

Luca Romagnoli

Senior Software Engineer – Shipping AI Agents to Production · Evals & Observability · Distributed Backend Systems (Python · Go · TypeScript · C++)

CONTACT

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SUMMARY

Senior software engineer who ships AI agents to production, with over ten years of experience building backend and distributed systems. At NearForm, builds production AI-agent features and infrastructure (multi-agent orchestration, A2A, MCP) and the evaluation and observability that make them safe to release: golden-dataset regression suites in CI, tool-call and trajectory evals, online evals on production traces, and OpenTelemetry/Langfuse tracing with cost and latency dashboards. Works mainly in Python, Go and TypeScript/JavaScript (including React), with production experience in Ruby and substantial C++ in open-source work. Has carried out several system migrations: a high-throughput Rails service to Go at Deliveroo, a monolith to microservices at Sainsbury's, and legacy services to event-driven AWS Lambda at Siemens. Has also built Kafka-based asynchronous pipelines. Creator of MAGDA, an open-source, cross-platform digital audio workstation (DAW) with built-in AI agents. It spans a C++ desktop application and audio engine, a React/Next.js web front end, and AWS infrastructure managed with Terraform.

TECHNICAL SKILLS

- **Languages:** Python, Go, TypeScript/JavaScript (primary); C++20/23, Ruby, Lua, Java, SQL, Bash
- **Backend / APIs:** FastAPI, Flask, Django, Ruby on Rails, Node.js; REST, gRPC, GraphQL, Web-Socket JSON-RPC
- **Frontend:** React, Next.js, Vite, Tailwind CSS, Zustand
- **Data / Messaging:** Kafka, AWS RDS, SQLite (FTS5)
- **Cloud / Infrastructure:** AWS (Lambda, ECS, EventBridge, RDS, S3, CloudFront), Terraform, Docker, Kubernetes, Helm, GitHub Actions
- **Native / Desktop:** C++ with JUCE, CMake, WebAssembly (Emscripten), Catch2; macOS, Windows and Linux builds
- **AI / Agentic Systems:** Multi-agent orchestration, tool-using agents, A2A, MCP servers and integrations, RAG pipelines, Claude SDK, OpenAI, Anthropic, Gemini, Hugging Face, local inference with llama.cpp
- **AI Evaluation:** Golden datasets and regression suites gated in CI, tool-call and trajectory evals, online evals on production traces, turning production failures into new test cases
- **Observability:** OpenTelemetry, Langfuse (tracing, prompt management), DataDog, Sentry; distributed tracing across agents and tool calls, token/cost/latency dashboards, prompt versioning
- **LLM Infrastructure:** Prompt orchestration, structured output (JSON Schema, Pydantic), context-window optimisation, token and cost tracking
- **Practices:** Distributed and event-driven systems, async programming, API design, system migrations, TDD, integration testing, CI/CD

EXPERIENCE

NearForm

Senior Software Engineer 2025 – Present

- Shipping AI-agent features to production on Agents-at-Scale ARK, an open-source framework for building and running production AI agents.
- Designing multi-agent orchestration workflows and agent-to-agent (A2A) communication.
- Building agent tooling with the Claude SDK and LLM APIs, including Model Context Protocol (MCP) integrations for tool-using agents.
- **Evals:** Built golden-dataset regression suites that run in CI, so prompt, model and tool changes are checked against known-good behaviour before release.
- **Evals:** Added tool-call and trajectory evals that check whether agents choose the right tools, arguments and steps, not only whether the final answer is right.
- **Evals:** Run online evals on production Langfuse traces and turn failing cases into new regression tests.
- **Observability:** Instrumented agents and services with OpenTelemetry and Langfuse, producing end-to-end traces across multi-agent hand-offs, LLM calls and tool calls.
- **Observability:** Built token, cost and latency dashboards per agent and model, and introduced prompt versioning linked to traces, so behaviour changes can be traced to a specific prompt release.
- Building backend services and tooling in Python, Go and TypeScript.
- Designed the React UI for SDLC, a greenfield project, and contributed React front-end features to ARK.

