

# JUAN SEBASTIAN VILLALBA TORRES | Curriculum Vitae

✉ [js.villalbat@gmail.com](mailto:js.villalbat@gmail.com) • 📍 Facatativá, Colombia • 📞 (+57) 300 539 7895  
🐙 [GitHub](#) • [in LinkedIn](#)

## SUMMARY

Master of Science in electronics and computer engineering with focus in control systems. My experience is focused on algorithm design, machine learning operations, data science, deep learning, backend development, the Internet of Things, research in control systems, and game theory. In addition, excellent communication, problem solving and teamwork skills.

## EDUCATION

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| <b>UNIVERSIDAD DE LOS ANDES</b><br>M.Sc. in Electronic and Computer Engineering  | <b>1/2021 - 6/2022</b><br>Bogotá, Colombia      |
| <b>UNIVERSIDAD DE LOS ANDES</b><br>B.Sc. in Electronic Engineering               | <b>1/2017 - 12/2020</b><br>Bogotá, Colombia     |
| <b>FUNDACIÓN EDUCATIVA SAN JUAN BAUTISTA</b><br>Industrial Automation Technician | <b>1/2015 - 12/2016</b><br>Facatativá, Colombia |

## EXPERIENCE

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|---|---|
| <b>SENIOR DATA SCIENTIST</b><br><b>Wizeline</b><br>Development and deployment of resource allocation and marketing segmentation models <ul style="list-style-type: none"><li>• Development of multiple resource allocation models using Azure Databricks and PySpark</li><li>• Development, and designing the MLOps lifecycle using MLFlow and Databricks Workflows</li></ul>   | <b>4/2025 - Present</b><br>Bogotá, Colombia |
| <b>MACHINE LEARNING ENGINEER</b><br><b>Kairos AI</b><br>Development, deployment and maintenance of retrieval augmented generation systems, using Amazon Web Services as the cloud provider for application deployment. <ul style="list-style-type: none"><li>• Deployment of RAG applications using AWS Lambda, AWS Api Gateway, and ECR services.</li><li>• Backend development for artificial intelligence applications using Langchain, LlamaIndex and FastAPI as Python frameworks.</li></ul>   | <b>1/2024 - 12/2024</b><br>Bogotá, Colombia |
| <b>DATA SCIENTIST</b><br><b>Tul</b><br>Development, participation and deployment in the production of different data/AI solutions and products such as: <ul style="list-style-type: none"><li>• Development and support of the vehicle routing algorithm to deliver approximately 10000 packages in Colombia, Mexico and Brazil, reducing the logistic and operations cost by 60%.</li><li>• Development and optimization of the recommender system based on collaborative filtering for mobile and web applications. Increasing on the product's views and the conversion of products that are added to the shopping cart.</li><li>• Design and development of a shopping cart optimization algorithm, to suggest a shopping cart with lower prices and lead times for the same products the user initially chose.</li></ul> | <b>1/2023 - 03/2025</b><br>Bogotá, Colombia |

## PYTHON DEVELOPER

Tul

Development, deployment and maintenance of microservices for machine learning models, using architectures such as REST API and data streaming architectures such as Apache Kafka using Python.

- Development of multiple Python microservices using FastAPI as web framework, to deploy machine learning models.
- PostgreSQL database design to store data on machine learning models and perform inferences.
- MLflow deployment to monitor, model versioning and record experiments of different statistic and machine learning models.

## CHIEF TECHNOLOGY OFFICER

Purify City

Design of an IoT sensor product to monitor air quality in the city of Neiva, Colombia.

- Data architecture design in AWS, using services such as AWS IoT Core and AWS DynamoDB.
- Development of a web application using Streamlit to perform data analysis and dashboards to visualize the data.
- Participate in the design of the sensor using Arduino, with the ESP32 module to send data, the PMS5003 sensor to measure particulate matter, and the DTH11 sensor to measure temperature and humidity.

## RESEARCH STUDENT

Universidad de los Andes

Research Group: Distributed network optimization for control. Research conducted in game theory for cybersecurity in multiagent systems.

- Design and implementation of a game-theoretic based algorithm to prevent cyber-attacks on communication links in a multi-robot agent system.

9-12/2022

Bogotá, Colombia

1 - 6/2022

Bogotá, Colombia

1/2020 - 5/2022

Bogotá, Colombia

## TEACHING EXPERIENCE

### GRADUATE TEACHING ASSISTANT

Universidad de los Andes

Control systems analysis laboratory

1/2021 - 5/2022

Bogotá, Colombia

### UNDERGRADUATE TEACHING ASSISTANT

Universidad de los Andes

Algorithmic and object oriented programming course.

1-5/2019

Bogotá, Colombia

## SKILLS

### PROGRAMMING LANGUAGE FRAMEWORKS & TOOLS

**Experienced:** Python | Java | Julia | Rust | SQL | Git | CLI | Altium | Linux | Matlab | Eagle | ROS | VSCode | DeepNote | Google Colab | AWS | Jupyter Notebook | Arduino | Quartus | Proteus | Amazon SageMaker | Mlflow | FastAPI | Flask | PostgreSQL | DBT | Snowflake | AzureML | DBeaver | HuggingFace | Docker | Github Copilot | RStudio | Github Actions

**Familiar:** C++ | C | R | Latex

### LIBRARIES

TensorFlow | PyTorch | Numpy | Matplotlib | Seaborn | Pandas | Scikit-learn | LangChain | Transformers | Shiny | Statsmodel | ActixWeb | FastAPI | Django | Flask

### LANGUAGES

**Native:** Spanish | **Fluent:** English

## HONORS & AWARDS

### "SER PILO PAGA" AWARD

Ministry of Education

Award for the high school students with higher grades in ICFES national test in Colombia.

2016