Juan Antonio Robledo Lara

444-177-7324 jroblar98@gmail.com juanrobledo12.github.io JuanRobledo12 jarobledo Google Scholar

Experience

Tecnologico de Monterrey **Oct 2024 – Present**
Senior Research Programmer *Mexico City, Mexico*

- Developed machine learning models and tools to analyze and simulate complex socio-economic and environmental data.
- Collaborated with teams to implement data-driven solutions for climate modeling and decarbonization.
- Optimized data preprocessing workflows and computational processes for large-scale analysis.

Georgia Institute of Technology **May 2023 – Dec 2023**
Graduate Researcher *Atlanta, GA, USA*

- Developed a manipulation framework with Python and ROS for a mobile robot to execute pick-and-place tasks.
- Developed software for a robot assistant to localize misplaced objects in homes using ROS and Python.
- Integrated navigation, manipulation, speech recognition, and perception capabilities into a mobile manipulator robot.
- Integrated pre-trained deep learning models for object classification in images to create a database of household items.

IPICyT **Aug 2021 – Jul 2022**
Research Engineer *San Luis Potosi, Mexico*

- Developed an ETL pipeline in Python to collect, process, and store air quality data from sensors in a database.
- Implemented data preprocessing techniques using Pandas to clean and transform raw sensor data for analysis.
- Visualized time series data using Matplotlib to analyze trends in CO2 levels, enhancing data-driven decision-making.
- Performed regression analysis to calibrate sensors and validate the accuracy of measurements against commercial air quality monitors, achieving a correlation coefficient (R^2) above 0.9.
- Automated data acquisition to reduce manual effort, significantly accelerating the analysis workflow.

Brigham and Women's Hospital **Jun 2019 – Jan 2020**
Research Trainee under Prof. Yu Shrike Zhang *Boston, MA, USA*

- Developed a 3D printer capable of printing small constructs made of biomaterials for tissue engineering applications.
- Created paper-based devices for in vitro tissue modeling, utilizing extrusion-based hydrogel bioprinting techniques.
- Conducted original research that led to publications in renowned academic journals.

Education

Georgia Institute of Technology **Aug 2022 – May 2024**
M.S. in Computer Science (Specialization in Machine Learning) *Atlanta, GA, USA*

Tecnologico de Monterrey **Aug 2016 – Jun 2021**
B.S. in Mechatronics Engineering *San Luis Potosi, Mexico*

Technical Skills

Programming Languages: Python (Advanced), SQL (Intermediate), JavaScript (Basic)
Frameworks & Tools: Pandas, Scikit-Learn, PyTorch, NumPy, SciPy, Matplotlib, Seaborn, Git, Linux.

Projects

Environmental Data Analysis and Predictive Modeling
Tecnologico de Monterrey

- Developed a pipeline for acquiring, preprocessing, and modeling World Bank environmental and socio-economic data.
- Evaluated regression models (Linear, Lasso, Ridge), achieving an R^2 of 0.984 and an RMSE of 0.193.
- Conducted scenario analysis showing that a 10% GDP increase results in a 2.3% average rise in CO2 emissions.

Songs Mood Prediction
Georgia Institute of Technology

- Developed a machine learning pipeline to predict the mood of a song based on its audio features.
- Trained a Random Forest model, achieving an accuracy and F1 score of 0.964.

Diabetes Prediction
Georgia Institute of Technology

- Developed a machine learning pipeline to predict if a woman has diabetes based on medical data.
- Trained a Random Forest model, achieving an accuracy of 0.8 and an F1 score of 0.71.