Matías Joaquín Milanesio Ercoreca

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Education

National University of Río Cuarto 2022 – Present
Bachelor's Degree in Economics *Río Cuarto, Córdoba*

- Expected graduation: December 2026. Credit hours completed: 89.82%.
- Thesis (completed, defense pending): *Vertical Integration and Profitability in the Poultry Value Chain*. NPV/APV, Monte Carlo (3,000 runs, purchase/sale prices sharing one draw), GIS screening of 59,878 candidate parcels and retrospective rolling-origin comparison of weekly demand models.

I.P.E.T. 52 Carlos Pellegrini 2015 – 2021
Technical High School Diploma (Construction) *Huinca Renancó, Córdoba*

Additional Courses

Spatial Econometrics (Spatio-Temporal Data Analysis), National University of Río Cuarto	03/2026
Economic Analysis of Contracts Applied to Firms, National University of Río Cuarto	03/2026
Corporate Environmental Management, National University of Río Cuarto	03/2026
Data Science Tools in Economics, National University of Río Cuarto	08/2025
English, B2+ Level (CEFR), Institute BlueBird	2018 – 2021

Selected Academic Work

Urban Land Value Prediction: (Data Science Tools in Economics, 12/2025) benchmarked 14 statistical learning models (OLS, Ridge, Lasso, PCR, PLS, KNN, CART, random forest, GBM, GAM, SVM, XGBoost, CatBoost) on open parcel data in R; boosted trees had the lowest test error in an exploratory random-split comparison; coordinates ranked first in random-forest importance.

Spatial Determinants of Land Prices in Buenos Aires: (Spatial Econometrics, 05/2026) hedonic model with neighborhood fixed effects and GIS-built features (500 m crime buffers, distances to subway, rail and CBD) on 2,292 listings; residual Moran's I, LISA outlier detection and a proposed SARAR specification (R: sf, spdep; QGIS).

Spatial Model Specification: (Spatial Econometrics, 06/2026) course-supplied simulated process: ML estimation of SLM, SEM, SLX, SDM and SDEM; LM/LR tests selected SDEM; direct/indirect impacts (R: spdep, spatialreg).

Quantity Theory of Money in Argentina, 1993–2024: (Econometrics I, 2024) monthly CPI, monetary base, activity and interest rates from BCRA and INDEC; ADF and Phillips-Perron unit-root tests, exploratory cointegration and residual diagnostics; hypotheses inconclusive.

Personal Projects

Portfolio Analytics Lab: full-stack platform (Python, SQLite, Plotly, JavaScript) with mean-variance and minimum-CVaR frontiers, Black-Litterman, hierarchical risk parity, walk-forward validation net of costs, Monte Carlo simulation, Fama-French and local factor models, stress tests on Argentine crises, multiples and DCF valuation, and a forecast ledger scored out of sample; automated data feeds from BCRA, INDEC, FRED and SEC EDGAR.

Analyst's Logbook: equity research system that records dated, falsifiable predictions on companies and turns verified errors into calibration lessons; built on a universe database of 21,000+ firms with competitor and supply-chain links, and an ETL of SEC EDGAR financial statements.

Event-Driven Backtesting Engine: Python engine where time advances one event at a time (market data → signal → order → fill), with controls against future-bar access, with partial fills, transaction costs, portfolio accounting and a common strategy interface; includes a retrospective spatial-signal test using today's sectors and a hand-built, undated supply-chain network, with a permutation placebo.

Options Pricing and Greeks Engine: prices European options with Black-Scholes, binomial trees and Monte Carlo, computes Greeks (Delta, Gamma, Vega, Theta, Rho) and builds an implied-volatility surface from one SPY snapshot, cross-checked between R and Python.

Credit Risk Model: portfolio-deterioration analysis on BCRA public data (87 institutions, 2015–2026) across household, commercial and total portfolios, with indicator extraction verified across R, Python and the published source, and irregular-share and deterioration-event models tested out-of-time against naive benchmarks; no loan-level PD.

