

Guilherme Balduino Lopes

Senior AIoT & Backend Engineer — Applied AI & LLM Systems

+55 34 99197-9386 [✉ guilhermegalopes@gmail.com](mailto:guilhermegalopes@gmail.com) [🌐 mikin.ai](https://mikin.ai)
[in linkedin.com/in/guilhermebl](https://linkedin.com/in/guilhermebl) [🐙 github.com/GuilhermeMikin](https://github.com/GuilhermeMikin)

Profile

Senior Software Engineer with over 4 years of experience designing and building production-grade enterprise systems at the intersection of Cloud Backend, Embedded Systems (AIoT), and Applied AI. Specialized in architecting scalable, high-performance microservices using Golang and Python, alongside robust device firmware in C/C++. Proven track record in designing end-to-end intelligent pipelines, managing large-scale IoT fleets, and deploying cloud-native architectures on AWS. Currently expanding expertise in production-focused AI engineering, including LLM architectures, MLOps, and autonomous agents to bridge the gap between edge, cloud, and intelligence.

Professional Experience

Senior AIoT & Backend Engineer

[Envor Technologies](#)

Remote

10/2024 – Present

- Designing and architecting high-performance microservices using Golang and Python tailored for the telecommunications sector.
- Architecting scalable AIoT ecosystems from the ground up to handle high-throughput, low-latency communication between distributed IoT devices and cloud infrastructure.
- Developing robust real-time firmware solutions using C++ and ESP-IDF, ensuring secure, optimized, and efficient data ingestion pipelines optimized for downstream AI processing.
- Leading the strategic integration of Edge AI initiatives and defining the technical roadmap to embed intelligence directly into IoT hardware constraints.

R&D Engineer (Promoted from Analyst)

[Wisebyte](#)

Uberlândia, Brazil

08/2022 – 01/2024

- Managed the entire deployment and lifecycle of an active fleet of over 1,500 IoT devices, architecting backend features in Golang and Python across 7 distinct product models.
- Engineered real-time embedded firmware in C/C++ to ensure resilient edge connectivity utilizing MQTT, LoRaWAN, Wi-Fi, and 4G/LTE protocols.
- Developed automation workflows and scalable backend APIs using Python (Flask) and Go to optimize system observability and network operations monitoring.
- Utilized ESP-IDF and PlatformIO environments for firmware development, contributing directly to the physical deployment of 5 new IoT hardware lines.

Research Intern

[LASEC - UFU](#)

Uberlândia, Brazil

07/2021 – 08/2022

- Automated legacy industrial hardware setups by engineering a custom remote IoT gateway using Python, Modbus TCP, and MQTT pipelines.
- Deployed event-driven, serverless data pipelines on AWS using Lambda, DynamoDB, and AWS IoT Core for real-time telemetry processing.

Education

Postgraduate Degree in Applied Artificial Intelligence Engineering

[UNIPDS / Anhanguera](#)

Remote

12/2025 – 12/2026

Specialization focused on building production-grade AI systems. Core curriculum covers LLM architectures, advanced fine-tuning, autonomous agents, Model Context Protocol (MCP), MLOps pipelines, cloud scalability, and data governance.

B.Sc. in Control and Automation Engineering

[Universidade Federal de Uberlândia](#)

Uberlândia, Brazil

2015 – 2021

Core coursework in control systems, real-time automation, robotics, analog/digital electronics, industrial communication protocols, and embedded systems design.

Technical Skills

- **Languages:** Go (Golang), Python, C/C++, SQL, Shell Scripting
- **Applied AI & Backend:** LLM Integration, Agentic AI, MCP, Microservices, REST APIs, Docker, Kubernetes, Kafka, Redis
- **Cloud & DevOps (AWS):** EC2, S3, Lambda, IoT Core, DynamoDB, IAM, VPC, CI/CD, Grafana, Prometheus
- **Embedded & IoT Systems:** Firmware Development, ESP-IDF, FreeRTOS, MQTT, LoRaWAN, Modbus, TCP/IP, SPI, I2C

Certifications & Development

- **AWS Certified Cloud Practitioner**, Amazon Web Services
- IoT Specialist [AI for IoT], DIO
- DevOps & Agile Culture, FIAP

Publications

Development and Implementation of a Remote Control and Monitoring System in the Context of Industry 4.0

Bachelor's Thesis, UFU (2021). Available at: [University Repository](#)

Designed an end-to-end industrial cloud telemetry system leveraging AWS IoT Core, Lambda, and an ESP32/Raspberry Pi gateway.

A Remote MQTT-based Data Monitoring System for Energy Efficiency in Industrial Environments

VECTOR - Journal of Exact Sciences and Engineering (2021). DOI: [10.14295/vetor.v31i2.13726](#)

Languages

- **Portuguese:** Native
- **French:** Intermediate
- **English:** Fluent