Hu Bowen

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About Me

A self-driven lifelong learner with a passion for all things computing-related, with a wide range of interests from artificial intelligence to cybersecurity while maintaining a solid foundation. Excellent academic performance along with a number of supercurricular accolades. Looking to deepen my understanding across the field of computing, including programming language theory, formal verification, hardware circuits, artificial intelligence, and software exploitation.

Education

Dip. **Ngee Ann Polytechnic**, Cybersecurity & Digital Forensics – Singapore, SG   Apr 2023 – Apr 2026
- GPA: 3.98/4.00
- Diploma with Merit (7 module prizes; 3 top in modules)
- DSTA Polytechnic Digital Scholar
- Vice-President, NullSec (Cybersecurity Interest Group)

Experience

Defence Science & Technology Agency, Cybersecurity Intern – Singapore, SG   Mar 2025 - Mar 2026
- Maintained an internal safety evaluation tool
- Researched and benchmarked attacks on Retrieval-Augmented Generation (RAG) systems

Projects

Advent of FPGA 2025   Jan 2026

Implemented Advent of Code solutions on an FPGA with Jane Street's DSL
- Wrote logic similar to the Game of Life by using shift registers and line buffers to represent a convolution window
- Achieved a 100x speedup relative to my naive solution in OCaml

SimpleOS   May 2022 - Jun 2022

Bare metal operating system from scratch
- Created my own bootloader in x86 assembly to load a C kernel in 32 bit mode
- Coded a rudimentary command parser and hardcoded a text based snake game into the kernel

Competitions

National Olympiad in Artificial Intelligence 2026 – Gold   Mar 2026

Only Polytechnic student to attain Gold in NOAI 2026
- Answered 20 in-depth MCQs on various technical aspects of AI
- Wrote a gradient boosting regressor in Python and patched up a PyTorch U-NET implementation
- Implemented multi-head scaled dot product attention with PyTorch

DSTA Brainhack TIL-AI 2025 – Semi-Finalist   Jun 2025

AI competition testing across ASR, CV, NLP and RL
- Fine-tuned a YOLOv11 model with augmentations for better accuracy
- Implemented batching and `torch.compile` to improve speeds
- Trained a reinforcement learning agent to solve a Pacman-like game with Proximal Policy Optimization (PPO)

WorldSkills Singapore 2025 (Cyber Security) – Bronze   Apr 2025

National cybersecurity competition held over 3 days
- Configured Cisco firewalls to isolate a cloud environment from the internet
- Only competitor to successfully hack into a vulnerable website, placing us in first place for that component

Skills

Languages: Python, C++, Rust, OCaml

Interests: Machine Learning, Programming Language Theory, Software Exploitation