Thiago José dos Santos Freitas

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SUMMARY

Machine Learning / AI Engineer with 7+ years of hands-on experience in scalable model deployment and MLOps on AWS, specializing in production-grade ML systems, real-time inference, and multimodal architectures. Currently pursuing a Ph.D. at ITA, focused on Machine Learning and remote sensing.

CORE SKILLS

AI/ML: PyTorch · TensorFlow · ViT · YOLO · Time Series · CLIP

GenAI & Conversational AI: LLMs · RAG · STT/TTS · LLM Orchestration · LoRA/QLoRA · vLLM

MLOps & Cloud: AWS (SageMaker, S3, EC2) · Airflow · MLflow · Docker · Kubernetes · W&B · DVC

Data & Deployment: Spark · PostgreSQL · Vector DBs (Pinecone, Qdrant) · FastAPI · CI/CD · Monitoring

EXPERIENCE

Artificial Intelligence Engineer

Aug 2023 – Present

IEAv – Instituto de Estudos Avançados (DCTA), São José dos Campos/SP

Navigation system project for aerial vehicles

- Developed in C++ a modular navigation framework with a plugin architecture dynamically loaded as shared libraries, enabling new sensors and communication links to be integrated without changing the system's core.
- Applied computer vision to the navigation system's odometry, estimating aircraft displacement from onboard camera images as a complement to the other sensors.
- Developed post-flight analysis dashboards, consolidating telemetry recorded in each test flight into visualizations used by the team to assess system behavior and guide adjustments between flights.
- Implemented a serial communication plugin for the XBee radio link, with structured logging via spdlog and compile-time verbosity control to separate debugging from operation.
- Maintained the build system (Make) and technical documentation on the internal GitLab, including installation and quick-start guides for new team members.
- Set up GPU-based model training environments (CUDA, PyTorch) on the lab's workstations.

AI/ML Technical Mentor (Research Grant)

Jul 2025 – Present

IPT – Institute for Technological Research

- Mentor AI startups across LLMs, VLMs, SLMs, RAG, fine-tuning, computer vision, and NLP.
- Produce working code examples and technical demonstrations to unblock teams on applied ML problems.
- Research relevant literature and deliver technical presentations translating ML concepts into actionable guidance.

Professor (Lecturer)

Sep 2023 – Present

UNIP – Universidade Paulista, São José dos Campos/SP

- Teach undergraduate Computer Science and Computer Engineering courses, including Computer Architecture, Databases, Formal Languages & Automata, Web Programming (HTML, CSS, and JS), Structured Programming (Python), and Mobile

Programming (Android).
- Design course material and assessments across programming and CS fundamentals.

ML Engineer / Data Scientist Mar 2024 – Jun 2024

Tecnovix – Third-party Contract EDP SP, São José dos Campos/SP

- Developed energy-forecasting ensemble improving accuracy by ~9%.
- Supported load balancing for ~2M+ smart meters.
- Built Azure ML retraining pipeline reducing model drift.

Data Analyst Oct 2019 – Aug 2022

Evo Bikes

- Built demand forecasting models reducing stockouts and inventory errors.
- Designed dashboards and automated ETL in Python/SQL.

PROJECTS

See my projects on GitHub: github.com/ThiagoJFreitas →

EDUCATION

- Ph.D. (2024 – present): Space Sciences & Technologies (ML & Remote Sensing) – in progress, ITA, São José dos Campos/SP
- Post-Grad, Software Engineering in Applied AI – Anhanguera / UNIPDS (expected completion: Jul/2027)
- M.Sc., Space Sciences (ML & Remote Sensing) – ITA (2023)
- Post-Grad, Big Data & Data Science – EducaMinas (2024)
- Post-Grad, IT Management & Governance – UNIP-EAD (2024)
- B.Sc., Systems Analysis & Development – AESPI / Teresina-PI (2019)

CERTIFICATIONS

- Machine Learning Specialization – Stanford University / Coursera
- Deep Learning Specialization – DeepLearning.AI
- Python for Data Science and AI – IBM
- AI for Everyone – DeepLearning.AI

LANGUAGES

- Portuguese – Native
- English – Intermediate (B1), actively improving

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