Edison Andres Santillán

AI & Machine Learning Engineer

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PROFESSIONAL SUMMARY

Machine Learning Engineer and Data Scientist with 10+ years of experience designing intelligent software systems using Python, TensorFlow, scikit-learn, NumPy, and pandas. I specialized in predictive modeling, neural network design, time-series forecasting, and computer vision. Skilled in implementing data pipelines, RESTful APIs, and real-time inference systems deployed on Azure and DigitalOcean. Strong foundation in control systems and IoT integration, with proven ability to bridge embedded engineering and data-driven intelligence. Passionate about turning complex datasets into actionable insights and AI-powered automation.

EXPERIENCE

Electrician | Advanced City Electric – New York, United States
Apr 2025 – Dec 2025

- Skilled Electrician with hands-on experience in commercial electrical installations, sensor systems, low voltage systems and electrical maintenance.
- Background in electronics and automation provides strong technical troubleshooting capabilities and understanding of modern electrical systems.

Python Developer & Co-founder | Diartech Solutions – New York, United States
May 2019 – Apr 2025

- Engineered Architected and deployed end-to-end Machine Learning pipelines automating ETL, feature engineering, model training, and containerized deployment on Azure and DigitalOcean.
- Optimized supervised learning models (Random Forest, XGBoost, CNNs, MLPs) via cross-validation and Bayesian hyperparameter tuning.
- Built and deployed RESTful APIs using Flask and FastAPI to serve real-time inference for IoT and edge devices.
- Established MLOps workflows using Docker and GitHub Actions for CI/CD and scalable cloud deployment.
- Led cross-functional teams in designing intelligent IoT systems, integrating sensor data with cloud-based AI inference.

Research Assistant | National Polytechnic School – Quito, Ecuador
Feb 2023 – Jul 2023

- Researched distributed consensus algorithms and control theory using Python simulation frameworks.
- Developed multi-agent coordination algorithms using graph theory and state-space models for system synchronization.
- Built predictive models and simulations with NumPy, pandas, SciPy, and scikit-learn to analyze convergence and agent behavior.
- Engineered data preprocessing pipelines for noise reduction and feature extraction, enhancing model accuracy.
- Trained neural networks (TensorFlow/Keras) to predict consensus convergence and stability under varying conditions.
- Authored technical reports on structural controllability, coupling methods, and consensus protocols.
- Conducted Monte Carlo simulations and sensitivity analysis to validate model robustness.
- Deployed a Python-based simulation environment with data collection, model training, and visualization dashboards.

Electronics Developer | Blimer S.A.S – Quito, Ecuador
Oct 2020 – Jan 2021

- Developed electronic prototypes for automotive security systems, including PCB design and wireless communication.
- Programmed ATmega128P microcontroller in C with 2.4GHz RF communication.
- Coordinated with multidisciplinary teams to ensure system safety and reliability.

Research Assistant | Pontifical Catholic University of Ecuador – Quito, Ecuador
Apr 2019 – Jul 2020

- Developed an electronic system for smart toilets, programmed Raspberry Pi and Arduino using Python.
- Led interactive architecture projects and guided students as electronics programming instructor.
- Project presented at UNAM, winning first place in a contemporary art competition.
- Published research: DOI: 10.14455/ISEC.res.2020.7(1).AAW-08

SELECTED PROJECTS

Iterative Path Planning in Multi-Agent Systems within the ROS-Gazebo Environment – Ecuador

- Developed RRT and RMP path planning algorithms in Python for multi-agent navigation.
- Implemented in ROS on Ubuntu, visualized results in Rviz for effective system analysis.

Emergency Alert Perifoneo System – Machala, Ecuador

- Developed a cloud-based emergency alert system using DigitalOcean and ISSABEL PBX.
- Enabled remote activation via Zoiper for emergencies, enhancing community safety.

Wind Speed and Direction Prediction at Minas de Huascachaca Wind Farm – Azuay, Ecuador

- Developed a Python neural network algorithm for wind speed/direction prediction at 14 turbines.
- Supported strategic decisions and optimization of renewable energy utilization.

EDUCATION

B.S. in Electronics and Automation Engineering
National Polytechnic School – Quito, Ecuador, 2022

CERTIFICATIONS

- **Business Model Canvas Course** – Platzi, December 2022 (20 hours)
- **Business Model Course** – Platzi, December 2022 (36 hours)
- **Python Course** – Platzi, January 2022 (36 hours)
- **JavaScript Course** – Platzi, March 2021 (20 hours)
- **Advanced Arduino Instructor** – Pontifical Catholic University of Ecuador, December 2019 (20 hours)
- **STM32 Microcontroller Programming in C** – National Polytechnic School, September 2019 (20 hours)
- **LabVIEW Course** – National Polytechnic School, April 2019 (20 hours)
- **Participation in the XXIX Electrical and Electronic Engineering Conference** – National Polytechnic School, November 2019 (24 hours)
- **Attendance at the 18th Latin American Automatic Control Congress** – National Polytechnic School, October 2018 (20 hours)
- **State Estimation in Nonlinear Gaussian and Non-Gaussian Systems** – National Polytechnic School, October 2018 (16 hours)
- **Participation in the XXVII Electrical and Electronic Engineering Conference** – National Polytechnic School, November 2017 (20 hours)

TECHNICAL SKILLS

- **Languages:** Python (advanced), C, C++, MATLAB, JavaScript
- **Python Ecosystem:** NumPy, pandas, scikit-learn, TensorFlow, Keras, PyTorch, OpenCV, Matplotlib, Seaborn, Flask, FastAPI
- **Machine Learning & AI:** Supervised/Unsupervised Learning, Neural Networks (RNN, LSTM, CNN), Regression, Classification, Clustering, Feature Engineering, Model Deployment (Docker + REST API)
- **Data Science & Analytics:** Data Cleaning, EDA, Statistical Analysis, Time Series Forecasting, Data Visualization, Tableau, Power BI.
- **Tools & Environments:** Jupyter Notebook, VS Code, Git, Docker, Linux/Ubuntu, ROS, MATLAB
- **Cloud & Databases:** Microsoft Azure, DigitalOcean, Google Firebase, MySQL, SQLite

- **Soft Skills:** Analytical thinking, teamwork, leadership, research-driven development
- **Electronics & Embedded Systems:** PCB design, circuit analysis, PLC programming (Ladder, FBD, SFC, ST), ATmega128P, STM32
- **Programming & Software:** C, C++, Python, MATLAB, Fusion 360, FreeCAD, LabVIEW
- **Soft Skills:** Problem solving, teamwork, leadership, project management

LANGUAGES

- Spanish – Native
- English – B2 (Upper-Intermediate)

PUBLICATIONS

Camacho O., Santillán E., Uribe J., & Ocampo C. (2024). *Sliding Mode Control Approach for H2 Purity Regulation in High-Pressure Alkaline Electrolyzers.* Paper accepted for presentation at the **4th IFAC Conference on Advances in Proportional-Integral-Derivative Control**, Almería, Spain, June 12–14, 2024.