

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Conference and Journal Reviewer: ICML, ICLR, TMLR, ICPR, IEEE TNNLS, NUENET, etc.