

Mark Mandryk

Senior Tech Lead — Backend & AI/Agent Systems

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Available for remote contract / B2B engagements

SUMMARY

I have been building backend systems since 2016 and leading them since 2023. My foundation is production PHP 8.4 / Laravel / PostgreSQL, with MySQL, MongoDB, Node.js and Python alongside it, and I own the infrastructure underneath — AWS (ECS/Fargate, EC2, S3, RDS), Terraform and Pulumi, GitHub Actions, Docker, nginx, systemd and Linux. In 2023 I moved into LLM and agent systems as a dedicated practice: RAG pipelines over vector storage, MCP servers written from scratch, multi-agent orchestration, and prompt design and model-output evaluation treated as engineering work with an auditable trail rather than trial and error — verifiable in six public MCP/RAG repos shipped in 2026.

AI / AGENT SYSTEMS — CORE EXPERTISE

- Agent orchestration:** 56-agent Claude Code configuration in daily use; subagent design, skill inheritance/encapsulation, cross-machine deployment (Linux/Windows/VPS via git submodules).
- MCP servers built from scratch:** 3D-print slicing (custom gcode patching), CDN/file-hosting, SSH exec/deploy — designed and shipped, not just consumed.
- RAG / retrieval:** LangChain pipelines with vector storage for personalized-learning and document-search use cases; retrieval quality hardened with metadata filtering and output guardrails.
- LLM-in-the-pipeline:** LLM as editor/gatekeeper (content review before publish), LLM as prompt-orchestrator between APIs, model-output evaluation as a QA layer.

AI ENGAGEMENTS (PAID, TEAM-LED)

RAG adaptive-learning platform — Lead. *Norwegian EdTech startup · Late 2024, ~5 months.*

Led a mixed 5-person team (2 dev, 2 QA, 1 PM). Multi-agent orchestration building a per-student knowledge map that continuously replans the curriculum; RAG + OpenAI embeddings over a MongoDB vector store, LangChain. Designed an early prompt-orchestration layer — prompts invoking reusable prompts, a precursor to a modular skill system — and hardened retrieval quality with metadata filtering and output guardrails. 1,000–10,000 students; strong weekly retention (5–7+ return visits). ~\$80k+ engagement. Ended on client's runway; the same client referred the engagement below.

Internal AI agent for a law firm — Lead. *Insurance-litigation firm, Israel (NDA) · Early 2025, ~3 months.*

Led a mixed 3-person team (1 dev, 1 PM). Continuously ingests, catalogs, and indexes incoming document batches (GB of tables, registries, statements, client data); background processing keeps the server responsive under load. Cut document search from days to minutes; integrated encrypted APIs for client-data security. ~\$40k+ engagement.

ARCHITECTURE & RAPID MVP DELIVERY

Architecture lead on client MVPs at Webcoder — roughly 5–15 per year, often in parallel, 2 weeks to 1.5 months each. All under NDA. Core skill: turning loose requirements into a working system quickly, technology selection under real time pressure, delivery without a long discovery phase.

SELF-BUILT AI / INFRA PORTFOLIO (PERSONAL, LIVE)

- mandrock-tools.duckdns.org** — browser-based ESP32 firmware builder; Blender noVNC + MCP-driven remote render.
- mandrock-files.duckdns.org** — CDN with a custom MCP server (upload/list/delete, URL shortener), WebDAV endpoint.
- Kiri:Moto MCP slicer** — production 3D-print slicing for a physical FDM printer, tuned through real print calibration.
- Telegram bot pipeline** — Gemini API as an editorial gatekeeper before publish (Grammy + pm2, Hetzner).
- Reverse-SSH tunnel infra** — VPS relay so a cloud-hosted Claude instance can securely act on a private desktop.
- 56-agent config + 51 modular skills** — curated from the wshobson/agents marketplace (112→192+), not imported wholesale.

CASE STUDY — LLM-ASSISTED EDITORIAL QA AT SCALE

Full editorial + technical fact-check pass across 31 modules of two production Ukrainian courses (Music Theory in Bitwig — 13; Bitwig Course — 18), using an LLM as the primary QA/rewrite engine. Findings logged across 4 structured documents (auditable trail); caught version-specific inaccuracies a single manual pass would miss. Same underlying skill as the legal-firm engagement — an LLM as a rigorous, auditable content-QA layer over a large heterogeneous document set.

AI-COLLABORATIVE BUILD PORTFOLIO (30+ REPOS)

earForge (ear-training game, TS) · Voxelizer (image→voxel, Gemini) · Synth-City (multiplayer architectural synth, Google AI Studio) · TextToVox (3D generator, Replit) · CircuitTracksPro / Novation Circuit Tracks patch editors · flok-autocomplete-extension (live-coding, Hydra/Strudel) · CrimsonScript (multi-speaker transcriber) · firefox-print-to-slicer. AI as an active build partner across Claude Code, Gemini, Google AI Studio, Replit.

PUBLIC MCP/RAG REPOS (2026)

[mcp-artisan](#) — Laravel codebase introspection MCP · [mcp-vpsobs](#) — read-only prod observability MCP · [mcp-esp32](#) — ESP32/MicroPython MCP · [rag-eval](#) — retrieval eval harness, CI gate · [rag-tenant](#) — multi-tenant RAG, Postgres RLS isolation · [rag-lab](#) — 12-config retrieval benchmark, pgvector.

BACKEND & INFRASTRUCTURE FOUNDATION

Senior Backend Developer / Tech Lead — Webcoder, Kharkiv. *Since 2020 (Senior since 2023); in software since 2016.*

Core stack PHP 8.4, Laravel, PostgreSQL. FusionPBX administration (production VoIP/telephony) — built a call-transcription & AI-summarization pipeline merged with CDR data for per-region call metrics (hotel client). Owns a self-hosted DevOps stack: Hetzner VPS, nginx, pm2, systemd, git-based deployment — the same infra that now hosts the AI/agent tooling above.

EARLIER EXPERIENCE (2017-2023, CONDENSED)

GigaTaxi — Laravel backend, taxi aggregator, payment architecture · Foodtolive — Yii2 e-commerce, Stripe subscriptions · internal CRM — Laravel + AirTable-as-DB · blockchain trade platform — Laravel/Vue, ETH/BTC · GreatStarter — crowdfunding, DB architecture, frontend lead · Youplateit/Yoreevo — React/Laravel food-delivery, subscriptions, CSV pipelines · Node.js CRM API — MongoDB, early ChatGPT API integration (2023).

SKILLS

AI/Agents: Claude API, MCP (server + client), LangChain, RAG, vector storage, multi-agent orchestration, prompt engineering, model-output evaluation. **Backend:** PHP 8.4, Laravel, PostgreSQL, MySQL, MongoDB, Node.js, Python. **Cloud/Infra:** AWS (ECS/Fargate, EC2, S3, RDS), Terraform, Pulumi, GitHub Actions, Docker, Linux, Hetzner VPS, nginx, pm2, systemd, git, SSH tunneling. **Also:** FusionPBX/VoIP, C++/MicroPython (embedded).