Zhipeng (Zippo) He

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Education

February 2022 – Present

PhD Degree – Doctor of Philosophy
School of information Systems, Queensland University of Technology, Australia

- Awarded *QUT Postgraduate Research Award (International)*
- Awarded *QUT HDR Tuition Fee Sponsorship*

February – December 2021

First Class Honours – Bachelor of Information Technology (Honours)
School of information Systems, Queensland University of Technology, Australia

- Graduated with 6.625 out of 7 GPA
- Awarded *QUT International Merit Scholarship*

February – November 2020

Bachelor Degree[1]– Bachelor of Information Technology (Information Systems)
Queensland University of Technology, Australia

- Graduated with 6 out of 7 GPA
- Awarded *QUT International Merit Scholarship*

September 2016 – November 2020

Bachelor Degree[1] – Bachelor of Engineering (Software Engineering)
Jinling Institute of Technology, China

- Graduated with 87% Weighted Average Mark

Awards

2024 QUT IS DC Outstanding Presentation Award

- Awarded for outstanding presentation at the QUT School of Information Systems Doctoral Consortium in 2024

2022 – 2024 QUT Postgraduate Research Award (QUTPRA) (International)

- Awarded for international students of exceptional research potential undertaking a Higher Degree by Research (HDR) at QUT
- Offered an annual stipend to assist with general living costs for Doctor of Philosophy at QUT

2022 – 2024 QUT HDR Tuition Fee Sponsorship

- Awarded for international students of exceptional research potential undertaking a Higher Degree by Research (HDR) at QUT
- Offered 100% of tuition fees discount for Doctor of Philosophy at QUT

2021 QUT International Merit Scholarship

- Awarded for the academic excellence in Bachelor of Information Technology (Information Systems) at QUT

[1] JIT–QUT Joint Bachelor of IT Program

- Offered 25% of tuition fees discount for Bachelor of Information Technology (Honours) at QUT

2020 QUT Vacation Research Experience Scheme (VRES) Scholarship

- Awarded for the achievements and recognised suitability for conducting and managing a research project successfully to completion during the study of Bachelor of Information Technology (Information Systems) at QUT
- Offered a VRES scholarship with a stipend of $2,000 to contribute to a research project

2020 QUT International Merit Scholarship

- Awarded for the academic excellence in Bachelor of Engineering (Software Engineering) at JIT
- Offered 25% of tuition fees discount for Bachelor of Information Technology (Information Systems) at QUT

Research Output

Zhipeng He, Chun Ouyang, Laith Alzubaidi, Alistair Barros, Catarina Moreira. Investigating Imperceptibility of Adversarial Attacks on Tabular Data: An Empirical Analysis (2025). *Intelligent Systems with Applications*, 25, 200461. [doi]

Zhipeng He, Chun Ouyang, Lijie Wen, Cong Liu, Catarina Moreira. TabAttackBench: A Benchmark for Adversarial Attacks on Tabular Data (2025). *arXiv preprint arXiv:2505.21027*. [arxiv]

Bemali Wickramanayake, **Zhipeng He**, Chun Ouyang, Catarina Moreira, Yue Xu, Renuka Sindhgatta. Building Interpretable Models for Business Process Prediction using Shared and Specialised Attention Mechanisms (2022). *Knowledge-Based Systems*, 248, 108773. [doi]

Jia Wei, **Zhipeng He**, Chun Ouyang, Catarina Moreira. MIMICEL: MIMIC-IV Event Log for Emergency Department (2022). *Physionet*. [doi]

Jia Wei, Chun Ouyang, Bemali Wickramanayake, **Zhipeng He**, Keshara Perera, Catarina Moreira. Curation and Analysis of MIMICEL – An Event Log for MIMIC-IV Emergency Department (2025). *arXiv preprint arXiv:2505.19389*. [arxiv]

Academic Experience

February 2022 – Present

PhD Research Project – Supervised by A/Prof. Chun Ouyang, Prof. Alistair Barros and Dr. Catarina Moreira, School of Information Systems, QUT

- Title: Building Robust Predictive Systems for Tabular Data
- The research will be on addressing challenges related to adversarial robustness in tabular and sequential data.
- To accomplish this, I will investigate cutting-edge attack techniques and analyse the characteristics of successful attacks on tabular data.
- Furthermore, the study will propose an evaluation framework to benchmark these characteristics, aiming to develop defence mechanisms that ultimately enhance the robustness of machine learning models against adversarial attacks in tabular data.

April 2025 – Present

Senior Research Assistant, School of Information Systems, QUT

- Establish baseline understanding of electricity outages and price dynamics in NEM through review of AEMO reports, industry literature, and exploratory data analysis.
- Identify and analyse root causes of electricity outages and price volatility within NEM.
- Develop and evaluate a predictive model for electricity price forecasting, improving on current AEMO capabilities.

November – December 2023

Research Assistant, School of Information Systems, QUT

- Collect literatures about multi-modal fusion on time-sequence data and find related research gaps
- Develop multi-modal fusion methods for time-sequence data to enhance the capability of predictive systems
- Develop an open-source tool package to implement the fusion methods, enabling testing and validation.
- Design and execute experiments for evaluation, utilizing publicly accessible real-world datasets.

