



# ANGEL ZENTENO

## Machine Learning Engineer

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## Education

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### EPFL (École Polytechnique Fédérale de Lausanne)

M.Sc. IN COMPUTER SCIENCE (SPECIALIZATION IN DATA ANALYTICS)

Lausanne, Switzerland

Sep. 2023 - Oct. 2025

- Awarded the Simón I. Patiño full scholarship.

- Relevant coursework: Machine Learning, Optimization, Data Analysis, NLP, Reinforcement Learning. CGPA: 5.54/6

### UPB (Universidad Privada Boliviana)

B.S. IN COMPUTER SYSTEMS ENGINEERING

Cochabamba, Bolivia

Feb. 2017 - Jul. 2021

- Graduated with honors: Summa Cum Laude. CGPA: 93.5/100
- Excellence Scholarship winner (awarded to top 3 students in the Engineering Faculty).

## Experience

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### Siemens Healthineers

Lausanne, Switzerland

Feb. 2025 - Sep. 2025

MACHINE LEARNING ENGINEER - MASTER'S THESIS

- Implemented and trained diffusion models and deep convolutional networks using PyTorch to reconstruct high-fidelity MRI scans from undersampled data.
- Built a data processing pipeline for over 1.3 TB of fastMRI data, handling normalization and preprocessing to speed up large-scale experiments.
- Developed a benchmarking framework to compare classical methods against CNNs and Generative AI, assessing reconstruction accuracy and perceptual quality.

### Image and Visual Representation Lab (IVRL) - EPFL

Lausanne, Switzerland

Jul. 2024 - Oct. 2024

COMPUTER VISION ENGINEER (STUDENT ASSISTANT) - RESEARCH PROJECT

- Developed a real-time deepfake pipeline using Python and OpenCV that integrates the LivePortrait model, showcased at the 'Deepfake and You' exhibition in New York.
- Implemented a custom diffusion model based on the U-Net architecture from scratch in PyTorch for image super-resolution, and evaluated performance using PSNR and SSIM metrics.

### CINTI - Research Center for New Computer Technologies - UPB

Cochabamba, Bolivia

Jun. 2021 - Aug. 2023

MACHINE LEARNING ENGINEER / RESEARCH ASSISTANT

- Built an object detection pipeline by fine-tuning an EfficientDet CNN for chemical element identification, and deployed the model for mobile inference using TensorFlow Lite.
- Trained a Recurrent Neural Network (RNN) from scratch to automate spectrometer calibration, achieving over 80% accuracy in spectral line classification.
- Containerized and deployed a resource management REST API using Django and Docker on company servers, allowing users to schedule and run experiments remotely.

## Projects

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### Autonomous AI Agent Designer

Sep. 2025 - Nov. 2025

PERSONAL PROJECT

- Developed a ReAct autonomous AI agent for graphic design using LangGraph, capable of planning tasks, generating/editing images, and self-evaluating outputs via OpenAI and Gemini APIs.
- Implemented agent serving endpoints using FastAPI, utilizing PostgreSQL for persistent state and data storage.

### Alpaca-Tutor: LLM-Based Chatbot for STEM Education

Lausanne, Switzerland

Mar. 2024 - Jun. 2024

CS-552 MODERN NATURAL LANGUAGE PROCESSING

- Fine-tuned a Llama 3 8B model using the Unslloth library to create an AI tutor for EPFL students. Generated a synthetic preference dataset using Chain-of-Thought (CoT) prompting and GPT-4o, improving benchmark accuracy from 37% (baseline) to 47%.

## Publications

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### CINTI - Research Center for New Computer Technologies

- **Zenteno, A.**, Orellana, A., Villazon, A., Ormachea, O. (2023). Automatic Selection of Reference Lines for Spectrometer Calibration with Recurrent Neural Networks, SmartTech-IC 2022.
- Villazon, A., Ormachea, O., **Zenteno, A.**, Orellana, A. (2023). A Low-Cost Spectrometry Remote Laboratory. Lecture Notes in Networks and Systems, Springer.

## Skills

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|-----------------------------------|---|
| <b>Languages &amp; Cloud</b>      | Python, SQL, C++, Git, Docker, PostgreSQL, AWS (Amazon Web Services)                                  |
| <b>Frameworks &amp; Libraries</b> | PyTorch, TensorFlow, FastAPI, Scikit-learn, NumPy, Pandas, Django, OpenCV, Transformers, LangGraph    |
| <b>Machine Learning</b>           | Generative AI (Diffusion, LLMs), Deep Learning (CNNs, RNNs), Computer Vision, NLP, Prompt Engineering |

## Languages

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Spoken    English (C1 - Advanced, TOEFL: 106), Spanish (Native)