ADRIANA ORELLANA

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PROFILE

I am very excited about how technology is improving and the opportunities it is creating. Through programming and research, I want to contribute to solving problems and automating tasks to enhance people's lives.

EDUCATION

Master in Computer Science   **September 2023 - Present**
École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
- **Specialization:** Data analytics
- **Relevant Courses:** Modern Natural Language Processing, Data Visualization, Machine Learning, Applied Data Analysis, Math of Data, Distributed Information Systems
- **Awards:** Patiño Foundation Scholarship for master's studies in Computer Science at EPFL

Bachelor's Degree in Computer Systems Engineering   **February 2017 - July 2021**
Universidad Privada Boliviana (UPB), Cochabamba, Bolivia
- **Awards:** Honor roll (2018, 2020) and Excellence Scholarship (top 3 engineering students)
- **CGPA:** 94.23/100 - Graduation with Summa Cum Laude honors

PROFESSIONAL EXPERIENCE

Distributed Information Systems Laboratory (LSIR), EPFL   **July 2024 - September 2024**
Student Assistant
- Developed a conflict analysis application using Streamlit, Large Language Models (GPT-4o-mini and Gemma 2 9B), and prompt engineering to extract and visualize key stakeholders, positions, and evidence from news articles about conflicts.

Center for Research in New Information Technologies (CINTI), UPB   **June 2021 - August 2023**
Research Assistant
- Implemented exposure, focus, and calibration of a low-cost spectrometer with a mercury or neon lamp for SpectraUPB, a mobile spectrometry app built with Flutter.
- Developed an open-source Booking System using Angular for remote laboratory access, used by EUBBC Digital project members (Erasmus+ program).
- Developed a Spectrometry Remote Lab using Angular, enabling remote interaction with spectrometer features and lights.
- Processed spectral images with OpenCV, integrated models to detect elements such as neon and mercury, and calibrated a low-cost spectrometer for a portable Raspberry Pi solution.
- Developed a crawler task distribution system, enabling the collection and analysis of a large volume of GitHub repositories.

Truextend   **July 2020 - August 2020**
Software Developer Intern
- Implemented CI/CD and Docker to automate the software delivery process of an internal application.
- Enhanced login, main micro-frontend, and other internal apps by fixing bugs and adding new features.

PROJECTS

Structuring Argumentation in Online Debate Using Large Language Models   **February 2024 - June 2024**
Research project in Computer Science, EPFL
Fine-tuned Llama 3 8B and Mistral 7B v0.2 using LoRA for argument quality assessment. The best models were evaluated on Kialo, an online debate platform, where their assessments were closely aligned with real user scores.

Alpaca Tutor: A LLM-Based Chatbot for Assisting Students in STEM Courses   **April 2024 - May 2024**
Modern natural language processing course, CS-552, EPFL
Contributed to the development of an AI assistant for STEM students, fine-tuning Llama 3 8B using LoRA and Direct Preference Optimization (DPO). Used a synthetic dataset generated with GPT4-o and Llama 3 70B incorporating chain-of-thought examples.

PUBLICATIONS

- A. Villazon, O. Ormachea, **A. Orellana**, A. Zenteno, and T. Fransson, "Work in Progress: A Booking System for Remote Laboratories - The EXPLORE Energy Digital Academy (EEDA) case study", REV 2023.
- A. Villazon, O. Ormachea, A. Zenteno, and **A. Orellana**, "A Low-Cost Spectrometry Remote Laboratory" in Artificial Intelligence and Online Engineering, REV 2022.
- E. Rosales, A. Rosa, M. Basso, A. Villazon, **A. Orellana**, A. Zenteno, et al., "Characterizing Java Streams in the Wild" 26th International Conference on Engineering of Complex Computer Systems (ICECCS), Mar. 2022.

SKILLS

- **Programming languages:** Python, JavaScript
- **Frameworks and libraries:** Pandas, NumPy, Streamlit, Pytorch, OpenCV, Matplotlib, Unsloth, LitGPT, Hugging Face
- **Web development:** Angular, HTML, CSS
- **Others:** Docker, Git, SQL, Prompt Engineering, Jupyter notebooks

LANGUAGES:

- **Spanish:** Native
- **English:** Advanced - TOEFL score 100 (2023)