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, Vector DBs (Pinecone)
- **Cloud & Infra:** AWS (Lambda, DynamoDB, S3, EC2), Cloudflare Workers, SST, Serverless Architecture
- **Tools:** Git, Docker, PostHog, Vitest

EXPERIENCE

GenkiJACS | View Case Study — 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:** Saved **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 that automatically updates the Pinecone vector database when website content changes.
- **Evaluation & Optimisation:** Conducted an ablation study (700+ judgments) to validate retrieval improvements (keyword injection, query expansion), achieving a **62% baseline relevance** (vs 43% un-optimised).
- **Smart Handoff:** Engineered a handover protocol that detects critical queries and injects conversation IDs into support emails, maintaining context for staff.

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 | View Case Study — Internal Beta
Solo Project — *2024 – Present*
- **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.
- **Assessment Flow System:** Translated expert examiner methodology into a deterministic assessment flow (Ask → Hint → Explicit), ensuring standardized evaluation across all candidates.
- **Multi-Tenant Architecture:** Engineered a platform supporting dynamic subdomains (`*.languagetest.net`) using Next.js middleware and custom authentication to support distinct organisations.
- **Automated Regression Pipeline:** Built a custom eval suite with **~600 annotated samples**, optimizing the multi-stage verification architecture to achieve **70% strict recall** on grammar pattern extraction.
- **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