Angel Zenteno

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Nationality: Bolivian
Date of birth: 01/05/1999
Permit: Authorization B

Education

EPFL (École Polytechnique Fédérale de Lausanne)   *Lausanne, Switzerland*
M.Sc in Computer Science with Data Analytics specialization   *Sep. 2023 - Sep. 2025*
- Specialization in data analytics.

UPB (Universidad Privada Boliviana)   *Cochabamba, Bolivia*
B.S. in Computer Systems Engineering   *Feb. 2017 - Jul. 2021*
- Graduated with honors: Summa Cum Laude. CGPA 93.5/100

Experience

Image and Visual Representation Lab (IVRL) - EPFL   *Lausanne, Switzerland*
Student Assistant - Summer Internship   *Jul. 2024 - Oct. 2024*
- Implemented a deep fake demo, to be showcased at the exhibition 'Deepfake and you' in New York. The project used generative AI models for face swapping and LivePortrait animation, implemented using ComfyUI, a graph-based interface for execution of pipelines.

CINTI - Research Center for New Computer Technologies - UPB   *Cochabamba, Bolivia*
Research Assistant   *Jun. 2021 - Aug. 2023*
- Trained a recurrent neural network for automatic spectrometer calibration using TensorFlow that achieved over 80% of accuracy detecting neon and mercury spectral lines.
- Fine-tuned an EfficientDet convolutional neural network for automatic detection of chemical elements using TensorFlow.
- Built a mobile spectrometry application using Flutter, deploying TensorFlow Lite models for on-device inference. This application was used by students to learn to build spectrometers.
- Built a REST API using Django for a remote laboratory booking system, enabling users to book experiments and tests. This open-source project allowed users to view available time slots, reserve a slot, and manage their appointments.

Truextend   *Cochabamba, Bolivia*
Software Engineer Intern   *Jul. 2020 - Aug. 2020*
- Deployed internal micro-services and micro-frontends using Docker and GitLab CI/CD.

Projects

Diffusion-based Super-Resolution for Drone Images   *Lausanne, Switzerland*
IVRL Lab - EPFL   *Feb. 2024 - Jun. 2024*
- Implemented a diffusion model from scratch for super-resolution on drone images. Implemented U-Net architecture, training pipelines, diffusion schedules, and evaluation of model performance using metrics PSNR, SSIM and LPIPS.

Alpaca-Tutor: A LLM-Based Chatbot for Assisting Students in STEM Courses   *Lausanne, Switzerland*
CS-552 Modern natural language processing   *Mar. 2024 - Jun. 2024*
- Developed an LLM-powered chatbot using Unsloth library and Llama 3 8B model as a tutor for EPFL students. Generated a synthethic dataset of preference pairs with chain of thought prompting and OpenAI GPT-4o model. Utilized direct preference optimization (DPO). Achieved an accuracy of 47% in answering multiple choice questions from EPFL courses, outperforming a baseline accuracy of 37%.

Publications

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. Artificial Intelligence and Online Engineering. REV 2022. Lecture Notes in Networks and Systems, vol 524. Springer, Cham.
- Villazon, A., Ormachea, O., Orellana, A., **Zenteno, A.**, Fransson T. (2023). Work in Progress: A Booking System for Remote Laboratories - The EXPLORE Energy Digital Academy (EEDA) case study, REV2023 Conference.

Skills

Programming Languages and Tools	Python, SQL, C++, Git, Docker, MySQL
Frameworks, Libraries, and Platforms	PyTorch, sklearn, NumPy, Pandas, Django, Matplotlib, Unsloth for LLM LoRA finetuning
Machine Learning	Neural networks (CNNs, RNNs), transformers (LLMs), diffusion models, reinforcement learning

Languages

English	C1 - advanced: TOEFL score 106 / 120
Spanish	Native