

Jose Manuel Hernandez de Labra

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EDUCATION

Tecnologico de Monterrey (ITESM)

Bachelor of Science in Biomedical Engineering, Minor in Neuroscience

Monterrey, NL, Mexico

Aug. 2018 – Dec 2023

EXPERIENCE

Data Scientist Intern

Neuroscience Department, Zambrano Hospital

Aug. 2022 – Dec. 2022

Monterrey, NL

- Cleaned and processed data from various research projects conducted by psychologists and psychiatrists
- Developed visual representations of research data, facilitating better understanding of research findings.
- Applied machine learning models to classify patients and detect anomalies, enhancing the accuracy of diagnostics

Machine Learning Researcher

Core Lab Genomics

Jan. 2024 – Present

Monterrey, NL

- Developed and optimized machine learning architectures for the analysis of RNA and biomolecules
- Predicted three-dimensional structures of RNA, contributing to a deeper understanding of molecular interactions.
- Utilized advanced algorithms to predict docking interactions between biomolecules and proteins, supporting the discovery of potential therapeutic targets and treatments.

RESEARCH PROJECTS

rnAIR | *Python, Tensorflow, Molecular Biology, Mathematical Modeling*

Jan. 2022 – Dec. 2022

IGEM competition

- Developed small RNAs using a neural network to predict binding RNAs that inhibit bacterial gene synthesis, aiming to resensitize bacteria to antibiotics.
- Collected and analyzed datasets of small RNAs, conducted extensive research, and successfully developed a model to address antibiotic resistance.
- Part of mathematical modeling and programming efforts, ensuring the development of a robust and accurate model

ADA | *Python, Docker, Tensorflow, Structural Bioinformatics, Molecular Dynamics*

Jan. 2023 – Dec. 2023

IGEM Design League

- Led the mathematical modeling and programming efforts, driving the development of biosensors for detecting Alzheimer's
- Developed aptamers using three-dimensional RNA models that bind to specific proteins
- Implemented deep learning architectures, including mesh convolutions, and utilized Azure Virtual Machines for training

STRAND | *Python, Azure, Pytorch, Molecular Dynamics*

Jan. 2024 – Ongoing

Tec de Monterrey Research

- Research on accurately predicting RNA three-dimensional structures, enhancing the understanding of RNA folding and interactions.
- Created labeled datasets with precise intramolecular bindings
- Utilized graph neural networks to develop more precise secondary structure contact maps
- Leveraged contact maps as templates for predicting three-dimensional RNA structures

TECHNICAL SKILLS

Languages: Python, Assembler, SQL

Developer Tools: Git, Docker, Azure, VS Code, Visual Studio, Conda

Libraries: pandas, NumPy, Matplotlib, Tensorflow, Pytorch, SkLearn,

LANGUAGES

Spanish - Native

English - C1

French - A1