Victor Amarante F. da Silva

Senior Software Engineer, AI | AI Systems Architecture & Backend Engineering

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Professional Summary

Senior Software Engineer specialized in Artificial Intelligence and Machine Learning, with 5+ years of experience architecting and delivering production software across banking, healthcare, logistics, and legal operations. Combines strong foundations in statistics, probability, and ML with hands-on expertise in backend engineering, software architecture, distributed systems, and cloud infrastructure. Experienced in end-to-end engineering, from requirements discovery and system design to implementation, evaluation, deployment, and production reliability. Focused on enterprise AI systems, agentic architectures, retrieval, observability, security, and quality–latency–cost trade-offs. Delivered systems supporting tens of thousands of monthly workflows and contributes to solutions designed for millions of users.

Professional Experience

Senior Software Engineer, AI | Getronics May 2026 – Present

Amsterdam, Netherlands (Remote) — Embedded at Banco do Brasil

- Contribute to the architecture and engineering of an enterprise AI assistant for banking card services, designed for millions of users, spanning system design, implementation, enterprise integration, and production monitoring.
- Architected a distributed multi-agent system with an orchestrator and specialist services deployed as independent microservices, collaborating with software architects and engineers to integrate banking capabilities through REST APIs, MCP, and A2A communication.
- Translated business, security, and regulatory requirements into production safeguards, including input/output filtering, personally identifiable information (PII) handling, and data privacy controls.
- Investigate failures across distributed agent and service boundaries using OpenTelemetry tracing; improve system reliability and optimize response quality, latency, token consumption, and inference costs.

AI Researcher | CIn/UFPE (Center of Informatics) Mar 2026 – Nov 2026

Recife, Brazil — Applied research with Zup Innovation

- Architected Zup SDD Agents, a LangGraph-based agentic software engineering system that transforms user stories into committed code through specification, supervised planning, specialist execution, verification, and business review.
- Engineered backend capabilities for persistent agent handoffs, structured execution events, real-time Server-Sent Events (SSE) streaming, and LangSmith observability; implemented technical and business quality gates with human-in-the-loop checkpoints.
- Researched role-specialized Small Language Models (up to 10B parameters), evaluating task quality, inference latency, cost, and on-premises deployment feasibility to inform future model-specialization research.

Mid-Level AI Engineer | Amigo Tech Sep 2025 – May 2026

Recife, Brazil

- Led engineering of Amigo Flow, a production multi-agent RAG platform supporting tens of thousands of monthly appointments, increasing automated scheduling by 7.5x and confirmations by over 200%.
- Redesigned the core AI application architecture, improving response quality through architectural refactoring, version-controlled prompts, iterative evaluation, and token-consumption analysis.
- Collaborated with Product, Quality, and engineering teams on requirements, technical design, delivery planning, and post-release improvements.
- Developed an end-to-end dental X-ray AI pipeline, from dataset annotation and YOLO training to structured VLM reports; implemented LangSmith tracing and production monitoring for agent workflows.

AI Engineer | C.E.S.A.R Jul 2024 – Sep 2025

Recife, Brazil — Center for Advanced Studies and Systems

- Designed and implemented backend and retrieval systems using Django REST Framework, FastAPI, PostgreSQL/pgvector, and Neo4j GraphRAG, applying software architecture principles to enterprise AI applications.
- Engineered an LLM-enriched transportation data-ingestion platform backed by AWS S3, including knowledge-graph construction and containerized pipelines deployed across AWS and GCP.
- Collaborated directly with enterprise clients to translate business and data requirements into technical designs, assess architectural constraints, and plan integrations and implementation.
- Delivered 20+ hours of in-person data-analysis training for SEBRAE analysts, supporting technical enablement and tooling adoption.

Software Engineer (AI/Data) | Queiroz Cavalcanti Advocacia Nov 2022 – Jun 2024
Recife, Brazil

- Designed and delivered 50+ intelligent automation, analytics, and machine-learning initiatives, from stakeholder discovery and technical planning to implementation and adoption.
- Developed Python-based automation, forecasting, classification, and data-processing pipelines, achieving over 90% efficiency gains in selected workflows and saving up to 90 hours/month in one initiative.
- Built statistical analysis pipelines and Power BI dashboards for operational KPIs; led automation and data-science training adopted by over 80% of 40+ professionals.
- Prototyped early generative AI applications for meeting summarization and intelligent email prioritization.

Data Scientist | Fisher Consultoria Estatistica Jul 2021 – Jul 2023
Recife, Brazil

- Delivered 10+ statistical consulting projects for healthcare clients, covering problem formulation, sampling design, statistical modeling, hypothesis testing, and technical reporting.
- Translated quantitative analysis into actionable insights, visualizations, and recommendations for nontechnical stakeholders.

Core Expertise

Software Engineering & Architecture: Python, TypeScript, FastAPI, REST APIs, microservices, service integrations, layered and hexagonal architectures, Domain-Driven Design (DDD), SOLID, Clean Code, system design

LLMs & Agentic AI: LangChain, LangGraph, LlamaIndex, Agno, CrewAI, multi-agent orchestration, state machines, ReAct, tool calling, structured outputs, contextual memory, human-in-the-loop, MCP, A2A

Retrieval, Databases & Data Engineering: RAG, GraphRAG, semantic and hybrid search, embeddings, vector databases, knowledge graphs, PostgreSQL, SQL, SQLAlchemy, pgvector, FAISS, ChromaDB, Neo4j, data ingestion

Cloud & Production Systems: AWS, GCP, AWS S3, Docker, Kubernetes, distributed services, production monitoring, reliability, enterprise integrations, privacy and PII controls

LLMOps, Evaluation & Observability: LangSmith, OpenTelemetry, MLflow, distributed tracing, prompt versioning, quality gates, failure analysis, model monitoring, latency, token usage, inference-cost optimization

Machine Learning & Applied AI: supervised learning, forecasting, classification, time series, NLP, computer vision, YOLO, VLMs, PyTorch, TensorFlow, scikit-learn

Data Analysis & Automation: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Plotly, Power BI, Selenium

Engineering Delivery & Leadership: requirements discovery, stakeholder alignment, technical scoping, architecture decisions, cross-functional delivery, mentoring, production readiness

Leadership & Selected Ventures

Co-Founder & ML Engineer | Redduo.AI Nov 2023 – Jul 2024
Recife, Brazil

- Built an LLM-powered platform for personalized ENEM essay feedback, owning data pipelines, backend architecture, cloud/model integrations, scalability, and evaluation consistency; won 1st place at UFPE PoloTec Pre-Incubation and DemoDay 2024.

Co-Founder & Director of Education | LIGIA/UFPE Dec 2024 – Mar 2026
Recife, Brazil

- Created ML, NLP, and computer-vision learning tracks for 30–40 active members; developed training content and mentored student leaders.

Education

B.Sc. in Information Systems Mar 2023 – Dec 2026
Federal University of Pernambuco — Center of Informatics (CIn)

Undergraduate Studies in Statistics (internal transfer) Mar 2020 – Feb 2023
Federal University of Pernambuco (UFPE/CCEN)

Foundations in probability, applied statistics, linear algebra, and numerical calculus; transferred to Information Systems to deepen expertise in AI, software engineering, and system design.