

Zachary Shinnick

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EDUCATION

The University of Adelaide	Adelaide, SA
<i>Master of Philosophy in Computer Science (Machine Learning)</i>	<i>Feb 2025 - Nov 2026</i>
• Supervised by Prof. Anton van den Hengel	
• Recipient of the Westpac Future Leaders Scholarship (\$120,000).	
The University of Adelaide	Adelaide, SA
<i>Bachelor of Computer Science (Advanced), Major in Artificial Intelligence GPA: 6.73/7</i>	<i>Feb 2022 – Nov 2024</i>
• Completed a Summer Exchange Program at University College London , 2023.	

EXPERIENCE

IMC Trading	Sydney, NSW
<i>Software Engineering Intern High Frequency Trading Python</i>	<i>Nov 2024 – Feb 2025</i>
• Optimised simulation performance and accuracy in electromagnetic propagation, driving advancements in high frequency system designs and enabling data-driven, strategic investment decisions.	
• Winner of Algorithmic Trading Competition. Designed and implemented three profitable trading strategies in a multi-participant trading simulator, achieving the highest overall PnL among all competitors.	
Massachusetts Institute of Technology Media Lab	Remote
<i>AI Research Intern AI Safety, Natural Language Processing Python</i>	<i>Feb 2024 – Jun 2024</i>
• Researched and developed advanced security screening protocols for Large Language Models to dynamically adjust content based on constitutional geo-location criteria, ensuring compliant output across diverse jurisdictions.	
TikTok	Sydney, NSW
<i>Software Engineering Intern Android development Kotlin</i>	<i>Feb 2024 – Apr 2024</i>
• Engineered a metric tracking and monitoring system for TikTok Live gifting events, enabling real-time analysis and optimization across 16 key events, while supporting data-driven decisions through A/B experiment comparisons.	
Google	Sydney, NSW
<i>Software Engineering Intern Android, iOS and backend development Kotlin, Dart/Flutter</i>	<i>Nov 2023 – Feb 2024</i>
• Designed and implemented backend infrastructure to enable sharing of avatar images between users, ensuring scalability for 500k+ daily uploads in 2024, and anticipating 12M+ daily accesses of the data.	
• Developed a backend endpoint to optimise the retrieval of data from a Spanner database, facilitating the efficient delivery of child ecosystem data to parents and anticipating 2M+ daily requests.	
• Built a remote procedure call estimated to serve images to 1M+ users in 2024 with an expected 2M+ daily calls	

PUBLICATIONS

- L. Jiang*, **Z. Shinnick***, A. van den Hengel, H. Saratchandran, D. Teney. *Procedural Pretraining: Warming Up Language Models with Abstract Data*. Submitted to ICLR 2026.
- Z. Shinnick**, L. Jiang, H. Saratchandran, A. van den Hengel, D. Teney. *Transformers Pretrained on Procedural Data Contain Modular Structures for Algorithmic Reasoning*. ICML 2025 Workshop on Methods and Opportunities at Small Scale (MOSS), Vancouver, Canada.

*Equal contribution; authors listed alphabetically.

COMMUNITY INVOLVEMENT

Competitive Programming Club President (2024), Vice President (2023)	Oct 2022 – Nov 2024
• Led an 800+ member club, organizing competitions, workshops, tutorials, and multinational tech industry events.	

TECHNOLOGIES

Proficient: Python, C++, C, Julia, Flutter/Dart, Kotlin,
Experienced: Java, JavaScript, HTML/CSS, MySQL, MATLAB