

Zachary Shinnick

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EDUCATION

The University of Adelaide

Adelaide, SA

Master of Philosophy in Computer Science (Machine Learning)

Feb 2025 - Nov 2026

- Supervised by Prof. Anton van den Hengel
- Recipient of the **Westpac Future Leaders Scholarship** (\$120,000).

The University of Adelaide

Adelaide, SA

Bachelor of Computer Science (Advanced), Major in Artificial Intelligence GPA: 6.73/7

Feb 2022 - Nov 2024

- Completed a Summer Exchange Program at **University College London**, 2023.

EXPERIENCE

IMC Trading

Sydney, NSW

Software Engineering Intern | High Frequency Trading | Python

Nov 2024 - Feb 2025

- 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

AI Research Intern | AI Safety, Natural Language Processing | Python

Feb 2024 - Jun 2024

- 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

Software Engineering Intern | Android development | Kotlin

Feb 2024 - Apr 2024

- 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

Software Engineering Intern | Android, iOS and backend development | Kotlin, Dart/Flutter

Nov 2023 - Feb 2024

- 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