

Gustavo Herrera Ramos

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EXPERIENCE

Tecnologico de Monterrey

Aug 2022 – May 2024

Graduate Researcher Master's Thesis

Queretaro, Mexico

- Developed and automated simulation workflows using Python and APIs, integrating PyMAPDL to perform ANSYS simulations programmatically using Object-oriented programming (OOP).
- Created parametric metamaterial structures using APDL scripting, optimizing designs through automation.
- Processed and analyzed large experimental datasets, ensuring data integrity and extracting insights using Python (Pandas, NumPy, Matplotlib, Seaborn).
- Applied Machine Learning models (ANN, KNN, SVR, XGBoost, Random Forest) to optimize mechanical structures.
- Developed and optimized algorithms for structural performance improvements, achieving a 53% performance boost using the Metamodel Evolutionary Optimizer (MEVO).
- Collaborated with peers using GitHub and presented research to technical and non-technical audiences.

General Electric Aviation

Feb 2022 – Jul 2022

Mechanical Design Intern

Queretaro, Mexico

- Designed and updated parametric 3D mechanical models for turbine components adhering to industry standards.
- Managed digital threads and version control using Siemens Teamcenter.
- Prepared and delivered progress reports to internal and cross-departmental teams.

Brose

Jul 2021 – Feb 2022

CAD Design Intern

Queretaro, Mexico

- Modified 3D assemblies and components for automobile seat structures per customer specifications.
- Evaluated design changes for functionality and manufacturability.
- Collaborated with engineers and manufacturing teams using tools like Excel, Enovia and SAP.

PROJECTS

Resume Website Development

2024

- Built a portfolio website using Flask to showcase resume and projects. Worked with HTML, CSS, and JavaScript.
- Developed a "Contact Me" feature using REST API, saving data to a database and automating email notifications.
- Deployed in PythonAnywhere with a user-friendly design.

SKILLS

Programming: Python (Scikit-learn, TensorFlow, Flask, Django), SQL, PostgreSQL, C, Elasticsearch & Kibana (ELK)

Tools: Git, Linux, Windows, Cloud Computing (AWS), Docker, Kubernetes, REST APIs, Data Structures & Algorithms, Object-Oriented programming (OOP), Unit Testing

Languages: Spanish (Native), English (Bilingual), French (Beginner)

Soft Skills: Problem-solving, continuous learner, communication, self-learner, debugging

EDUCATION

Master of Science in Engineering

Aug 2022 – Jun 2024

Tecnologico de Monterrey

Queretaro, Mexico

Bachelor of Science in Mechatronics Engineering

Aug 2017 – Jun 2022

Tecnologico de Monterrey

Queretaro, Mexico

COURSES

(2025) REST APIs with Flask and Python – Udemy

(2025) Linux Administration – Crystal Mind Academy

(2025) Django Masterclass: Real World Django Projects – Udemy

(2025) The Complete SQL Bootcamp – Pierian Training

(2024) Data Structures and Algorithms – Zero to Mastery

ACHIEVEMENTS

(2025) AWS Cloud Practitioner Certification

(2021) Exchange program Automotive and Aeronautics Design – ESTACA, France

(2017) Represented Mexico at the Climbing Youth World Championship – Innsbruck