# HÉCTOR RODRÍGUEZ LAMILLA

Gainesville, FL | 352-246-3055 | hectorrguezlam@gmail.com | linkedin.com/in/héctor-rodríguez-lamilla-487155437

## EDUCATION

**University of Florida**, *Exchange Student, Data Science* — Gainesville, FL
2026 – 2027 | Coursework: Regression Analysis, Natural Language Processing, Introduction to Web Apps for Communicators

**Universidad Carlos III de Madrid (UC3M)**, *B.S. in Data Science and Engineering* — Leganés, Spain
Expected June 2028 | Coursework: Statistical Learning, Machine Learning, Databases, Introduction to Data Science, Programming

## PROJECTS

**Severity of Traffic Accidents in Madrid, 2025** — R, team of 2
- Cleaned the accident dataset and handled the rarity of severe cases with stratified sampling, downsampling and SMOTE.
- Compared LDA, Naive Bayes, decision tree, random forest and gradient boosting on accuracy and misclassification cost; selected Random Forest + SMOTE to improve detection of severe accidents.
- Explained the model with SHAP values and showed that a 3-variable logistic regression (AUC 0.74) nearly matched the full random forest (AUC 0.76).

**Health and Socioeconomic Analysis of ~28,000 Individuals in Vietnam** — R, team of 2
- Cleaned the data, treated outliers, engineered features and built 8 visualizations (ggplot2, plotly).
- Fit a regression model validated with 10-fold cross-validation to study the bias–variance trade-off.
- Applied PCA (3 components ≈ 60% of variance), factor analysis and five clustering methods (K-means, PAM, kernel K-means, hierarchical, EM), identifying three interpretable population profiles.

**LunarLander Agent: Supervised and Reinforcement Learning** — Python, Weka, team of 2
- Engineered six features and compared Random Forest, J48, k-NN and Naive Bayes with 10-fold CV, reaching ~99% accuracy predicting agent actions.
- Built a Q-learning agent with custom reward shaping, comparing manual state discretization with K-Means vector quantization (32–256 clusters).

**Databases** — Oracle SQL, MongoDB, team of 2
- Oracle SQL: wrote the data-loading scripts, six analytical queries and four triggers for an expense-sharing schema (member balances, active membership, auto-generated IDs, exchange rates).
- MongoDB: built aggregation pipelines and showed that indexing cut a query from ~13 ms to ~1 ms.

**Pac-Man** — Python, OOP, Pyxel, team of 2
- Built the player movement, collision matrix and three mazes, and composed the game's original soundtrack.

## LEADERSHIP AND VOLUNTEERING

**Student Association, UC3M** — Sep 2024 – Present
- Chosen repeatedly by the coordinators to organize trips and volunteer programs, including an 8-day work camp for 80 participants (Ampuero, Cantabria) and a week-long trip for 40 students (Allariz, Galicia). Slated to be campus coordinator in 2026–27, deferred during Exchange.

**Volunteer, Burundi** — Jun 29 – Jul 28, 2026
- Spent a month volunteering at a children's camp (ages 4–14) alongside a local charitable organization.

**Community Volunteering** — 2023 – 2026
- Helped renovate community buildings, visited nursing homes and gave talks at high schools.

**Grupo Scout La Merced, Las Rozas** — 2023 – 2026

## EXPERIENCE

**Palm and Pine Catering, University of Florida**, *Food Service Team Member* — Oct 2026 – Apr 2027

**Camp Counselor and Cook**, *about 10 camps of 1–2 weeks* — 2023 – 2026
- Worked with children aged 4–16 in camps of 50 to 130 people; cooked for ~130 campers and staff as part of a team of 5–6 cooks.

**Guitar Instructor** — 3 months
- Taught private lessons to a 13-year-old student.

## SKILLS

**Programming:** Python, R, SQL, HTML/CSS
**R packages:** tidyverse, ggplot2, plotly, caret, randomForest, rpart, gbm, glmnet, pROC, cluster, factoextra, shapviz
**Tools:** pandas, NumPy, matplotlib, scikit-learn, Weka, Oracle SQL, MongoDB, RStudio, Jupyter, Colab, Git/GitHub
**Methods:** Regression, Classification, Random Forest, Gradient Boosting, SHAP, Cross-Validation, PCA, Clustering, Q-learning
**Languages:** Spanish (native), English (fluent)

## INTERESTS

Soccer, swimming, kick-boxing, basketball (former competitive padel and soccer). Music (guitar, piano).