JOSHUA KIRBY

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[LinkedIn](#) ● [GitHub](#) ● [Portfolio](#)

EDUCATION

University of Birmingham Birmingham, UK
BSc Artificial Intelligence & Computer Science Expected 2027
- **Grade:** First Class (75% Average)

TECHNICAL SKILLS

- **Languages:** TypeScript, Python, SQL, JavaScript
- **Core Stack:** Next.js, React, Node.js, Tailwind CSS, Drizzle ORM
- **AI Engineering:** RAG Architectures, OpenAI API / SDKs, Vercel AI SDK, Agents, Vector DBs (Pinecone)
- **Cloud & Infra:** AWS (Lambda, DynamoDB, S3, EC2), Cloudflare Workers, SST, Serverless Architecture
- **Tools:** Git, Docker, PostHog, Vitest

EXPERIENCE

GenkiJACS Fukuoka, Japan
Software Engineer Intern *Sep 2023 – Jun 2024*
- **Sole Engineer:** Designed and deployed a production RAG chatbot for [GenkiJACS](#) and [ICNagoya](#), handling **10,000+ messages** from **2,000+ users**.
- **Business Impact:** Reduced support workload by ~**70 hours/week** by automating responses to repetitive queries, allowing staff to focus on high-value sales.
- **Pipeline Engineering:** Engineered a zero-maintenance scraping pipeline (TS) that updates the Pinecone vector database automatically when website content changes.
- **Optimisation:** Improved retrieval accuracy by implementing "sliding window" context injection and query expansion, significantly reducing hallucination rates.
- **Full Stack:** Built a Next.js staff portal enabling real-time chat review, analytics tracking, and human-in-the-loop oversight.

The HALO Trust Dumfries, UK
Technology Intern *Dec 2021 – Apr 2023*
- **Geospatial AI Pipeline:** Identified and digitised **1,500+** unmapped buildings in Afghanistan using **ArcGIS**, creating a ground-truth dataset to train computer vision models for humanitarian impact assessment.

PROJECTS

AI Conversational Placement Test *Collaborative Project*
- **Operational Efficiency:** Compressed the student placement lifecycle from **2 weeks to 30 minutes** by replacing manual Zoom interviews with an on-demand AI assessment, enabling immediate class availability checks.
- **Expert Process Modelling:** Conducted expert interview and workflow analysis to translate a senior teacher's manual testing methodology into code, engineering a dynamic probing strategy that adapts difficulty to accurately assess grammar limits.
- **Multi-Tenant Architecture:** Engineered a platform supporting dynamic subdomains (`*.languagetest.net`) using Next.js middleware and custom authentication to support distinct organisations.
- **Parallelised Verification:** Orchestrated a "fan-out" evaluation pipeline where candidate quotes are extracted and verified via concurrent LLM calls, significantly increasing grammatical accuracy.
- **System Reliability:** Built a custom version-control system for test configurations, enabling "Git-style" diffing, deployments, and atomic rollbacks.
- *Tech: Next.js, Cloudflare Workers, TypeScript, Vercel AI SDK (Gemini), AWS.*

LANGUAGES

- **English:** Native
- **Japanese:** Native