Aran Jannson

PhD Researcher | Secure and Trustworthy Hardware for Secure Communication Networks
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Summary

PhD researcher in Open Secure Communications Networks for Secure and Trustworthy Hardware at the University of Surrey under the CDT-Fort program, with a predicted Distinction in MSc Cyber Security and a First-Class BSc in Computer Science. Experienced in post-quantum cryptography, formal verification, biometric authentication, full stack software development with a security first approach.

Education

CDT-Fort (University of Surrey) | PhD Open Secure Communications Networks — Guildford, UK
Field: Secure and Trustworthy Hardware — *Oct 2026 – Sep 2030*

University of Surrey | MSc Cyber Security – *Predicted Distinction* — Guildford, UK
Notable Modules: Digital Forensics (84%), Cloud Security (79%), Security Management & Governance (78%), Secure Systems & Applications (78%) — *Sep 2025 – Sep 2026*

University of Surrey | BSc Computer Science – First Class Honours — Guildford, UK
Notable Modules: Software Engineering Project (89%), Ethical Hacking & Penetration Testing (77%), Advanced Challenges in Web Technologies (76%) — *Sep 2022 – Jun 2025*

Projects

Formal Verification of Post-Quantum Multi-Server Authentication | *MSc Thesis*
- Implemented a post-quantum multi-server authentication scheme combining biometric authentication, fuzzy extraction, ML-KEM, and BCH-based secure sketches.
- Formally modelled the protocol in ProVerif, identifying a denial-of-service vulnerability and developing a Python/FastAPI proof of concept with a physical fingerprint scanner and emulated smart cards.

ABAC Authorisation as a Microservice with Dynamic Encryption Selection | *BSc Dissertation* — Link to Project
- Tackled fine-grained access control on low-compute and embedded devices by decomposing authorisation into a standalone microservice.
- Designed dynamic encryption selection logic that adapts cryptographic strength to available resources, balancing security and performance.
- Delivered secure token-based authorisation flows using TypeScript and Next.js, enforcing fine-grained per-attribute policies across services.

Eunoias | *Green Tech Jam – 2nd Place* — Link to Project
- Co-developed a workforce mental-health platform with role-based dashboards for employees, managers, counsellors, and moderators.
- Awarded 2nd place (£1,000) for technical execution and social impact.

Experience

University of Surrey | *Lab Demonstrator* — Oct 2026 – Present
- Support undergraduate and postgraduate laboratory teaching across computer science and cyber security modules, providing practical guidance on technical concepts, implementation, debugging, and problem solving.
- Prepare laboratory material in advance and assist students during practical sessions, including modules such as Privacy Enhancing Technologies, with future demonstrating support across additional modules.

University of Surrey | *Lab Assistant* — Oct 2023 – Sep 2026
- Teach undergraduates across web, database, security, and software engineering modules, from debugging full-stack coursework to working through cryptographic schemes including RSA, AES, DES, and CBC-MAC.
- Guide database design, data modelling, and debugging during labs, helping students turn requirements into working solutions.

Team Surrey Karting | *Web Developer & Social Media Manager* — Apr 2024 – May 2026
- Built and maintained the club's website using Next.js, TypeScript, SQLite, and TailwindCSS while managing its social media presence.

Surrey Computing Society | *Web Developer* — Sep 2023 – May 2024
- Developed and maintained the society's website using Nuxt.js and TypeScript – GitHub.

Skills, Awards & Languages

Skills: Python, TypeScript, Java, C++, SQL, Bash | ProVerif, Scyther, FastAPI, Next.js, React, Nuxt.js, Django, Express.js | PostgreSQL, MySQL, SQLite | Docker, AWS
Awards: Green Tech Jam 2024 – 2nd Place (£1,000); Academic Progress in IT – Necat British College (2022, one of two recipients).
Spoken Languages: English (native-level), Turkish (native-level).