



Juan Camilo España

LECTURER IN MACHINE LEARNING & STATISTICS

Profile

Creative data scientist and lecturer with 13 years of combined experience in machine learning, spanning both academia and industry. Expertise lies in developing innovative solutions that enhance decision-making processes and optimize complex systems. Adept at leveraging programming languages such as Python and R to drive impactful research and academic instruction. Passionate about fostering an understanding of artificial intelligence and its applications in real-world scenarios, while actively contributing to collaborative research initiatives. Committed to advancing knowledge in the field through rigorous research and effective communication of findings.

Employment History

Full-Time Lecturer, Universidad de Antioquia

FEBRUARY 2022 – PRESENT

- Conducted research projects focusing on reinforcement learning and system dynamics, contributing to advancements in decision-making algorithms
- Conducted research utilizing machine learning to assess the vulnerability of supply chains under disruption
- Served as the lead instructor for three courses in machine learning and analytics within the Industrial Engineering concentration, fostering a strong understanding of AI
- Developed and delivered lectures on sample and time series analysis, experimental design, and linear regression analysis.

Part-Time Lecturer, Universidad de Antioquia

NOVEMBER 2019 – FEBRUARY 2022

- Delivered lectures on experimental design and linear regression analysis, incorporating real-world examples to enhance student understanding.

Senior Data Scientist, Bancolombia

APRIL 2013 – JULY 2020

- Designed predictive systems for cash flow and optimized transportation costs, applying machine learning techniques to real-world problems
- Developed models for customer churn prediction and segmentation, utilizing data analysis to enhance decision-making processes
- Implemented document retrieval systems to support recruitment, demonstrating expertise in information filtering
- Forecasted demand for IT projects, integrating data analysis with strategic planning
- Created dashboards using R and Power BI, showcasing data visualization skills and the ability to communicate insights effectively

Internship, Bancolombia

AUGUST 2011 – FEBRUARY 2013

- Conducted data analysis to improve IT development processes, focusing on efficiency and optimization
- Worked on optimizing IT capacity teams to enhance project delivery timelines

Details

Medellín
Colombia
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NATIONALITY

Colombian

Skills

Python

SQL

R

GIT

Scikit-Learn

Tensorflow

Keras

Pytorch

Languages

Spanish

English

French

Links

[Linkedin](#)

[Google Scholar](#)

[Github](#)

Education

Master of Engineering, Universidad de Antioquia, Medellín

SEPTEMBER 2019

Thesis awarded with cum laude distinction

Industrial Engineering, Universidad de Antioquia, Medellín

MARCH 2013

Achieving the top position in all graduation classes of 2013

Publications and oral presentations

Peer-Reviewed Articles

- España, J. C., et al. (2024). Machine Learning and Simulation-Based Framework for Critical Vulnerability Identification in Supply Chain Networks. *Socio-Economic Planning Sciences* (Under Review)
- Jaén, S., España, J. C., Peña, E., & Vásquez, C. (In progress). The Integration of Reinforcement Learning and System Dynamics for Policy Design: An E-Greedy Algorithm Example

Book chapter

- [España, J. C., et al. \(2020\). GAMLSS Model Trees for Predicting Hospital Length of Stay. In D. Barrera, E. V. Gutierrez, & A. F. Osorio \(Eds.\), *Applications of Operations Research in Health Systems in Colombia* \(pp. 149–176\). Editorial Pontificia Universidad Javeriana, Bogotá, Colombia.](#)

Oral presentations

- [Jaén, S., España, J. C., Peña, E., & Vásquez, C. \(2024, May\). Policy Analysis in System Dynamics Models through Reinforcement Learning Exploration. Presented at the 5th South American Industrial Engineering and Operations, Bogotá, Colombia](#)
- España, Juan C., et al. (2024). Machine Learning to Assess Vulnerability of Supply Chains for Road Networks under Disruption: A Colombian Case Analysis. Presented at POMS and MIT-SCALE Latin America & Caribbean Conference, Cartagena, Colombia
- España, Juan C., et al. (2020). *Gmtree Package: Predicting Hospital Length of Stay*. Presented at R Day, Medellín, Colombia.
- España, Juan C., et al. (2018). *Modified Cubist Model for Predicting Hospital Length of Stay*. Presented at the International Symposium on Statistics, Bucaramanga, Colombia
- España, Juan C., et al. (2018, August). *Hospital Length of Stay Prediction*. Presented at the International Conference on Production Research (ICPR), Bogotá, Colombia

Master's Thesis

- [España, J. C. \(2018\). *GAMLSS Model Trees for Predicting Hospital Length of Stay* \(Master's Thesis\). Universidad de Antioquia, Medellín, Colombia](#)

Awards and honors

Cum Laude distinction in Master's thesis

2019

First place among all 2013 graduating classes in Industrial Engineering

2013

Best Industrial Engineering Student (2)

2009 – 2011

Honor distinction in Industrial Engineering (3)

2007-2, 2008-1, 2008-2

References

Dr. Juan G. Villegas from Universidad de Antioquia

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Dr. Pablo Maya-Duque from Universidad de Antioquia

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Dr. Sebastián Jaén from Universidad de Antioquia

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