Pairs Trading Backtester: cointegration-based strategy with unit-root and cointegration tests, hedge-ratio estimation and spread entry/exit rules, tested out of sample under assumed commissions, bid-ask and slippage; no evidence of a stable net edge.

Machine Learning Alpha Signal: purged, embargoed walk-forward framework testing whether ML models (OLS, Ridge/Lasso, random forest, GBM, XGBoost) predict ETF excess returns out of sample against the historical mean, with placebo and planted-signal controls and a single-pass holdout; no evidence of alpha.

Limit Order Book Market-Making Simulator: order book simulator on synthetic Poisson order flow tracking orders, cash and inventory to compare fixed, inventory-skewed and Avellaneda-Stoikov quoting, separating gross spread capture from net P&L under inventory risk and adverse selection.

Work Experience

IG Networks 04/2026 – Present

Intern, Pricing & Sourcing Area

- Built **Last-Mile Atlas**, an internal web platform mapping last-mile providers, service footprint and territory economics across Latin America; integrates the company's CRM, ERP and data warehouse with public sources through a Python pipeline with reconciliation and audit controls, designed to scale to every country where the company operates.
- Designing and building a site-level pricing engine for quotes and RFPs: competing models (hedonic regression, mixed effects, gradient boosting) ranked in a rolling-origin backtest without look-ahead bias, vendor-cost estimation, margin rules, recalibrated prediction intervals and Monte Carlo aggregation of RFP-level uncertainty; architecture extends to GIS-based spatial enrichment and portfolio-level margin optimization.
- Managing the end-to-end quoting process for service requests and tenders, and designing AI-assisted (LLM agent) workflows for data extraction, verification and analysis.

National University of Río Cuarto 01/2025 – Present

Teaching Assistant (Ad-Honorem), Mathematical Economics I *Río Cuarto, Córdoba*

- Lead practical classes and problem-solving sessions on optimization and comparative statics, based on Chiang's *Fundamental Methods of Mathematical Economics*.
- Co-design and grade the course's practice problem guides together with the teaching team.
- Organize course materials and student submissions in the university's virtual campus.

Wonder 06/2022 – 10/2022

Branch Manager *Córdoba*

- Ran the branch day to day: staff shifts, coordination of the kitchen and front-of-house team, cash control and opening/closing procedures.
- Managed purchasing and logistics through the point-of-sale and inventory software: supply orders, deliveries and stock replenishment based on sales turnover.
- Analyzed branch sales by product and shift to plan purchasing and staffing.

Academic Presentations

XXXII Conference on Scientific and Technical Knowledge Exchange

Faculty of Economic Sciences, National University of Río Cuarto

- *Comprehensive Management of Municipal Solid Waste in Huinca Renancó: From Regional Closure to a Sustainable Local Model.*

Technical Skills

- **Programming:** R (advanced, with RStudio), Python (intermediate-advanced), Jupyter (intermediate-advanced), SQL (intermediate-advanced), JavaScript, Git / GitHub.
- **AI and LLMs:** transformer architecture, tokenization, embeddings and context windows; prompt and context engineering, retrieval-augmented generation (RAG), tool use and agent design, evaluation; Claude Code, Codex, local models (Ollama, Whisper).
- **Applied Data Science:** large-scale database processing and statistical modeling (R and Python, based on James et al., *ISL*).
- **Econometrics and Statistical Analysis:** EViews (advanced), R (advanced), Stata (advanced).
- **Financial Analysis and Risk:** financial modeling (DCF), financial statement and ratio analysis, credit scoring and portfolio deterioration modeling, Bloomberg / CapIQ / Refinitiv.
- **Data Management and Analysis:** Excel intermediate-advanced (pivot tables, formulas, data organization and cleaning), Power BI, Tableau.
- **Geographic Information Systems:** GeoDa and QGIS (advanced).