Akshay Krishna Sirigana

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github.com/MangoKrish | mangokrish.github.io/PersonalWeb

Education

McMaster University Sep. 2025 – May 2029
Bachelor of Applied Science in Computer Science (Co-op) *Hamilton, Ontario*
- Coursework: Software Development, C Programming & Linux, Discrete Mathematics, Linear Algebra, Calculus

Research

Co-author | *McMasters of Change: Predicting Well-Being States and Transitions from Longitudinal Language* 2026
- Published system paper for the CLPsych 2026 Shared Task at ACL (McMaster NLP, 11 authors), modelling mental-health dynamics across longitudinal social media timelines; pp. 482–497, DOI 10.18653/v1/2026.clpsych-1.38.
- Owned the error analysis: quantified systematic adaptive-state overprediction (74 vs. 27 false positives), isolated subelement confusion to the affect and desire dimensions, and ran Bonferroni-corrected tests on seven hand-annotated style features, showing post length and self-deprecating language drive a 4x rise in false positives, the paper's central finding.

Experience

Founder 2026 – Present
Annontrix – Software Solutions | *annontrix.vercel.app* *Hamilton, Ontario*
- Built and shipped 5 portfolio websites for student clients and took on 2 business clients (an e-commerce store and an online dance-class business); own scoping, architecture, build, Vercel deployment, and handover.

Robotics Research Intern May 2022
SysIdea Lab, Indian Institute of Technology – Gandhinagar *Gandhinagar, India*
- Integrated control software with mechanical subsystems; prototyped components with 3D CAD, laser cutting, and 3D printing, and supported experimentation, debugging, and performance analysis of embedded subsystems.

Projects

Peppa | *Fully Local AI Voice Assistant* | Python, Ollama, MLX, PySide6, RAG 2026
- Built a 16,400-line assistant running five on-device models (14B chat, 32B reasoning, coder, vision, embeddings) behind a routing layer – no cloud calls, no API keys, no audio leaving the machine.
- Reached sub-2-second voice-to-voice latency by streaming speech sentence-by-sentence during generation, with barge-in interruption and an energy-based VAD microphone loop.
- Engineered 46 extensible tool skills, cross-session memory, and sandboxed Python execution so arithmetic is computed, not hallucinated; validated with 242 tests after a formal audit.

Argus | *AI Government Procurement Intelligence Platform* | Next.js, FastAPI, Gemini, Three.js Mac-a-thon 2026
- Built a real-time platform that monitors government procurement signals, matches them to startup capabilities, and generates personalized outreach; Gemini 2.5 Flash and embeddings reach 85%+ match accuracy under 3 seconds.
- Built an interactive Three.js globe on Next.js/React and FastAPI with a team of 4 from McMaster, TMU, and UofT.

VANTAGE | *Distributed Sensing Fleet* | Docker, OpenVINO, InfluxDB, MQTT, Grafana 2026
- Architected a distributed system of 25 Docker containers across a Linux server and an Apple silicon node, running object detection on an Intel iGPU via OpenVINO at ∼8 ms inference.
- Built to a versioned spec across 9 modules with InfluxDB/Grafana time-series storage, git-pull deployment, tailnet-only port binding, and an end-to-end integration test.

Additional: Duet – offline-first planner, custom sync algorithm, zero npm packages; Paper – dependency-free Apple Pencil handwriting engine for Obsidian; Petal – Kotlin/Compose cycle tracker (144 files); TerraCheck – geospatial land viability (Hack Canada); NeonDrift – 60 FPS Canvas game (DeltaHacks 2026).

Technical Skills

Languages: Python, JavaScript, TypeScript, Java, C, C#, Kotlin, SQL, PL/pgSQL, PHP, HTML/CSS
Frameworks: React, Next.js, FastAPI, Node.js, Jetpack Compose, React Native, Unity, Three.js, Tailwind CSS
Tools: Git/GitHub, Linux, Docker, PostgreSQL (RLS, migrations), Supabase, Vercel, Cloudflare R2, GCP, Arduino
AI & Systems: LLM orchestration (Ollama, Gemini API), embeddings, RAG, PWAs, real-time SSE, PyTorch, scikit-learn

Leadership & Interests

House Captain, Student Council – JNS, India (2024): Led the house to the Sports, Cultural, and overall House Trophies in one year, a sweep not achieved in the preceding decade.
Interests: FIDE- and CFC-rated chess player; badminton; music.