October – December 2021

Research Assistant, School of Information Systems, QUT

- Develop an analytical method for applying explainable AI (XAI) techniques to inspection of predictive models
- Implement the method as an open-source tool package for testing and validation
- Design and conduct experiments for evaluation using publicly available real-life datasets
- Build visualisation of model inspection results
- Develop a website for project publicity

February – December 2021

Honours Research Project – Supervised by A/Prof. Chun Ouyang and Dr. Catarina Moreira, School of Information Systems, QUT

- Title: Investigating the Impact of Event Logs on Deep Learning-based Process Prediction Performance
- Focusing on investigating and analysing the potential influence of specific characteristics of event logs when predicting next business process activity using deep learning techniques
  - Studying and identifying key characteristics of event logs
  - Analysing the effects of event log characteristics on predicting next process activity based on LSTM
- Presenting the research findings and outcome in publication and Honours thesis

July 2021

Academic Training – 2021 AMSI Winter School[2] hosted by QUT Centre for Data Science

- Attended lectures and tutorials of advanced statistical learning knowledge such as Bayesian Statistics and Markov chain Monte Carlo related methods
- Gained knowledge of generative deep learning models
- Presented a participant talk titled *Deep Learning-based Business Process Prediction* during the winter school

November 2020 – February 2021

VRES Research Project – Supervised by A/Prof. Chun Ouyang, School of Information Systems, QUT

- Title: Towards Design and Development of Interactive Visualisation for Organisational Analytics
- Aimed to address how to visualise organisational analytics results as informed by existing visual analytics design principles
- Proposed an organisational mining visualisation design workflow for selecting appropriate visualisation techniques to generate organisational mining visualisation
- A poster was presented to all the VRES students and supervisors from School of Computer Science and School of Information Systems.

March – October 2020

Capstone Project – IFB398/IFB399 Capstone Project

Cooperated with Insurance Department of Suncorp Group

- Project Task: Enable the integration of Management Information Systems for Suncorp's Insurance Portfolio Management Office
- This project involved substantial business analysis work and the configuration of two key enterprise tools: ARIS and Alfabet. Working as a team, we
  - integrated ARIS and Alfabet successfully by utilising existing Application Programming Interfaces (APIs) and other data frameworks;
  - customise the mapping of objects and models based on Suncorp's requirements;
  - create an integration risk management document and a step-by-step integration document for deployment in the production environment

Teaching Experience

February – June 2025

IFN695: Minor Project - Teaching Assistant

Faculty of Science, QUT

- Propose the topic of *Australia's National Electricity Market* for the Graduate Research Project unit
- Assist in the delivery of the Graduate Research Project unit, which is a capstone unit for the Master of Data Analytics program

[2] https://ws.amsi.org.au/

February – June 2024

IFN703/4: Advanced Project - Teaching Assistant
Faculty of Science, QUT

- Propose the topic of *Anomaly Detection in ECG Signals* for the Graduate Research Project unit
- Assist in the delivery of the Graduate Research Project unit, which is a capstone unit for the Master of Data Analytics program

Professional Experience

Business Analyst – Intern
Suncorp Group, Australia

March – October 2020

- Coordinated with a team to integrate the enterprise architectural systems within the insurance department.
- Gathered business requirements and improving data models and reporting frameworks to improve efficiency.

July – October 2019

Java Web Developer – Intern
Yizhi Software Technology Co., Ltd, China

- Project experience with Java web development frameworks – Spring
- Project experience with database modelling and implementation of application backend
- Performs system analysis and system design functions for highly difficult web-based software applications and systems

Academic Skills

Programming Skills:

- Python programming for data mining
- Web application development using Spring in Java and Django in Python
- Shell scripting on UNIX-like systems

Data Science Skills:

- Sound understanding of models in Statistical Learning, Machine Learning and Deep learning, and implementing them in Python and R
- Proficient in creating visualisation for data analytics using Programming Languages (e.g., JavaScript, JSON and Python) and Software (e.g., Tableau)
- Proficient in handling multi-dimensional sequential data (e.g., event logs) for predictive analytics
- Excel in developing RNN-based deep learning models for Natural Language Processing and Business Process Prediction
- Experience with SQL databases (e.g., SQL Server and PostgreSQL) and NoSQL databases (e.g., MongoDB) for data warehousing and data processing
- Experience with Python libraries, e.g., Pandas and Scipy ecosystems, for data preprocessing and data profiling

Technical Artifacts

- **MIMICEL: MIMIC-IV Event Log for Emergency Department** [GitHub]
- **Imperceptibility of Tabular Adversarial Attacks** [GitHub]
- **TabAttackBench** [GitHub]
- **Interpretable Attention-based Next Activity Prediction Models** [GitHub]
- **Dynamic and Static Attention-Based LSTM** [GitHub]
- **Siamese Networks Implementation** [GitHub]

Last update on June 4, 2025