Angel Fernando Borquez Guerrero

LinkedIn | GitHub | fernandoborquez215@icloud.com | +52 633 100 5991
Hermosillo, Sonora.

Education

Universidad de Sonora GPA: 90%
Bachelor of Science in Computer Science **August 2023 – Present**

Professional Experience

ACARUS — Supercomputing Area Supervisor: Dra. María del Carmen Heras Sánchez
Professional Intern **September 2025 – Present**

- Professional internship in the Supercomputing area at the University of Sonora.
- Part of a development team building a specialized forum for users of *Yuca*, the university HPC system.
- Implementing features such as user posts, direct messaging, and service request workflows.
- Supporting an active HPC user community by improving communication and technical support processes.

Research Experience

University of Guadalajara Supervisor: Dr. Rafael Morales Gamboa
Research Intern **June – July 2025**

- Extended a validated Entropic Associative Memory (EAM) model through large-scale experimental validation and robustness analysis.
- Adapted and refactored the data pipeline to support class balancing, dynamic class selection, and scalable dataset handling.
- Retrained perceptual neural networks (autoencoder and classifier) to generate feature representations compatible with the EAM architecture.
- Designed and implemented a novelty detection experiment to evaluate the model's ability to reject unseen classes.
- Introduced experimental controls enabling partial memory registration and quantitative analysis of rejection behavior via no-response metrics.
- Refactored the system into a flexible experimental framework allowing controlled evaluations with a variable number of classes.

Competitions & Projects

NASA Space Apps Challenge (2024) Project: Voyager CXXV
Project Co-Lead **October 2024**

- Co-led the development of a geospatial simulation tool to evaluate the impact of urban green areas on temperature and air quality in Hermosillo, Mexico.
- Designed and implemented a system allowing users to define custom zones and simulate long-term environmental effects of urban reforestation.
- Integrated spatial data visualization through heat maps to support data-driven insights for urban planning scenarios.
- Coordinated technical tasks within the team, contributing to project planning, feature definition, and final integration.

TE AI CUP (2025) Project: AI Generated Machine Downtime Insights
UI Developer **January – May 2025**

- Developed the user interface for an AI-based industrial downtime analysis tool, focusing on clear visualization of patterns, anomalies, and clustering results derived from machine time-series data.
- Designed an accessible and intuitive frontend to enable non-technical users to explore insights generated by unsupervised learning models.

NASA Space Apps Challenge (2025) Project: Endurance CXXV
Project Co-Lead **October 2025**

- Co-led the development of an educational weather application designed for a children-oriented audience, focused on climate awareness and engagement.
- Developed both frontend and backend components of the application, contributing to core functionality and system integration.
- Designed and implemented the user interface with an emphasis on accessibility, usability, and age-appropriate interaction.

1st Place Winner – MICAI 2025 MeDA Challenge **October 2025**

- Contributed to a 1st Place victory in a national academic competition focused on Medical Domain Adaptation using Self-Supervised Learning (SSL), leading to an invitation to publish in a special issue of the *Health Information Science and Systems* journal.
- Structured and organized the dataset used for model training by designing a clear directory hierarchy to support reproducible and efficient experimentation.
- Collaborated in the writing and revision of the scientific article, contributing to the methodological description and overall presentation of results.
- Developed visual and presentation assets used to communicate the project during the competition and dissemination stages.

Technical Skills

Programming: Python, C++, Java, SQL, JavaScript, TypeScript
Web Development: HTML, CSS, SASS, Vue.js, Django, NPM
Systems & Virtualization: Linux (Arch Linux), High Performance Computing (HPC), Virtual Machines, Proxmox VE, VirtualBox
Data & Research Tools: Jupyter, Google Colab, LaTeX, GIS tools
Version Control & Platforms: Git, GitHub