

# Jiahe (Grace) Liu

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## EDUCATION

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|--|-------------------|
| <b>The University of Melbourne</b><br><i>Master of Data Science</i>  | 2023.03 - 2024.12 |
| <b>The University of Melbourne</b><br><i>Bachelor of Science in Data Science</i>   | 2020.08 - 2022.12 |
| <b>Washington University in St. Louis (Post-master's Certificate)</b><br><i>Artificial Intelligence Applications for Health Data</i> | 2023.08 - 2023.12 |
| <b>Stanford University (Summer Workshop)</b><br><i>ICME Summer Workshops 2022: Fundamentals of Data Science</i>                      | 2022.08 - 2022.08 |
| <b>University College London (Exchange Study)</b><br><i>Short Term Exchange: Business Psychology</i>                                 | 2022.07 - 2022.8  |

## RELEVANT COURSEWORK

**Courses:** Statistical Machine Learning, Machine Learning for Health, Cloud Clustering Computing

**Awards:** Mobility Award

## EXPERIENCE

|   |                              |
|---|------------------------------|
| <b>Monash Public Health and Preventive Medicine</b>   <i>Research Assistant</i>   | 2023.07 - Present            |
| <ul style="list-style-type: none"> <li>• <b>Project Overview:</b> Focused on the impact of air pollutants on human health, encompassing literature review, statistical analysis, and manuscript preparation.</li> <li>• <b>Literature Review &amp; Writing:</b> Reviewed literature on the sensory impact of PM2.5 on humans. Authored and co-authored manuscripts to share research insights with the scientific community.</li> <li>• <b>Statistical Analysis:</b> Employed multilevel logistic regression to unravel the complex interplay between environmental factors and health outcomes. Expertise in statistical modelling using STATA and Python to derive meaningful public health insights.</li> </ul>  |                              |
| <b>WEHI Medical Research</b>   <i>Data Science Research Intern</i>  | 2023.11 - 2024.02 (expected) |
| <ul style="list-style-type: none"> <li>• <b>Project Goal:</b> Develop a framework for evaluating the suitability of third-party for complex cryo-EM processing.</li> <li>• Will review cryo-EM data transfer and storage, and enhance scripts and tools for the cryo-EM community.</li> <li>• Will set up and test these scripts and tools to benchmark speed, maintainability, and extensibility.</li> <li>• Will provide recommendations and suggestions for potential future projects.</li> </ul>  |                              |
| <b>BOE Technology</b>   <i>Campus Ambassador at Overseas Recruitment Department</i>   | 2021.01 - 2023.12            |
| <ul style="list-style-type: none"> <li>• <b>Experience Overview:</b> Represented the brand overseas, spearheading initiatives at various institutions. Managed regional communities, coordinated 3 online and offline events at Australian Universities. Conducted market research on local employment trends and academic institutions.</li> <li>• <b>Seasonal Recruitment:</b> Posted 100+ recruitment details on university platforms and built relationships with university career offices. Utilised LinkedIn Talent Solutions for Spring and Fall overseas recruitment, sourced 5000+ candidates.</li> <li>• <b>Ambassador Recruitment for 2022 &amp; 2023:</b> Produced 2 vlogs showcasing the BOE Campus Ambassador role, receiving 10,000 view exposure. Conducted 10+ interviews for upcoming Campus Ambassador positions.</li> </ul> |                              |
| <b>CITIC Securities</b>   <i>Business Department Intern</i>   | 2022.12 - 2023.02            |
| <ul style="list-style-type: none"> <li>• <b>Experience Overview:</b> Rotated across Fortune, Investment Advisory, Securities Finance, and Retail Departments. Acquired knowledge of the securities industry, company products, and analytical methods.</li> </ul>   |                              |

- **Key Contributions:** Fortune Department: Authored a report on China's securities industry. Investment Advisory: Analysed China's open-border policies and researched the photovoltaic industry. Retail Department: Conducted a fund analysis on fund 110023.

Max Language | *Essay Tutor*

2019.08 - 2021.01

- **Experience Overview:** Equipped students with essay writing skills, emphasising argument formation, logical reasoning, and critical thinking. Introduced students to foundational knowledge in western history and philosophy.
- **Tutoring Highlights:** Covered Western history & philosophy topics from Ancient Rome to the Contemporary Period. Engaged 20+ students in discussions on key philosophical and historical themes, such as human rights, free will, and social structures.

## PROJECTS

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**AIDetect** | *Pytorch, Tensorflow, Python, Git, Google Collab, VS Code*

2023.08 - 2023.09

- Developed a deep learning based NLP model to distinguish human and machine-generated text
- Experimented and compared several binary classifiers' performance: XGBoost, Logistic Regression, Random Forest, SVM, Recurrent Neural Network, Multi-layer Perceptron
- Achieved 85% test accuracy, ranking 3/92 on Kaggle competition

**HappinessMining** | *Melbourne Research Cloud, Docker, Mastodon API, Git, CouchDB, React, Ansible*

2022.04 - 2022.06

- Performed sentimental analysis across Australia and global population using data from Twitter and Mastodon
- Collected and distributed social media data across multiple instances on the Melbourne Research Cloud
- Conducted sentiment analysis using NLP, focusing on reasons, locations, and times associated with happiness
- Developed a full-stack web application that automatically refreshes our analysis based on the most recent social media posts

**SmartRent** | *Spark, Realestate API, Python, Flask, Git*

2022.08 - 2022.11

- Developed a full-stack web application for recommending the most liveable suburbs based on user's needs
- Experimented with Realestate API's Access Tokens and web scrapping to retrieve rent price-related data
- Analysed rental price determinants and predicted suburbs with the highest growth rates using machine learning

**Diabetes@Home** | *MongoDB, Postman, Node.js, JavaScript, Figma, Git, Heroku*

2022.03 - 2022.05

- Designed the web application's front-end to record clinician notes and medication reminders for diabetes patients, with a responsive layout adaptable to laptops, iPads, and phones
- Utilised modern design tools to create interactive prototypes, crafting intuitive and user-friendly interfaces
- Worked closely with back-end developers to ensure seamless integration and data flow

## SKILLS

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**Languages:** Python, Spark, SQL, C, C#, JavaScript, React, HTML/CSS, L<sup>A</sup>T<sub>E</sub>X

**Domains:** Data Engineering, Big Data Analysis, Machine Learning, Deep Learning, Web Development, Game Development, Cloud Computing

**Tools:** GitHub, R, STATA, MATLAB, MySQL, MongoDB, CouchDB, VSCode, Node.js, Unity

## PUBLICATIONS

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### Paper

- "Study on the mental health status and its influencing factors among middle school students in Yi nationality areas: a case study of Xide County, Liangshan Prefecture, Sichuan Province", 2023, *Sichuan Mental Health*, with W. Shi
- "The Longitudinal Association between PM2.5 and Sensory Impairment", with K. Ju (working in progress)
- "Investigating Spatiotemporal Trends Linking Fine Particulate Exposure to COVID-19 Cases in the U.S.", 2023, with S. Liu (working in progress)
- "Youth Development Qualities and Their Impact on Mental Well-being During the COVID-19 Era in China", 2023, with S. Liu (working in progress)

### Patent

- Utility Model Patent: A Multi-gear Flow-limiting Water-saving Faucet, 2017, *State Intellectual Property Office of the People's Republic of China*