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Tijuana, B. C, Mexico



<https://cesartorres.org/>



Cesar Alan Torres

Machine Learning Engineer/ AI Researcher

ABOUT ME

I am a Machine Learning Engineer with an academic background in computer science (MSc. in Soft Computing and BSc. in Computer Science) with a passion for Machine Learning and Linux.

EXPERIENCE

Audio and Illumination Technician

Sistemas Audiovisuales Tijuana, Jul 2011- Jan 2021

- Sound Engineer. Illumination Engineer. Stage Manager.

In charge of conferences, private events and concerts.

Machine Learning Engineer

Samsung Research Tijuana, Feb 2023 - Nov 2024.

- Adaptation of SOTA models to produce Proof of concepts
- Creation of internal tools to analyze and annotate data for custom datasets.
 - Implementation of cutting edge papers in areas of computer vision. (Face Recognition, Video Action Recognition. Real Time Object Detection.
- Implementation of LLM/VLMs tailored to edge devices.

Software Developer II

Thermo Fisher Scientific Nov 2024 - Actual

- Development of GENE.AI Platform, utilizing LLMs as Back-end.

ACADEMIC FORMATION

- B. SC. Computer Science Engineering
Cetys Universidad Tijuana 2015 - 2019
Speciality in Computer Vision. Cum Laude Honors
- M. SC. Computer Science
Instituto Tecnológico de Tijuana 2021 - 2023
Focus in Soft Computing.
Thesis: Deep Fuzzy Neural Learning Model Applied to Detection and Classification Problems.
Modules: Neural Networks, Fuzzy Logic, Computer Vision, Hybridization.
- ScD. Computer Science
Instituto Tecnológico de Tijuana 2024 - 2028
Focus in Generative AI.
Modules: Neural Networks, LLMs, Multi-Modal learning, oriented to Brain Degenerative Diseases

SKILLS

- Programming Languages
 - Python, C#, Java, C++, MATLAB, JavaScript
- Machine Learning Frameworks
 - PyTorch, Tensorflow, Scikit-Learn, MATLAB DL Toolbox, Keras (API).
- Data Science Libraries
 - Numpy, Pandas, SciPy, XGBoost, Matplotlib.
- Web Technologies
 - HTML, CSS, React.
- Technologies
 - Git, Jira, RoboFlow, Hugging Face, Docker.
- Operating Systems
 - Windows, Linux (Debian, Ubuntu, Arch), OSX
- Self Hosting
 - Pi-hole, NextCloud, Game Servers, Samba, Nginx, Wireguard.
- Cloud Computing
 - AWS: S3, EC2, Lambda.
 - Google Cloud: Compute Engine, SQL databases.

AWARDS

- Outstanding Project: Engineering Project Fair Cetys Universidad 2019.
- 127th Place: Marathon Behind the code 2020 by IBM (Over 50,000 participants in Latin America)
- 1st Place: AI Hackathon by AiLabSchool 2022 sponsored by Microsoft.

LANGUAGES

- Spanish Mother Tongue
- English: Advanced C1 (TOEFL IBT, DET)
- German: Basic

RESEARCH

- Torres, C.; Gonzalez, C.I.; Martinez, G.E. Deep neural network approach for guitar type classification in real time Universidad Autónoma de Baja California, VII Congreso Internacional de Investigación Tijuana. Tijuana, B. C. Mexico. April 25-28, 2022. (Oral Presentation) .
 - Torres, C.; Gonzalez, C.I.; Martinez, G.E. Fuzzy convolutional layer in deep neural networks for feature extraction. Instituto Tecnológico de Tijuana, International Seminar of Computational Intelligence ISCI 2022. Tijuana, B. C. Mexico. August 22-23, 2022. (Oral Presentation).
 - Torres, C.; Gonzalez, C.I.; Martinez, G.E. Fuzzy Edge Detection as a Preprocessing Layer in Deep Neural Networks for Guitar Classification. *Sensors* 2022, 22, 5892. <https://doi.org/10.3390/s22155892>
 - Torres, C.; Gonzalez, C.I.; Martinez, G.E. Traffic Sign Recognition Using Fuzzy Preprocessing and Deep Neural Networks. *Studies in Computational Intelligence (SCI, volume 1096)*. 2023, https://doi.org/10.1007/978-3-031-28999-6_5.
 - Gonzalez, C.I.; Torres, C. Type-2 Fuzzy Image enhancement to improve the performance of convolutional neural networks. 2023 10th International Conference on Soft Computing & Machine Intelligence. Mexico City, Mexico. November 25-26 (Oral Presentation).
 - Gonzalez, C.I.; Torres, C. Fuzzy Convolutional Neural Network Model Applied to Classification Problems. *Cognitive Computing and Advances in Intelligent Systems, CCAIS-2023*. November 30 (Oral Presentation).
 - Gonzalez, C.I.; Torres, C. Type-2 Fuzzy Image enhancement to improve the performance of convolutional neural networks. 2023 10th International Conference on Soft Computing & Machine Intelligence (ISCMI), Mexico City, Mexico, 2023, pp. 81-85 <http://doi.org/10.1109/ISCMI59957.2023.10458559>
 - Gonzalez, C.I.; Torres, C. "Fuzzy convolutional neural network model applied to classification problems," *Journal of Intelligent & Fuzzy Systems*, pp. 1-11, 2024. <http://doi.org/10.3233/JIFS-219369>
 - Torres, C.; Gonzalez, C.I. Large Language Models Oriented to Neurodegenerative Research. Tec NM- Instituto Tecnológico de Tijuana, International Seminar on Computational Intelligence ISCI 2024. Tijuana, B. C. Mexico. August 21-22, 2024. (Oral Presentation).
 - Torres, C.; Gonzalez, C.I. Type 2 Fuzzy Deep Learning Approach Applied to Classify Alzheimer's Disease. Center for Research and Development of Digital Technology (IPN-CITEDI), Seminar on Artificial Intelligence and Quantum Computing 2024. Tijuana, B. C. Mexico. October 17-18, 2024. (Oral Presentation).
 - Torres, C.; Gonzalez, C.I. Automated Insights: LLMs in Neurodegenerative Disease Research and Comparison. Mexican Society for Artificial Intelligence (SMIA), XVII Workshop of Hybrid Intelligent Systems, 23rd Mexican International Conference on Artificial Intelligence (MICAI 2024), Tonantzintla, Puebla, Mexico. October 21-25, 2024. (Oral Presentation).
 - Torres, C.; Gonzalez, C.I. Automated Insights: LLMs in Neurodegenerative Disease Research and Comparison. Accepted for publication in MICAI 2024 Workshops Proceedings. To be published in *Research in Computing Science* journal. (Accepted, awaiting publication).
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