

MOULAY ALI SAKURAI EL IDRISSE

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Summary

Entry-level backend and cybersecurity engineer with experience in Python, Django, and AI-driven systems. Skilled in C/C++, LangChain, Git/GitHub, and secure coding with basic penetration testing. Interested in quantum-safe cryptography, LLMs, and building scalable, secure backend services.

EDUCATION

Nottingham Trent University

Bachelor's, CyberSecurity (GPA: 1st Class Honours)

Sep 2022 - May 2025

Nottingham, UK

- **Achievements:** Department of Computer Science Project Prize in BSc (Hons) Cyber Security, Department of Computer Science Prize for Outstanding Performance

42 Tokyo

Software engineering

Sep 2025 - Present

Shinjuku, Tokyo, Japan

- **Achievements:** 1st place in the entrance exam(Piscine)

PROFESSIONAL EXPERIENCE

DIGITAL GRID Corporation | *Backend Engineer Intern*

Feb 2026 - Present

- Engineered a privacy-first RAG system using LangChain and locally hosted Llama 3, optimizing a hybrid retrieval pipeline for domain-specific queries.
- Improved context precision by ~20% by implementing RAGAS automated evaluation and semantic re-ranking, reducing hallucinations in technical responses.
- Delivered a fully containerized MVP using Docker, enabling rapid testing and seamless collaboration across a cross-functional Agile team.

Tokyo ICT(JICA) | *Full Stack Engineering Intern*

Jul 2023 - Oct 2023

- Developed a multilingual speech conversion system powered by Azure Cognitive Services, leveraging Speech-to-Text and Text-to-Speech APIs for real-time language processing.
- Built scalable backend services using Django, Node.js, and PostgreSQL, reducing runtime by 30% and optimizing performance for multilingual voice applications.
- Received recognition from the Representative Director for improving project outcomes through innovative solutions and effective collaboration

Brando SARL | *Junior Developer Intern*

Nov 2022 - Feb 2023

- Developed responsive web applications using JavaScript and RESTful APIs to automate workflows and reduce manual overhead.
- Collaborated with a team using Agile methodologies and Git to deliver client-focused solutions within tight deadlines, enhancing client satisfaction and project delivery speed

PUBLICATIONS & MANUSCRIPTS

- Sakurai El Idrissi, M. A., Otuka, R., Nwajana, A. "Integrating Machine Learning Fraud Detection and Hybrid Post-Quantum Cryptography in a Secure Trading Platform." Technologies (MDPI), Special Issue "Disruptive Technologies: Big Data, AI, IoT, Games, and Mixed Reality". Manuscript under review.

PROJECTS & OUTSIDE EXPERIENCE

Quantum-Safe Cryptography and AI-Driven Trading Fraud Detection | *Nottingham Trent University*

Aug 2024 - May 2025

- Conducted research on quantum-resistant cryptographic algorithms to mitigate threats from emerging quantum computing technologies.
- Built fraud detection models using machine learning in Python, improving accuracy while integrating generative AI for anomaly detection in trading data.
- Authored an in-depth study evaluating quantum-safe encryption methods for financial trading platforms.
- Presented findings on the integration of advanced cryptographic techniques to enhance secure trading environments.

SafePath – Emergency Navigation & Communication App | *Nottingham Trent University*

Jan 2025 - Apr 2025

- Developed a Flutter-based mobile app with Google Maps and Firebase to help users locate and navigate to nearby safe zones in real time.
- Engineered real-time messaging and push notifications using Firebase and local device alerts, supporting both offline functionality and global SOS broadcasting.
- Architected a modular and maintainable codebase using Flutter, enabling future integration of cloud services like Firestore and multilingual NLP extensions.
- Enhanced usability with a crisis-optimized UI, cached map tiles, and simplified login/registration for rapid access in emergencies.

Quantum-resistant Blockchain & Post-Quantum Cryptography Research | *Nottingham Trent University*

Oct 2024 - Apr 2025

- Assessed trade-offs in key size, computational cost, and feasibility of implementing post-quantum algorithms like CRYSTALS-Dilithium and SPHINCS+ in smart contracts.
- Proposed hybrid cryptographic models combining classical and quantum-safe schemes to enable secure transition and backward compatibility for decentralized blockchain systems.

TECHNICAL SKILLS

- **Programming & Frameworks:** Python, C/C++, Celery, Django, SQL, LangChain
- **Cloud & Tools:** AWS, Azure, Firebase, Git, GitHub, Docker, Unix, Rest APIs, ChromaDB
- **Cybersecurity & AI:** Pen Testing, Cryptography, Quantum Encryption, Networking Security, Generative AI, LLMs, Prompt Engineering, Computer Vision, Agile, RAG, RAGAS, Hybrid Search