

Fabio Terpollari

Software Engineer · AI Systems & Backend

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SUMMARY

Software engineer who builds **AI agents and the systems around them** - agent orchestration, RAG, voice - in TypeScript and Python. Backend-first, with the infrastructure and security work needed to run what I build. Previously ran the IT function for a **200-person company**.

CORE SKILLS

AI & Agents: LLM agents & tool-calling, MCP, LangChain, RAG, prompt-injection defense & agent security, voice agents (STT/TTS/telephony), multi-provider LLM routing, workflow automation

Backend: TypeScript, NestJS, Node.js, Python, FastAPI, Java, PostgreSQL, MongoDB, Redis, BullMQ, REST, OAuth/JWT, webhooks

Infra & Ops: Docker, Kubernetes, AWS (ECR, S3), Linux, nginx, self-hosted Supabase, mail (Postfix/Dovecot), Git, CI, Playwright, Jest, VoIP (3CX), DNS/Hosting, networking

Security: Authorized security assessment, broken access control / IDOR, PoC tooling, DKIM/SPF/DMARC, RBAC & row-level security

Web & Mobile: React, Next.js, Expo / React Native, Capacitor, Tailwind, Streamlit; realtime (WebRTC, LiveKit, web push)

WORK EXPERIENCE

Software Engineer | NextGen Technologies AI | January 2026 – Present | Tirana, Albania

- Core engineer on a **platform where companies build and run their own AI agents** (NestJS, TypeScript, MongoDB, Redis): agent orchestration, tool-calling over MCP, and the LangChain-based voice and text agents themselves.
- Built an entire end to end agent orchestration system that **runs the platform by conversation** - it creates and manages other agents, phone numbers, departments and knowledge bases, and chains multi-step tool calls, asking before anything destructive and logging everything.
- Found and fixed **security holes in the agent layer**: users could reach other organizations' data through the agent's tool calls, and prompt injection could talk the model into it. Closed the code paths, hardened the system prompts, and added dependency scanning to CI.
- Gave agents **memory of past conversations**, built the RAG knowledge-base search behind them, and added a dashboard for call cost, sentiment and quality across voice and LLM providers.
- **Refactored the voice stack off a legacy telephony provider** onto a new one - moved the existing agents over and retired the old integration; set up the platform's first job queue (BullMQ) and shipped the **React Native mobile app**.
- **Lead engineer for the team**: run the development workflow, review and merge the team's pull requests, and own deployments to **Kubernetes** with container images in **AWS ECR** and file storage on **S3**.

Software Engineer | Abissnet | June 2025 – January 2026 | Tirana, Albania

- Built **Nora, an internal RAG assistant** that lets staff query company documentation (PDF, DOCX, XLSX) in natural language: Python, Streamlit, GPT-4o, text-embedding-3-large, FAISS.
- Developed and maintained backend services and APIs with **Python (FastAPI) and PostgreSQL**.
- Deployed **AI chatbots** for customer support and internal use, giving customers 24/7 assistance.
- Built custom **ERP modules** for inventory and logistics workflows, replacing manual processes.

Software Engineer | International Consulting Center | January 2025 – August 2025 | Tirana, Albania

- Built and self-hosted an **internal CRM and real-time messaging platform** for agent coordination: **Next.js, TypeScript and Supabase** (Postgres, Auth, Realtime, Storage), with role-based access enforced by Postgres row-level security.
- Added **WebRTC voice calling** (LiveKit / coturn) and **web-push notifications** to that platform, and packaged it as **iOS and Android apps** with Capacitor.
- Stood up the company's **self-hosted email system** (Postfix, Dovecot, Rspamd, SOGo) with DKIM/SPF/DMARC and mobile ActiveSync, running on Docker behind nginx.
- Automated **Zoom Phone provisioning** via the Zoom API - bulk number assignment and carrier caller-ID label management - behind a password-protected FastAPI operator UI.
- Built **Python and browser-automation tooling** (Playwright, Express, live SSE progress) for repetitive lead-operations and reporting workflows, **cutting manual effort by ~90%**; managed company-wide IT (Google Workspace, VoIP, DNS, hosting).
- Ran an **authorized security assessment** of a legacy lead-management platform: found a **broken-access-control / IDOR** weakness (sequential record IDs served with weak authorization), built proof-of-concept tooling to demonstrate and scope the exposure, and reported it for remediation.

IT Operations Lead | Talentbridge/SFC | February 2024 – May 2025 | Tirana, Albania

- **Sole IT function for a 200-employee company**: infrastructure, budgeting, vendor management, procurement and compliance.
- Reduced system downtime by **over 40%** through proactive monitoring and early intervention.
- Upgraded legacy systems and automated internal workflows, **cutting support requests by 25%**.
- Delivered training across departments, **reducing repeat user issues by 30%**.

IT Support Engineer | Cheaperteam | February 2024 – May 2025 | Remote

- Provided remote support for teams in **4 international offices**; resolved high-priority incidents within **30 minutes on average**; strengthened remote-access security.

PROJECTS

Gold (XAU/USD) backtesting engine | Python, PostgreSQL, MetaTrader 5 | github.com/fabi0-73/algo-gold

- Solo-built engine for an institutional price-action strategy: data ingestion, 26 strategy modules, validation and reporting end to end; ~11.9k lines of Python, MIT-licensed.

BTC/USD 5-min forecasting service | FastAPI, Streamlit, PostgreSQL | github.com/fabi0-73/btc-5min

- Realtime service that settles every 5-minute window and publishes a forecast 10 seconds ahead of it, with a FastAPI backend, PostgreSQL data layer and a Streamlit operator dashboard.

EDUCATION & CERTIFICATIONS

BA in Software Engineering | Canadian Institute of Technology | 2021 – 2024

- Thesis: A Machine Learning-Based System for Predicting Diseases and Personalized Healthcare Solutions

- AI Engineer Agentic Track: The Complete Agent & MCP Course | Udemy (Ed Donner) | [Credential](#)

Languages: Albanian (native), English (advanced)