Angel Zenteno

RESEARCH ASSISTANT

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Summary

I am excited to think about what can be accomplished by combining human intelligence and computers. Very passionate about science and I am currently working as a research assistant in a computer science lab.

Education

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

CINTI - Research Center for New Computer Technologies - UPB (Universidad Privada Boliviana)   *Cochabamba, Bolivia*

RESEARCH ASSISTANT   *Jun. 2021 - Present*
- Data collection, processing, and implementation of a recurrent neural network for automatic spectrometer calibration using TensorFlow.
- Data collection, processing, and implementation of a convolutional neural network for automatic detection of chemical elements with TensorFlow. Fine-tuned an Efficient Det model.
- Implementation of a spectrometry application for mobile phones using Flutter and deployment of TensorFlow Lite models.
- Implementation of a spectrometry application for Raspberry Pi using Python and OpenCV for image processing.
- Development of a distributed GitHub scrapper used to massively retrieve and analyze open source code repositories using NodeJS and MQTT.
- Development of REST API using Django for a spectrometry remote lab, this allows users to visualize the experiments with a web camera, manipulate remotely the spectrometer, and collect spectral data.
- Development of a REST API using Django for a remote laboratory booking system, allowing users to book and manage appointments for various types of experiments and tests, including spectrometry. The API allows users to view available time slots, reserve a slot, and manage their appointments. Open Source project.

Truextend   *Cochabamba, Bolivia*
SOFTWARE ENGINEER INTERN   *Jul. 2020 - Aug. 2020*
- Deployment of internal applications using Docker and GitLab CI/CD.
- Implementation of animations using Angular and SASS.
- Updating internal documentation on how to run the apps and services.

Publications

CINTI - Research Center for New Computer Technologies

- **Zenteno, A.**, Orellana, A., Villazon, A., Ormachea, O. Automatic selection of reference lines for spectrometer calibration with Recurrent Neural Networks. SmartTech-IC 2022
- Ormachea, O., Villazon, A., Orellana, **Zenteno, A.**, A. A low-cost 3D-printed spectrometer based on Raspberry Pi. RIAO/OPTILAS 2023
- Villazon, Alex, Omar Ormachea, Adriana Orellana, Angel Zenteno, and Torsten Fransson. "Work in Progress: A Booking System for Remote Laboratories - The EXPLORE Energy Digital Academy (EEDA) Case Study," n.d.
- Villazon, A., Ormachea, O., **Zenteno, A.**, Orellana, A. (2023). A Low-Cost Spectrometry Remote Laboratory. In: Auer, M.E., El-Seoud, S.A., Karam, O.H. (eds). REV 2022. Lecture Notes in Networks and Systems, vol 524. Springer, Cham.
- E. Rosales et al., "Characterizing Java Streams in the Wild," 2022 26th International Conference on Engineering of Complex Computer Systems (ICECCS), 2022.

Projects

NASA SPACE APPS CHALLENGE
- Development of a web platform to explore papers published by NASA, we used a large language model to summarize more than 300.000 papers. Implemented a semantic search engine converting summaries into embeddings. These were also used to visualize papers as connected graph. Winning project.

"DIVE INTO READING" HACKATHON
- Development of a virtual reality video game to encourage reading, we use language models to generate quizzes of any reading in books. Finalist project.

LOGO DIFFUSION
- The prototype aims to fine-tune Stable Diffusion models to create high-quality logos by training them on a dataset of logos and adjusting their parameters to produce unique logos.

CHAR-RNN
- Character-level language model for text-based data. Char-RNN takes in a sequence of characters as input and attempts to generate a sequence of characters as output. It is designed to be used as a template for building and training Char-RNN models for various types of text-based data.

Honors & Awards

2022	**Winner**, NASA Space Apps Challenge Bolivia. Challenge "Can AI preserve our science legacy?"
2022	**Finalist**, "Dive into Reading" Hackathon, organized by the Embassy of the United States in Bolivia.
2021	**Winner**, graduation with honors, Summa Cum Laude.
2021	**Winner**, excellence scholarship, granted to top 3 best students in the engineering faculty.
2020	**Winner**, honor roll.
2019	**Winner**, honor roll.
2018	**Winner**, honor roll.
2017	**Winner**, a 50% scholarship granted by UPB to the top-performing students in a math and verbal reasoning exam.

Certificates and Additional Courses

Machine Learning - CS229
Online

STANFORD ONLINE - FREE
Jun. 2022

- Fundamentals of machine learning, including supervised and unsupervised learning, neural networks, support vector machines, reinforcement learning, and adaptive control.

Deep Learning - CS230
Online

COURSERA
Oct. 2022

- Learned about the fundamentals of deep learning including neural networks, convolutional neural networks, recurrent neural networks, and transformers

Natural Language Processing with Deep Learning - CS224n
Online

STANFORD ONLINE - FREE
March. 2023

- The course covers the basic concepts and ideas in Natural Language Processing. Start with word-level and syntactic processing and move on to question answering, and machine translation. Finally, apply a complex neural network model to a large-scale NLP problem for final project.

Deep Reinforcement Learning Course
Online

HUGGING FACE
Mar. 2023

- Deep Reinforcement Learning (Deep RL) with well-known libraries such as Stable Baselines3, RL Baselines3 Zoo, Sample Factory, and CleanRL.

Design and 3D printing
Online

UPB
Feb. 2023

- Design with Fusion 360 and 3D slicing with Ultimaker Cura

Extracurricular Activity

Ada in Data
South America

WEBINAR AND INTERNAL TRAINING
Dec. 2022 - Present

- Planning informative webinars that cover a wide range of data topics, including the Hugging Face transformers library.
- Designing training materials and presentations, including research papers.
- Facilitating internal training sessions on Transformers, with a focus on their practical use in the field.

Skills

Python, SQL, git, sklearn, NumPy, Pandas, PyTorch, TensorFlow, Django, Flutter, MQTT and Docker.