Deliveroo

Senior Software Engineer December 2024 – 2025

- Led the migration of a high-throughput backend service from Ruby on Rails to Go.
- Built automation systems using LLM workflows to improve developer productivity.
- Implemented infrastructure as code with Terraform.
- Improved service observability with DataDog and Sentry.

Citi

Senior Software Engineer (Contract) October 2023 – July 2024

- Developed proof-of-concept systems with Python and FastAPI for certifying internal IT solutions.
- Built automation tools that generate PowerPoint and Word reports programmatically.
- Implemented automated screen-capture scraping pipelines.

Siemens

Senior Software Engineer (Contract) March 2023 – September 2023

- Migrated legacy services to an event-driven AWS Lambda architecture.
- Built distributed file-processing pipelines.
- Rewrote services from JavaScript to Python.

Zaizi (National Archives)

Senior Software Engineer (Contract) November 2022 – February 2023

- Developed a Django backend integrated with Keycloak authentication, and contributed React front-end features.
- Built Docker images and deployed services to AWS ECS.

Wayfair

Senior Software Engineer (Contract) March 2022 – October 2022

- Developed internal logistics and order-management tools, including React front-end work.
- Implemented asynchronous processing pipelines with Kafka.

Just Eat

Senior Software Engineer September 2021 – February 2022

- Automated AWS RDS infrastructure deployments.
- Improved infrastructure reliability through automation and monitoring.

Sainsbury's

Senior Software Engineer January 2020 – August 2021

- Led the migration from monolithic systems to microservices.
- Built ETL pipelines with Kafka and asynchronous Python services.

Mavens of London

Software Developer February 2017 – December 2019

- Built large-scale web-scraping systems.
- Contributed to machine-learning and NLP projects.

Empello

Junior Developer March 2015 – January 2017

- Built web-scraping infrastructure that monitored mobile advertising networks.

PROJECTS

MAGDA – Open-source DAW with built-in AI agents

Creator and principal author. GPL-3.0. Links: github.com/Conceptual-Machines/magda-core · magda.land

- Built a cross-platform desktop application for macOS, Windows and Linux in C++23 and JUCE. It has Catch2 test suites, and CI builds and releases it on all three platforms.
- Designed and built a native audio engine to replace Tracktion Engine, with module boundaries enforced at build time. It hosts VST3, AU and LV2 plugins.
- Extracted the core into a host-independent C++ SDK (MIT licence) that compiles both natively and to WebAssembly, so the same code runs in the browser.
- Built the agent layer: an orchestrator that coordinates specialist agents and a custom domain-specific language (DSL) for DAW commands. It runs on a provider-agnostic LLM module (OpenAI, Anthropic, Gemini, local llama.cpp), and an embedded SQLite (FTS5) media and preset database supports search.
- Exposed the application through an embedded MCP server and a WebSocket JSON-RPC API. These are used by AI assistants and by a TypeScript Stream Deck plugin.
- Built magda.land with Next.js, React and TypeScript, plus an in-progress browser DAW (Faust compiled to WebAssembly). The site is served from S3 and CloudFront with Lambda functions, provisioned in Terraform and deployed with GitHub Actions.

grammar-school

A framework for building small, LLM-friendly domain-specific languages, with Python and Go implementations. [grammar-school](#) · [Python](#) · [Go](#)

DataService

A Python library for scalable data gathering. github.com/lucaromagnoli/dataservice

EDUCATION

BSc Computer Science – Open University

Final-year project: a machine-learning fashion search engine built with TensorFlow and Annoy. github.com/lucaromagnoli/open-uni-final-project

INTERESTS

Electronic Music Production

Produces electronic music and builds tools that connect AI with digital audio workstations.