# NICOLAS RUEDA SEGURA

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## OBJECTIVE

Statistical analyst with quantitative and programming skills seeking to contribute to a data-driven team in the financial,administrative, technological, or consulting sector. Passionate about financial data, portfolio optimization, predictive modeling, and business insights.

## EDUCATION

**Bachelor in Statistics** 2024 - Present
National University of Colombia— Bogotá
Focus: Financial statistics, data analysis, risk theory, statistical inference,quantitative finance ,risk modeling,applied financial statistics

**High School Diploma** Graduated 2024
Centro Cultural y Educativo Español Reyes Católicos — Bogotá
Academic focus in mathematics and sciences.

## SKILLS

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| **Programming** | R , Python |
| **Finance** | Portfolio Optimization, Markowitz Models, Risk Analysis |
| **Statistics** | Descriptive Analysis, Regression, Probability |
| **Data** | Data Cleaning, Data Visualization |
| **Tools** | Excel , Git, LaTeX, RStudio |
| **Other** | Strategic mindset, Clear communication , Problem-solving under uncertainty |

## PROJECTS

**Portfolio Optimization Project – R + Financial Theory**

- Built a portfolio of Colombian stocks using daily log returns from the local market.
- Estimated variance-covariance matrices, efficient frontier, GMVP, and Sharpe ratios under Markowitz framework.
- Applied the methodology to a universe of over 15 assets, obtaining robust and consistent optimization results.
- Automated data cleaning, return calculation, and visualization pipelines in R .
- Interpreted results from a risk–return perspective and evaluated diversification benefits across sectors.

**Market Structure Analysis using MST – Colombian Equities**

- Constructed a Minimum Spanning Tree (MST) based on pairwise correlations of daily log returns.
- Analyzed the connectivity and clustering of stocks by economic sector within the Colombian market.
- Identified dominant nodes and central assets influencing systemic structure and co-movement patterns.
- Used network theory metrics to study market dependencies and potential channels of risk transmission.
- Implemented correlation matrices, distance transformations, and MST computation ..

**Spatial Network Analysis & Recommender System – Bogotá Bookstores**

- Analyzed a spatial network of 60 bookstores using Python and NetworkX, identifying geographic communities.
- Detected key nodes via centrality metrics and found heterophily , showing weak relation between proximity and quality.
- Built a content-based recommender system with Scikit-learn using cosine similarity to identify functionally similar bookstores.
- Tools: Python, Pandas, NetworkX, Scikit-learn, Matplotlib.

## FINANCE TRAINING

Attended finance and quantitative analysis talks (2024–2025)

Workshops on stock valuation, financial Python, and investment strategies

## LANGUAGES

Spanish — Native / Perfect proficiency

English — Full professional proficiency (C1–C2)

French — Basic level (A1)

Japanese — Basic level (A1)