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Profile

Generalist problem solver and full-stack developer with a passion for open-source, cybersecurity, and DevOps. I am driven by curiosity and the desire to make an impact. I hope to learn something new every day.

Work Experience

Research Intern - Cloud Reliability and Security - (Huawei Ireland R&D) May 2025 - Aug 2025

- Designed a system for differential fuzzing using rr Time Travel Debugging + GDB + static analysis + SAT solvers to isolate root causes.
- Improved API security scanner heuristics by resolving endpoint data dependencies; POC achieved F1 = 68% across 20 open-source projects with historical CVEs.
- Focused on reliable, reproducible bug reports and automated minimal reproducers to speed developer triage and remediation.

Research Intern (University of Cambridge) September 2025

- Investigated privacy implications of location services and deanonymising analytics; reverse engineered undocumented protocols with Ghidra.
- Built tooling and iOS loopback VPN experiments to collect reproducible traffic traces for privacy analysis and measurement.
- Produced clear technical write-ups and reproducible datasets for peer review.

Software Engineering Intern (Skand.io) Jan 2024 - Jun 2024

- Built a full-stack, no-code system for durable workflows on Temporal.io with a React front-end; later helped migrate workflows from Temporal to Dapr.

Society President (Cybersoc, Cardiff University) 2025 - 2026

- Designed and ran CTFs and hands-on security training; coached students on triage, exploitation, and responsible disclosure.
- Liaised with sponsors, delegated tasks across the committee, and handled administrative coordination for multi-team events.

Education

Cardiff University 2023-2026

BSc. Applied Software Engineering (Expected 1st)

- Database systems, web development, commercial applications with Java, mobile development, cybersecurity, agile project management, performance and scalability, DevOps, UI/UX, web frameworks (React), and accessibility.

Skills

Programming Languages	Golang, Python, Typescript, Zig, Java, Kotlin, Lua, Rust, SQL
Development	Linux, Git, Ghidra, Neovim, GitHub Actions, Postgres, MariaDB
DevOps	Podman/Docker, Kubernetes, systemd, Jenkins, Terraform, S3, etc.
Web Technologies	Svelte, HTML/CSS/TS, Spring Boot, Flask, React, Figma

Projects and Achievements

Ordered by relevance

Huawei Tech Arena 2024 - 2nd Place

Aug 2024 - Sep 2024

- CP-SAT, linear programming, and genetic algorithms to solve cloud computing fleet management, server allocation, and pricing.
- 1 month of exploration, coding, and optimization. Flew to Dublin to further improve and present work to directors.
- 2nd place and a €4000 prize out of 200+ teams.

CopilotChat.nvim - The defacto code copilot for Neovim

2023-2024

- Initially reverse engineered Copilot Chat in VSCode and ported it to Neovim with bindings for tiktoken in Rust
- 3.3k stars, 69 contributors, and included in LazyVim Extras

Cloudflare & Arkose captcha bypasses

2022

- Reverse engineered complex browser fingerprinting techniques & WASM challenges for automation
- Created a production-ready and scalable service for accessing protected content and services
- Sold the platform for \$10,000.

Detection of insider trading in Bursa

Jun - Sep 2023

- Reverse engineered Maybank app's real time streams for stock trading data.
- Developed algorithm for detecting insider trades & integration for copy trades
- Profitability of 35% over the span of 1 year, beating the market average of 16%

AI Client Libraries - All the early services, reverse engineered

Dec 2022 - Aug 2023

- Reverse engineered and automated authentication/captchas for ChatGPT, Bing AI Chat, Google Bard, and Copilot, before the official API release to create client libraries for developers
- Total on GitHub: 44k stars, 2 million+ downloads, and 200 contributors, 1118+ issues closed, and 472+ pull requests reviewed.
- This was a crucial step in me understanding good engineering practices, API design, and project management.

CVE-2022-26726 - macOS/iOS TCC bypass bug bounty

Dec 2021

- Found exploit where a malicious app could fully bypass access controls and record screen, video, audio, and log keystrokes on macOS and iOS.
- \$47000 USD bounty!

Miscellaneous - Didn't make the cut, worth mentioning

- Obi-sync: Reverse engineered server implementation for Obsidian Sync and Publish. 1k stars, 20k downloads
- Won various CTF events held in Cardiff including Bae Systems 2023, Cyberfirst 2024, and TryHackMe 2025.
- My homelab setup: 8 kubernetes nodes tied together with headscale. Longhorn for distributed storage, garage for s3 backups on DAS with bcachefs RAID 10. Handles my entire digital life.

Interests and Hobbies

Badminton, Table Tennis, Hiking, Sailing