

# Gustavo Herrera Ramos

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## EDUCATION

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### Master of Science in Engineering

Aug 2022 – Jun 2024

Tec de Monterrey, Campus Queretaro, Mexico

### Mechatronics Engineering

Aug 2017 – Jun 2022

Tec de Monterrey, Campus Queretaro, Mexico

## EXPERIENCE

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### Master of Science in Engineering's Thesis

Aug 2022 – May 2024

Mechanical characterization and design of metamaterials with the aid of additive manufacturing and AI

- Managed and cleaned experimental datasets, analyzing correlations between design parameters and mechanical properties using Python libraries. Reported results with matplotlib and seaborn.
- Implemented various Machine Learning algorithms (i.e. ANN, KNN, SVR, XGB, Random Forest) as surrogate models for mechanical structure optimization.
- Achieved a 53% improvement in metamaterial performance using the Metamodel Evolutionary Optimizer (MEVO) over Bayesian Optimization.
- Shared code and collaborated with peers using GitHub.
- Presented technical work to both technical experts and non-technical stakeholders at conferences and events.

### General Electric Aviation Internship

Feb 2022 – Jul 2022

Mechanical design internship in Product Definition Externals for airplane turbines

- Created parametric 3D mechanical models in accordance with internal and industry standards.
- Implemented requested fixes and managed versions in Siemens Teamcenter and digital threads.
- Prepared presentations to expose task progress to team, superiors, and members of other areas.

### Brose Internship

Jul 2021 – Feb 2022

CAD design internship in Customer Team for automobile seat structures.

- Modified 3D parts and assemblies based on customer requirements adhering to company guidelines.
- Evaluated design changes for functionality and manufacturability.
- Managed versions and data with Excel, Enovia, and SAP.
- Collaborated with engineers and manufacturing teams.

## SKILLS

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Python | Pandas | NumPy | SciPy | Scikit-learn | Matplotlib | Plotly | Seaborn | TensorFlow | Unittest | Flask | Selenium

C | Git | MATLAB |

## COURSES

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(2024) The Complete Python Developer – Zero to Mastery

(2024) Data Structures and Algorithms - Zero to Mastery

(2023) Python for Data Science and Machine Learning Bootcamp – Piernan Training

## OTHERS

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- (2021) Exchange program Automotive and Aeronautics Design, ESTACA, France
- (2017) Climbing Youth World Championship at Innsbruck, Austria