Zhewen Shen

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Education

UNSW Sydney
Bachelor of Advanced Computer Science (Honours) *Sep 2021–Dec 2025*

- Honours Class 1 and The University Medal
- Thesis: *Evaluating Programming Languages for Verified LionsOS Components*
  - Supervised by Scientia Professor Gernot Heiser

Work

Software Engineer Feb 2026–Present
Arista Networks

- Designed and implemented an anti-rollback mechanism for EOS SWI in Aboot, preventing downgrades to potentially vulnerable firmware versions
- Integrated with secure boot and measured boot chain of trust, leveraging TPM for persistent rollback protection state
- Resolved bugs and performed code refactors across the EOS codebase in C/C++

Casual Academic May 2025–Present
School of Computer Science and Engineering, UNSW Sydney

- Conducted classes for COMP6771 Advanced C++ Programming and COMP9242 Advanced Operating Systems
- Guided students through systems programming concepts, modern C++ features, and OS-level design principles
- Provided feedback on assignments and assisted students during consultation hours

Research Intern (Trustworthy Systems) Jan 2025–Dec 2025
School of Computer Science and Engineering, UNSW Sydney

- Contributed to LionsOS, a component-based operating system built on the seL4 verified microkernel, designed for building custom, task-specific systems from composable components
- Implemented core migration and offlining mechanisms for multicore management in LionsOS
- Built a userspace webserver as a LionsOS component using its lock-free queue-based communication model
- Created a proof-of-concept transpiler to convert C code into Pancake, a research language with verified compilation for writing formally verified OS components

Research Intern (NLP) Jan 2024–Jun 2024
School of Computer Science and Engineering, UNSW Sydney

- Developed BAMBINO-LM, a continual pre-training approach for small-scale language models inspired by bilingual language acquisition in children
- Combined language alternation strategies with PPO-based perplexity rewards to enable cross-lingual transfer between English and Italian
- Published at the Workshop on Cognitive Modeling and Computational Linguistics (CMCL) 2024

Skills

Languages: Advanced — **Keywords**: C, C++, Python, Bash
Frameworks & Libraries: Intermediate — **Keywords**: PyTorch, JAX, HuggingFace, FastAPI
Tools & Infrastructure: Intermediate — **Keywords**: Git, Perforce, Docker, GDB, Make, CMake, Linux, MongoDB

Awards

The Optiver COMP6771 Advanced C++ Programming Prize Aug 2025
UNSW Sydney

Faculty of Engineering Taste of Research Scholarship Jan 2025
UNSW Sydney

Faculty of Engineering Taste of Research Scholarship Jan 2024
UNSW Sydney