Zeyu (Zayne) Zhang

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EDUCATION

University of Cambridge   Oct. 2023 – 2026 (Expected)
B. A. (Hons) in Computer Science   *Cambridge, England*

- **Grade: 1st Class.** Highest mark for Object-Oriented Programming. Top 5 in: Databases, Discrete Mathematics, Machine Learning & Real-world Data, Software & Security Engineering.
- Cybersecurity Society: Secretary (2024/25) – Represented the University in various international competitions.
  - ∗ 1st place at pwnEd5 finals, hosted by the University of Edinburgh.
  - ∗ 2nd place at the global finals of LakeCTF 2024, hosted by the Swiss Federal Institute of Technology Lausanne.
  - ∗ 3rd place at European finals of CSAW CTF 2023, hosted by New York University.
- Hughes Hall May Ball Committee – Developed www.hughesmayball.co.uk and managed domain. *React · TailwindCSS*
- Hughes Hall IT & Infrastructure Officer (2024). Singapore Society Database Officer (2024/25)

EXPERIENCE

Open Government Products   Jun. 2024 – Present
Software Engineer Intern   *Singapore*

- Built & shipped a Next.js app used by HR and team leads to visualize and preview changes to access control policies on the organization's GitOps access control solution, reducing human error. This replaces previously ClickOps-heavy workflows.
- Used Pulumi infrastructure as code to build a Better Stack integration that reduces time-to-triage for vulnerability reports from several hours to < 1 minute.
- Initiated and led a project to build open-source secure-by-default components used by developers in production systems and our starter kit template, making application security easy and invisible. Remediated a Next.js 0-day in the process.
- Configured CI/CD pipelines including automated NPM package publishing, changelog generation, documentation generation from TSDoc comments (published to a documentation website), testing and deployment.
- Initiated and configured advanced static code analysis pipelines across the organization. Wrote and published custom CodeQL query packs and libraries for data flow analysis on common technologies used, including Next.js, React, and tRPC.

Jane Street, Macquarie   Mar. 2024 – Apr. 2024
First-Year Trading & Technology Programme, Technology Spring Insight Programme   *London, United Kingdom*

Cure53   May 2023 – Present
Freelance Security Engineer   *Berlin, Germany (Remote)*

- Performed 20+ code audits and VAPTs for [global clients](), including Fortune 20 companies.
- Targets included web applications, browser extensions, Electron-based desktop applications, and mobile applications.

TikTok   Apr. 2023 – Sep. 2023
Security Engineer Intern   *Singapore*

- Discovered 50+ security vulnerabilities affecting critical internal and external facing services, such as TikTok.
- Developed Java extension on Burp Suite's new Montoya API for testing protobuf over both WebSockets and HTTP(s), a feature not supported by any open-source extension at the time of development.
- Wrote and deployed to K8s a deliberately vulnerable app in React and Express used as part of an internal competition.
- Researched at scale: Protobuf over WebSockets, XSS filter bypasses, and rich text editor vulnerabilities.
- Weaponised a 0-day in an online word processor to harvest employee credentials in a red team operation.

HACKATHONS & PROJECTS

[**EurekaPad**]() | *Next.js · TailwindCSS · Convex · Clerk · Radix UI · Vercel · Azure Cognitive Services*

- Notion + Jupyter Notebooks for STEM students. Runnable code blocks, intuitive math editor, interactive graphs, etc.
- Next iteration of EduAble (below). Supported by Microsoft for Startups.

[**Echo**]() | *Next.js · TailwindCSS · Vercel · Reddit, Twitter API + OAuth*

- Most Promising AI x Web3 Build, 1st Prize @ Encode Club London AI Hackathon 2024
- Social media aggregator that provides personalised feed for users to regain control of their social media algorithms.

[**EduAble**]() | *Next.js · TailwindCSS · PostgreSQL · Vercel · OpenAI API*

- 2nd Place @ Cambridge Generative AI Hackathon 2024, Finalist @ Fitzelerate 2024
- STEM notetaking app with real-time audio transcription to Markdown & LaTeX, and AI-generated summaries & quizzes.

[Ambrose](#) | *TypeScript · React · TailwindCSS*
- 1,200+ downloads.
- Chrome extension that automatically answers trivia questions and reminds users of pending trivia quizzes in an online game.

[Zeno](#) | *TypeScript · Express.js*
- Finalist @ STACK the Codes Hackathon 2022
- Security middleware for Express.js that protects against injection attacks, app-level DoS, SSRF and IDOR vulnerabilities.

