# 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.
- Built core features from scratch as a solo developer. Now leading a team of 4 engineers to launch and scale the product.
- 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 |