

Frederick Kernot

fredkernot.com | linkedin.com/in/fred-kernot | github.com/fredkernot | Full right to work in UK & EU

PERSONAL PROFILE

Final-year Computer Science BSc student, predicted First Class, graduating July 2026. Comfortable across software engineering, data, and AI. Experienced building full-stack applications, handling large datasets, and training and evaluating ML models. Follows engineering practices: Git, testing, code reviews, Docker, and CI/CD.

EDUCATION

University of Surrey 2023 – Present
Computer Science BSc (Hons) – Predicted First Class Guildford, UK

- **Relevant Modules:** Artificial Intelligence, Deep Learning and Advanced AI, Computational Intelligence, Computer Security, Information Security, Computer Networking, Ethical Hacking
- **Extra:** IKEEP Intrapreneurship Programme (Innovation Management)

TECHNICAL SKILLS

Languages: Python, Java, C/C++, SQL, JavaScript
Data Analytics & Visualisation: Pandas, Data Analysis, Data Cleaning, Matplotlib, Excel
AI/ML: PyTorch, HuggingFace, Scikit-learn, NLP, Reinforcement Learning, Computer Vision
Engineering Practice: Git, Docker, CI/CD, Automated Testing, Code Reviews, Linux/Bash, Agile

PROJECTS

Adversarial Reinforcement Learning for Cooperative AI (Dissertation) | *Python, PyTorch, NumPy*

- Built a three-stage co-evolutionary RL pipeline (40M timesteps) training cooperative AI agents to remain effective with imperfect or adversarial partners in Overcooked-AI
- Evaluated across three training seeds and a compute-matched ablation study; quantified 2-3x improvement over the self-play baseline and isolated which pipeline stages drove most of the gain

LLM Model Optimisation & Evaluation | *Python, HuggingFace, NSGA-II, LoRA*

- Implemented the NSGA-II algorithm to conduct multi-objective hyperparameter optimisation for a large language model, successfully balancing validation accuracy against total trainable parameter count
- Mapped and analysed the resulting Pareto front to identify critical architectural trade-offs, discovering an optimal deployment configuration that reduced model parameters by 55.5% with matched validation accuracy

Conversational Crime Data Platform | *Python, Pandas, Ollama, Local LLMs*

- Engineered a local RAG tool using Pandas to pre-aggregate public London crime datasets
- Optimised model performance by implementing regex-based entity extraction and precise context prompting, reducing model hallucinations during conversational data retrieval

Full-Stack Cybersecurity Application | *Django, React, Docker, JWT, Agile*

- Led a 7-person agile engineering team to design, build, and deploy a containerised e-learning platform, standardising git version control workflows, group code reviews, and automated testing.
- Engineered the React frontend architecture, integrating secure JWT authentication and RESTful endpoints while constructing accessible, high-contrast user interfaces tailored to the elderly demographic

PROFESSIONAL EXPERIENCE

Agency Staff Jun 2022 – Present
Host Staffing London, UK

- Delivered high-standard hospitality services for clients such as KPMG and Microsoft in fast-paced environments

Administrative Assistant Oct 2021 – Jan 2022
Expert Tuition London, UK

- Organised and uploaded 500+ exam papers into a structured folder hierarchy, improving user access

Project Assistant Aug 2021
Heptagon Capital London, UK

- Pulled and analysed financial metrics across 10+ companies' annual reports to support investment decisions

ADDITIONAL EXPERIENCE & EXTRACURRICULAR

Mount Kilimanjaro Climb (Aug 2025): Raised £3,000 for Dig Deep (clean water charity), supporting communities in Kenya, demonstrating sustained personal commitment.

Other: Barista at Ole and Steen (Jun 2021 – Jun 2022). Plays football weekly for OWFC, and enjoys distance running.