Professional Highlights

Speaking Engagements
- *Client-Side Attacks in a Post-XSS World* – pwnEd 5 (University of Edinburgh), BSides Cymru/Wales, 2024.
- *XS-Leaks – Client-Side Attacks in a Post-XSS World* – BSides London, 2023.
- *HTTP Request Smuggling in the Multiverse of Parsing Flaws* – BSides Singapore, 2022.
- *Learn Hacking Through CTF Competitions* – Division Zero Bug Bounty Quarter, 2022.

Cybersecurity Vulnerability Research & Bug Bounty   2022 – 2023
- Discovered security vulnerabilities in popular open-source software. Credited for 15 vulnerabilities in the CVE database.
- Performed penetration tests for global companies through the HackerOne platform, uncovering > 50 valid security issues.
  * Achieved maximum lifetime signal-to-noise rating across multiple private & public programs, with zero invalid reports.
  * Competed against top hackers from around the world and emerged as top bug bounty hunter in the invite-only Ministry of Defense Bug Bounty Programme 2022 and GovTech Government Bug Bounty Programme 2023.

Cybersecurity Competitions   2022 – 2023
- Founded Social Engineering Experts, the top Singapore computer security Capture the Flag (CTF) team in 2022 and 2023.
- Core member and web security player for Blue Water, the global top CTF team in 2023. Finalist @ DEF CON 31-32 CTF.
- Led organization of SEETF, a global competition with $>2,000$ players and near-perfect public voting scores in 2022-23.
- Built cybersecurity challenges attempted by thousands of players in competitions and on platforms such as Hack The Box.

Technical Skills

Languages: TypeScript · Python · Java · OCaml · Go · SQL · LaTeX
Frameworks: React · Next.js · TailwindCSS · Prisma · Flask · Django
Developer Tools: Git · Docker · Vagrant · Google Cloud Platform · Kubernetes · Unix
Cybersecurity Certifications: OSCP · OSWE · CRT · Burp Suite Certified Practitioner

Honours & Awards

Name	Placing	Type	Scope	Awarder	Year
Encode Club London AI Hackathon	1st Place, AI x Web3 Build	Hackathon	Global	Encode Club	2024
Cambridge Generative AI Hackathon	2nd Place	Hackathon	UK	GetSeen Ventures	2024
HackSingapore	Finalist (Top 3)	Hackathon	SG	Tribe	2022
STACK the Codes Hackathon	Finalist (Top 7)	Hackathon	SG	GovTech	2021
Tech For Good Festival	Most Impactful	Hackathon	SG	Engineering Good	2021
Today I Learned AI Camp (University)	4th Place	AI Hackathon	SG	DSTA	2021
Government Bug Bounty Programme 8–9	Top Bug Bounty Hunter	Bug Bounty	Global	GovTech	2023
MINDEF Bug Bounty Programme	Top Bug Bounty Hunter	Bug Bounty	Global	MINDEF	2022
LakeCTF	1st (Finals)	Security CTF	Global	EPFL	2024
BSides Cymru/Wales Community CTF	1st Place	Security CTF	UK	Admiral	2024
pwnEd 5	1st (Qualifiers), 1st (Finals)	Security CTF	UK	University of Edinburgh	2024
DEF CON CTF	1st (Qualifiers), 2nd (Finals)	Security CTF	Global	Nautilus Institute	2023
HITCON CTF	1st (Qualifiers), 9th (Finals)	Security CTF	Global	HITCON	2023
CSAW CTF (Europe)	1st (Qualifiers) 3rd (Finals)	Security CTF	Europe	New York University	2023
HackTM CTF	2nd (Finals)	Security CTF	Global	HackTM	2023
Grey Cat The Flag	3rd Place	Security CTF	Global	National University of SG	2023
Cyber Defenders Discovery Camp (Uni)	3rd Place	Security CTF	SG	DSTA	2022
Cyber SEA Games	2nd Place	Security CTF	SEA	AJCCBC	2022
Best in Knowledge (Cyber)	-	Military Award	SG	MINDEF/SAF	2021
Distinguished Honor Graduate (Cyber)	-	Military Award	SG	MINDEF/SAF	2021
National Olympiad for Informatics	Bronze Award	Programming	SG	National University of SG	2019
Singapore Science & Engineering Fair	Best Poster Award	Research	SG	MOE, A*STAR	2019
Singapore Statistics Competition	1st Place	Research	SG	National University of SG	2019