Ramiro Valdes Jara

ramirovaldesjara@gmail.com | ramirovaldesjara | ramiro-valdes | ramirovaldesjara.github.io

Education

University of Miami **Aug 2024 – Present**
Ph.D. in Industrial Engineering. Intelligent Complex Systems Laboratory. Advisor: Adam Meyers. *Coral Gables, FL, USA*

- **GPA:** 3.97/4.0
- **Relevant Coursework:** Computer Vision, Neural Networks, Reinforcement Learning, Machine Learning, Stochastic Processes, Network Science, Data Analytics, Advanced Linear Programming, Advanced Production Systems.
- **Achievements:** Frost Institute for Data Science and Computing (IDSC) Fellowship 2025-2026.

Universidad Carlos III de Madrid **Sep 2020 – May 2024**
B.S. in Applied Mathematics and Computer Science *Madrid, Spain*

- **GPA:** 8.09/10.0
- **Relevant Coursework:** Artificial Intelligence, Stochastic Processes (Honours), Ordinary Differential Equations (Honours), Probability, Functional Analysis, Partial Differential Equations, Numerical Calculus, Algebra, Data Structures & Algorithms.
- **Achievements:** Community of Madrid Excellence Scholarship Award (2021, 2023). Top 15 %.

Professional Experience

University of Miami **Aug 2024 – Present**
Doctoral Researcher & Teaching Asisstant *Coral Gables, FL, USA*

- Conduct research in time series analysis and signal processing, developing diffusion-based machine learning models for imputation, forecasting, and inverse problems, with applications in healthcare and real-world data systems.
- Mentor two M.S. students on machine learning and time series analysis research projects, providing guidance on modeling.
- Serve as teaching assistant for courses in stochastic modeling and probability, leading office hours and review sessions.

Indexa Capital **Sep 2023 – Jun 2024**
Full-Stack Developer Intern *Madrid, Spain*

- Developed and optimized backend systems for a web platform using PHP, Python, and JavaScript, improving system performance, user experience, and reliability of financial operations.
- Designed and implemented a Mixed Integer Programming (MIP) algorithm to optimize asset liquidation strategies.
- Integrated third-party APIs for financial data processing, automating workflows and improving data pipeline efficiency.

Projects

Residual-based Diffusion Model for Multivariate Time Series Imputation | *Python, PyTorch, NumPy, Git* **Jan 2026**

- Developed a conditional diffusion model operating in the residual space to reconstruct missing data in time series, achieving state-of-the-art performance; work in preparation for submission to NeurIPS/AAAI 2026.

Image Classification with Deep CNNs | *Python, PyTorch, torchvision, NumPy, Git* **Oct 2025**

- Designed and trained a ResNet-based convolutional neural network on a dataset of 60K images for multi-class classification, leveraging data augmentation and optimization techniques to improve generalization, achieving 92% accuracy.

Efficiency and Resilience Analysis of Madrid Metro Network | *Python, NetworkX, Numpy, Matplotlib, Git* **Dec 2024**

- Conducted a network science analysis of the Madrid metro system to evaluate efficiency and resilience, identifying critical nodes and structural vulnerabilities using centrality measures, clustering, and robustness analysis.

Talks

INFORMS Annual Meeting **Oct 2025**
DT-MTSI: Conditional Diffusion Transformer for Probabilistic Multivariate Time Series Imputation *Atlanta, GA, USA*

IEEE Engineering in Medicine and Biology Conference (EMBC) **Jul 2026 (upcoming)**
Geometry-Free Conditional Diffusion Modeling for Solving the Inverse Electrocardiography Problem *Toronto, Canada*

Publications

Geometry-Free Conditional Diffusion Modeling for Solving the Inverse Electrocardiography Problem
R. Valdes Jara, A. Meyers. Under review at the IEEE Engineering in Medicine and Biology Society (EMBC) Conference 2026.

CTD-MTSI: CNN-Transformer Diffusion for Probabilistic Multivariate Time Series Imputation
R. Valdes Jara, A. Meyers. Under review at the ICLR 2026 Time Series in the Age of Large Models (TSALM) Workshop.

Skills

Programming Languages: Python, SQL, R, PHP, Javascript
Frameworks: PyTorch, TensorFlow, NumPy, scikit-learn, Matplotlib, NetworkX, Gurobi
Tools: Git, PyCharm, Jupyter, RStudio, LaTeX
Languages: Spanish (Native), English (Fluent), French (Advanced), Mandarin Chinese (Elementary).