# Juan LARA

## Personal Data

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## Summary

Innovative Data Scientist and Researcher with a strong foundation in Mathematics and Computer Science. Specializes in machine learning and MLOps, leveraging advanced statistical modeling and AI-driven solutions to transform complex data into actionable insights. Proficient in Python, SQL, R, and cloud technologies, with a proven track record of developing cutting-edge algorithms and implementing scalable data pipelines.

A natural leader and effective communicator, bridging technical complexities with business objectives. Excels in problem-solving and thrives in collaborative environments. Passionate about AI innovation and business strategy, seeking challenging roles in AI research or MLOps engineering.

## Work Experience

*Sep 2022 - Present*

Research Assistant
**Harvard University**
Boston, USA

Collaborate with Professor Jorge Tamayo's research team on cutting-edge economic research projects in corporate strategy and organizational economics:

- Develop and analyze complex mathematical models using game theory and dynamic optimization to explain firm behavior and strategic decision-making in multiunit organizations.
- Implement large-scale numerical simulations in Python and C with parallel computing techniques.
- Apply advanced econometric methods to analyze empirical data, providing evidence for theoretical models and informing policy implications in organizational economics.
- Contribute to formulating research questions and hypotheses, engaging in critical discussions about model assumptions and economic intuitions with senior researchers.

Supervisor: Jorge Tamayo

*Feb 2024 - Present*

Data Scientist
**Ipsos**
Bogotá D.C, Colombia

Lead the transformation of the Statistics department into an advanced Data Science team:

- Developed AI-powered automation tools using Python, implementing robust software architecture and unit testing practices.
- Designed and implemented cloud-based, scalable data pipelines on GCP and Linux environments, enabling real-time processing of terabyte-scale datasets.
- Created machine learning models using Scikit-learn, TensorFlow, and PyTorch for market segmentation and sentiment analysis.
- Established a comprehensive MLOps framework using MLflow, integrating CI/CD practices and implementing automated testing.

Supervisor: Sandra Pastrán

# EDUCATION

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| JUN 2019-NOV 2023 | **B.S. IN COMPUTER SCIENCE**<br>**Universidad Nacional de Colombia**, Bogota<br>*Emphasis on Machine Learning*, GPA: 4.7/5.0     | Detailed List of Exams |
| FEB 2018-JUN 2022 | **B.S. IN MATHEMATICS**<br>**Universidad Nacional de Colombia**, Bogotá<br>*Emphasis on Applied Mathematics*, GPA: 4.7/5.0 | Detailed List of Exams<br>Director: Omar DUQUE Gomez. Contact. |
| FEB 2015-NOV 2017 | Technical Baccalaureate in BUSINESS ADMINISTRATION<br>**Centro Educativo los Andes**, Bogotá D.C.<br>*Emphasis on entrepreneurship and innovation* |
| NOV 2015-DEC 2016 | Technician in MAINTENANCE OF COMPUTER EQUIPMENT<br>**Servicio Nacional de Aprendizaje - SENA**, Bogotá D.C.<br>*Emphasis on corrective software*, GPA: 4.6/5.0     | Certificate |

# ADDITIONAL TRAINING

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| MAY -OCT 2024 | Artificial Intelligence Bootcamp (159 hours)<br>**Talento Tech Cymetria**, Bogotá D.C.<br>Completed an intensive, advanced-level training program in artificial intelligence and machine learning. The bootcamp covered cutting-edge algorithms and deep learning model construction, with hands-on experience using tools such as Scikit-learn, XGBoost, and LightGBM. Engaged in applied projects focusing on predictive modeling and advanced data analysis techniques. |
| OCT 2024 | DevOps Certification<br>**Platzi**<br>Comprehensive DevOps program covering Docker, Swarm, GitHub Actions, GitLab, Jenkins, Azure DevOps, and MLOps. Gained skills in containerization, orchestration, CI/CD pipelines, high concurrency architecture, and machine learning model deployment. Enhanced proficiency in automation, continuous integration, and deployment practices.<br>Credential ID: cc4cfe8a-d78a-4883-8a75-ca90931151f6 |
| MAY 2023 | Algorithmic Toolbox<br>**Coursera**<br>Teaches design and analysis of algorithms, emphasizing practical problem-solving techniques and efficient implementation strategies.<br>Credential ID: 8GR62BCT499V |
| JUN 2023 | Linux and Bash for Data Engineering<br>**Coursera**<br>Covers essential Linux commands and Bash scripting for data engineering tasks, including file manipulation, process management, and automation.<br>Credential ID: CAZUJPW6D4BP |
| JUN 2023 | Python and Pandas for Data Engineering<br>**Coursera**<br>Focuses on using Python and Pandas for data manipulation, analysis, and preprocessing in data engineering workflows.<br>Credential ID: 72QS5JSBC67L |

## Technical Skills

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| Mathematics: | Optimization, Machine Learning Algorithms, Statistics, Game Theory, Numerical Analysis |
| Programming: | Python, R, SQL, C++, Bash |
| Data Science & ML: | TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, NLP, Deep Learning |
| Cloud & DevOps: | GCP, AWS, Docker, Kubernetes, Git, CI/CD |
| Data Visualization: | Matplotlib, Seaborn, PowerBI, Tableau, Streamlit, Shiny |
| Big Data: | Spark, Hadoop, Distributed Computing |
| Software Engineering: | Software Design Patterns, Unit Testing |
| Tools: | LaTeX, MATLAB, Mathematica, MLflow |
| Methodologies: | Agile, Scrum, MLOps |

## Distinctions

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| Dec 2018 - Jun 2023 | Best Averages Scholarship (10 semesters) <br> **Universidad Nacional de Colombia**, Bogotá D.C. <br> This scholarship is awarded each semester to the 15 best averages among all students in the program. |
| Apr 2024 | Total Ops Star Employee - LATAM <br> **Ipsos**, Bogotá D.C. <br> For developing TextInsight, an innovative AI-powered text analysis tool, demonstrating exceptional initiative, technical expertise, and commitment to operational excellence. |

## Research Interests

- Advanced Machine Learning and AI applications in corporate strategy, organizational economics, and decision theory
- Optimization and causal inference in multi-agent systems for economic policy and business strategy
- Integration of statistical learning theory with econometrics for robust predictive modeling in digital economies
- Large language models and their implications for information economics and strategic communication

## Languages

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| Spanish: | Native language |
| English: | Advanced |