# Raghav Awasthi

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## EDUCATION

| **University College London (UCL)** | London, UK |
|---|---|
| *Bachelor of Science in **Computer Science** with predicted **First Class Honours*** | *Sept. 2023 – June 2026* |
| **Dubai College** | Dubai, UAE |
| ***A\*A\*A\*A\*A** in **A-Levels** and **11 9s** in **GCSEs*** | *Aug. 2016 – June 2023* |

## EXPERIENCE

| **Cyber Security Intern** | June 2025 – Present |
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| *Barclays* | *Knutsford, UK* |

| **Full-Stack Developer** | Aug. 2024 – Oct. 2024 |
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| *Adamas Data* | *London, UK* |

- **Architected & shipped a production-grade DBMS web app** end-to-end: **FastAPI** micro-services, **PostgreSQL/PostGIS** data layer, and a responsive **Next.js** front-end with server-side rendering.
- **Exposed a versioned, RESTful API (~30 endpoints)** supporting CRUD, advanced search, and sorting across **~140 million records** with median query times under **3 seconds** for **150+** filter combinations.
- Embedded **LeafletJS** map components for on-the-fly geospatial visualisation, accelerating analyst insight generation by **~30%** in user testing.
- Automated CI/CD with **Docker, GitHub Actions, and Bash scripts**, shrinking deployment and rollback time to **<10 minutes** per release.

| **AI/ML + Quantum Cryptography Intern** | June 2024 – Aug. 2024 |
|---|---|
| *Tech Mahindra* | *Pune, India* |

- **Led a 5-person R&D team** to build **ThaiLLM**, a bilingual 7B parameter model - fine-tuned with **LoRA** on **120k** curated healthcare & other governmental services/records.
- Cut **mean GPU inference latency by ~20%** through FlashAttention-2 and raised **domain F1 by 15%** on a 6000-question benchmark.
- **Embedded Retrieval-Augmented Generation (RAG)** into **Garuda**, the company's biggest LLM initiative.
- Hybrid BM25 + MiniLM reranker pushed **top-1 retrieval MRR up 25%** and reduced hallucination rate to **7%.**
- Delivered a **Gradio + Flask demo stack** with JWT authentication and Selenium tests, enabling A/B testing new checkpoints in **under 5 minutes**.
- Implemented reference wrappers for **NIST finalist PQC KEMs** in Python and began **ML-KEM post-quantum key-agreement for TLS 1.3** POC.

## PROJECTS

**Quantum Proximity Gateway (IBM & UCL)** | *Python, Rust, Next.js, C++* | ⏻  Sept. 2024 – March 2025
An IoT edge-to-cloud system (ESP32 BLE beacons, Raspberry Pi facial recognition, Pico USB-HID emulation) which **auto-authenticates hot-desk PCs on user approach**.

**Playo (Audio Book Generator App)** | *Python, Firebase, OpenAI, ElevenLabs, TypeScript* | ⏻ in  Jan. 2024
Developed a **mobile app** which uses user prompts and preferences for a storyline and narration to produce a **fully customised story** as an **audio book**.

**Assembly Code Visualiser** | *Node.js, Express.js, SQL, Docker* | ⏻  June 2022 – March 2023
Built a web app **Assembly IDE** and **interactive Little Man Computer visualiser**, letting students step through CPU/RAM states. Acts as a **learning/teaching platform**, allowing teachers to assign challenges.

## TECHNICAL SKILLS

**Languages**: Python, C/C++, Rust, Bash, SQL, JavaScript, Java, Haskell, HTML/CSS
**Frameworks/Libraries**: React, Node.js, Flask, FastAPI, Pydantic, Pandas, NumPy, Matplotlib, PyTorch, TensorFlow, JUnit, Selenium, PostgreSQL, SQLite, SQLAlchemy, Alembic, Redis
**Developer Tools**: Git, Docker, VS Code, Emacs
**Other**: HuggingFace Transformers, Gradio, IBM Qiskit, OpenSSL, Metasploit, Excel, Figma, Photoshop, GIMP

## AWARDS/ACHIEVEMENTS

- Ranked **1st** (school) in the **ISMTF** (International Schools Mathematics Teacher Foundation) competition, 2022.
- Ranked **Top 5** in the **national** University of Wollongong, Dubai, **Mathalon**, 2022.
- Achieved **2x Gold** awards in **UKMT** (UK Maths Trust) **Senior** and **2x Gold** awards in **UKMT Intermediate**.
- Received **Highest Achiever** academic excellence award for **Computer Science** from headmaster, 2023.