

James Murphy

AI Engineer — Voice & Conversational AI

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AI engineer with 20 years in voice and contact-centre systems: SIP, RTP, WebRTC, IVR and Genesys. Builds production AI in TypeScript and Swift: AI investigation pipelines whose every reported figure is checked against computed results, MCP servers that give agents safe access to company systems, and LLM observability. Also wrote the pure-Swift GPU runtime behind the question box at r.jmurphyau.com.

EXPERIENCE

Paretio · Principal Engineer

Oct 2025 – Oct 2026

Analytics platform that helps businesses understand changes in their customer ticket data.

- Led development of the **AI root-cause analysis pipeline**, which investigates a change in a customer's ticket data and writes a finding with evidence, an estimate of business impact and recommendations.
- Built automated checks on model output: groundedness of dollar figures, plausibility of annualised amounts, a gate on unsupported comparisons and a trace from each figure back to its source.
- Built three generations of **AI investigation**, including a planning model directing specialist agents over read-only data tools, with strict JSON Schema structured outputs, a resumable case file and cost tracking.
- Cut tokens per investigation iteration from about 78,000 to about 20,000, then moved the narrating step to a model 12 times cheaper after quality checks across eight runs.
- Built the **Paretio MCP server** in TypeScript, giving AI agents secure, read-only access to the company's analytics, infrastructure and development systems, with input validation, steering errors and secret redaction.
- Added **OpenTelemetry** tracing of pipeline execution, token usage and model cost, and wrote the team's tracing standards.
- Used **Claude Code** and **Codex** throughout, directing implementation and taking responsibility for architecture, system design and code review.

Cyara · Technical Lead — Integrations

Oct 2022 – Jul 2025

B2B SaaS platform for testing and load-testing contact-centre and customer-experience systems.

- Built a **Swift and PJSIP** application to test Apple's "Shop with a Specialist" launch with **1,000 concurrent 720p video agents**: H.264 video and audio over SIP with SRTP, run at 500 per machine.
- Added a SIP video endpoint that answers calls with H.264 profile matching and 90 kHz RTP pacing, and ported OpenTelemetry Swift to Linux for its logs and metrics.
- Built a **WebRTC** voice-testing proof of concept inside the Genesys Cloud agent client, playing recorded audio as the agent's voice, with Playwright driving the calls.
- Gave technical direction to a **team of six** building the agent integrations, including Genesys and Amazon Connect, that let the platform simulate contact-centre agents for large organisations including Apple.

Global Speech Networks · Solution Architect

Oct 2017 – Jul 2022

Hosted Genesys contact-centre platform in Melbourne and Sydney. At GSN from Mar 2016 as InProd's contractor; employee from Oct 2017.

- Designed and delivered hosted Genesys contact centres, from design to go-live, for customers including **MYOB**, the **Victorian Department of Education** and **Queensland Rail**.
- Primary contact-centre engineer on MYOB's move to the platform: Genesys call path and IVR, F5 iRules for SIP NAT and SDP rewriting, carrier SIP trunks, and queue logic with in-queue callback.
- Secured GSN's own IP range and AS number and designed the carrier connection with BGP on F5, enabling Melbourne–Sydney failover with **zero dropped calls and less than five seconds of silence**.

- Diagnosed voice faults at packet level with SIPp and sox test harnesses, packet captures and spectrograms.

InProd · Founding Engineer

2014 – Oct 2017

- First and lead developer of a configuration-management and auditing product for Genesys (change sets, audit trail, rollback, lab-to-production promotion): a Java Platform SDK service, a Django REST API and an Ember.js interface.

EARLIER

Telstra, Contact Centre Engineer (Sep 2012 – Oct 2014): engineer on Sensis's high-availability Genesys deployment, and Genesys reporting and SIP Server work for federal government customers. Four Genesys 8 certifications.

Engage, Technical Lead — Founding Engineer (Nov 2009 – Sep 2012): early employee at a hosted contact-centre startup later acquired by LivePerson. Built a queue callback service, a Java softphone and a reporting portal with custom reports in under 10 seconds; rolled Puppet out across 80+ servers in two locations.

Salmat, Software Developer, R&D and Reporting (Nov 2005 – 2009): moved from the phones into R&D. Cut nightly reporting from over two hours to under five minutes, and built C# tools on the Genesys Platform SDK.

PROJECTS

Ask (Swift · CUDA · 2026) — Pure-Swift LLM runtime that runs Qwen3-8B on an RTX 3090 through cuBLAS and runtime-compiled kernels, with its own tokenizer and a cached prompt prefix, verified against the reference implementation's tokens and logits. Answers the career questions at r.jmurphyau.com.

OriginKit (Swift · 2026) — Zero-dependency web, DNS and mail server in pure Swift, with hand-written HTTP/1.1, TLS and mTLS, streamed compression, an S3 client and a load generator. Serves jmurphyau.com.

LlmTools (Swift · 2026) — Tools for collecting and querying Claude Code session logs and OpenTelemetry data, with an MCP server for searching session history.

ember-truth-helpers (Ember.js · open source since 2015) — Created this Ember add-on, now community-maintained, with 700+ GitHub stars and over 7 million npm downloads a year. Also contributed to Ember.js core, Ember Data and FastBoot.

SKILLS

AI — LLM pipelines and agents, MCP servers, OpenAI Responses API with structured outputs, Claude Code / Agent SDK, Codex, CUDA (cuBLAS, NVRTC)

Voice — SIP, RTP/SRTP, WebRTC, PJSIP, H.264, IVR, Genesys (Engage and Cloud), Amazon Connect, Azure Speech

Languages — TypeScript, Swift, Python, C#, Java

Data & observability — ClickHouse, DynamoDB, Neptune / Gremlin, OpenTelemetry

Platform — Node.js, AWS (Lambda, Step Functions, ECS), Terraform, GitHub Actions, Buildkite, Docker, Linux

Certifications — AWS Certified Solutions Architect – Associate · Genesys 8 Platform SDK, Info Mart, e-Services and SIP Server