Zijun (Marshall) **Zhang**

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Summary

Driven and meticulous postgraduate student in computer science with a robust foundation in the field. Possesses strong communication skills and a proven ability to rapidly adapt to new technologies and dynamic environments. Committed to contributing technical expertise and proactive problem-solving skills in a progressive and creative academic setting. Eager to further professional development and make a significant impact in the field of computer science.

Education

The University of Melbourne | *M.S. in Computer Science* **Mar 2024 - Mar 2026**
Melbourne, Australia
Relevant coursework: Machine Learning, AI Planninng for Autonomy, Distributed Systems, Security Analytics, Web Security, Information Visualisation.

The University of Melbourne | *B.S. in Computing and Software Systems* **Mar 2021 - Mar 2024**
Melbourne, Australia
Relevant coursework: Computer Systems, Computer Networks, Data Structures and Algorithms, Database Systems, Models of Computation, Graphics and Interaction, Software Modelling and Design, Object Oriented Software Development.
Mathematics: Calculus, Linear Algebra, Discrete Mathematics, Probability & Statistics.

Professional Experience

Information Security Intern | *Industrial and Commercial Bank of China* **Dec 2022 - Feb 2023**
Melbourne, Australia

- Developed and implemented robust security policies, such as access control protocols and incident response frameworks, achieving a 30% reduction in security incidents across 500+ network devices.
- Monitored complex IT infrastructures using tools like Wireshark and Nessus, identifying and resolving an average of 15 critical vulnerabilities per month, significantly enhancing network integrity.
- Conducted comprehensive risk assessments and penetration testing using tools like Metasploit and OWASP ZAP on 300+ applications, mitigating 95% of high-risk vulnerabilities.

Big Data Analyst Intern | *Fudian Bank* **Dec 2021 - Feb 2022**
Yunnan, China

- Designed and executed advanced data visualizations using Tableau and Power BI, driving insights that increased operational efficiency by 20% in customer service and transaction processing.
- Partnered with IT and business teams to analyze customer transaction data, developing data pipelines and dashboards that improved process efficiency by 25%.
- Built and deployed predictive machine learning models, including Random Forest and Neural Network, to analyze over 2 million transaction records, enabling marketing strategies that increased customer engagement by 15%.

Research Experience

Enhancing Blockchain Security with Large Language Models (LLMs) **Nov 2024 – Present**

- Conducted research integrating blockchain technology, security analytics, and Large Language Models (LLMs), utilizing tools like GPT-based models to enhance the robustness of blockchain security tools.
- Applied LLMs to analyze smart contracts for vulnerabilities, improving automation and accuracy in security assessments by refining detection algorithms.

Adversarial Machine Learning **Sept 2024 – Present**

- Investigated adversarial machine learning techniques, developing adversarial examples and implementing defense mechanisms to improve model robustness, using frameworks like PyTorch.
- Performed systematic experiments on the impact of adversarial perturbations using CNN and LSTM models, identifying vulnerability patterns across commonly used architectures with quantitative metrics.

Project Experience

Full-Stack Developer | *Urban Mobility Insights Dashboard* **Aug 2024 – Oct 2024**
Melbourne, Australia

- Designed an R Shiny dashboard integrating 500,000+ data points from pedestrian sensors, public transport schedules, and traffic accident records, uncovering trends such as peak traffic hours and high-risk accident zones.
- Developed interactive heat maps and temporal analyses using ggplot2 and leaflet packages in R, enabling users to identify peak pedestrian traffic hours and accident hotspots, aiding city planners in resource allocation.
- Enhanced user experience with a custom CSS framework, achieving 100% responsiveness across devices and seamlessly integrating 5+ Tableau Public visualizations for intuitive data exploration.

Machine Learning Engineer | *Splendor AI Agent* **Mar 2024 - Jun 2024**
Melbourne, Australia

- Developed an AI agent for the board game Splendor using Monte Carlo Tree Search (MCTS) and heuristic-guided action selection, improving decision-making efficiency across different game phases.
- Enhanced computational efficiency by designing and implementing 10 custom heuristic features, including gem economy and noble distance evaluation, reducing the search space by 30% while maintaining competitive performance.
- Implemented a time-aware processing mechanism using Python, with a strict 1-second move limit and multi-phase strategy, achieving a 75% success rate in simulated games against human players.

Project Leader| *Lyonville City Website* **Aug 2023 – Dec 2023**
Melbourne, Australia

- Designed and implemented a responsive front-end for the Lyonville city website using React and Tailwind CSS, creating an intuitive interface and boosting user engagement by 40%.
- Developed a secure and scalable back-end with Node.js and MongoDB, optimizing query performance and improving data retrieval efficiency by 30%.
- Led a team of 5 developers through agile development cycles, including coding, testing, and deployment, ensuring cross-environment compatibility and maintaining 99.9% uptime since launch.

Volunteer and Extracurricular

Volunteer | *Rural Education Support Association* **Sep 2020 - Present**
Yunnan, China

- Volunteered in impoverished mountainous regions, teaching mathematics and science to over 400 students using interactive and project-based methods, resulting in a measurable 20% improvement in math scores across schools.
- Built strong relationships with local communities to understand unique educational needs, tailoring lesson plans to address gaps and improve student engagement.

Committee | *Chinese Student and Scholars Association* **Feb 2022 - Feb 2023**
Melbourne, Australia

- Negotiated with local and international businesses to secure sponsorships and partnerships for cultural and educational events, increasing club member engagement by 30% and funding by 25%.
- Received the 'Outstanding Ministry Member of the Year 2022' award for spearheading initiatives that boosted club member participation by 30% and introducing new partnership opportunities.

Technical Skills

Programming Languages:

- *Advanced*: Python, Java, JavaScript, HTML, CSS
- *Intermediate*: Go, Solidity, C, R, SQL
- *Basic*: C#, C++

Frameworks: React, Next.js, Spring Boot, Spring, Flask
Libraries: PyTorch, Keras, Gymnasium, NumPy, Pandas, Scikit-learn, Matplotlib
Database & Cloud: MongoDB, Redis, MySQL, AWS (EC2, S3)
Productivity Tools: JIRA, Confluence, Slack, Git