Jairo Cabrera Pino

Desarrollador Full Stack con experiencia en creación de sistemas web interactivos y proyectos integrados. Proficiente en React.js, Node.js y bases de datos relacionales. Apasionado por la optimización de flujos de trabajo y el desarrollo de soluciones innovadoras.

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Skills

Programming Languages: Java, Python, JavaScript, Typescript, R
Database: SQLite, MySQL
Artificial Intelligence: Random Forest, Machine Learning, Scikit-Learn, Deep Learning, Pytorch, TensorFlow
Packages & Tools: Git, Pandas, Numpy, Matplotlib, OpenCV, NetCDF, APIs, QGIS
Frameworks: React, Next, Bootstrap, Tailwind CSS
Areas of interest: Data Science, Data Analyst, Software Developer

Professional Experience

Lead Software Engineer
EcuaCode Forge SAS 04/2025 – Current

- Managed and optimized MySQL databases, including data integrity, query performance and backup strategies.
- Worked with Computer Vision to develop models for specific object recognition.
- Diagnosed and corrected bugs across jQuery, JS, NextJS, TypeScript for both front-end and back-end systems, assuring the correct functionality of insurance systems.

Full-Stack Developer
PLUS Notary & Services. 08/2024 – 03/2025

- Developed dinamic and responsive webpages adapted to client requirements.
- Integrated Databases in MySQL and SQLite to storage information to improve services.
- Developed backend with Python FastAPI, and frontend using Next.js with TypeScript and CSS.

Software Developer
Ministerio de Agricultura y Ganaderia (MAG). 02/2025 – 04/2025

- Developed databases structures and backend in Python and Java.
- Designed plugins for QGIS in Python and C++ to visualize shapes retrieved from backend for data consultation, analysis, validation and visualization.
- Compiled QGIS from its source code in C++ and adding new features.

Data Scientist
Instituto Nacional de Meteorología e Hidrología (INAMHI). *5 months* 08/2024 – 12/2024

- Developed predictive models (Random Forest) to estimate missing hydrometeorological data, leveraging machine learning for up to 5 years of historical data recovery.
- Designed RNN-based software for nowcasting and climate forecasting, enabling precise short- and long-term weather predictions.
- Built Python tools for data analysis and visualization, streamlining validation and filling of hydrometeorological datasets.

Robotics and Technology Instructor
Unidad Educativa Particular Estados Unidos de Norteamérica. *7 months* 04/2024 – 10/2024

- Designed and taught a robotics program, integrating programming and electronics.
- Strengthening students' problem-solving and critical thinking skills through technological activities.
- Developed an interactive school library website, improving access to educational resources.

Data Analyst
Hydrologist Consultor. *3 months* 01/2024 – 03/2024

- Processed and analyzed hydrometeorological data to evaluate climatic conditions in specific regions.
- Utilized satellite imagery to enhance the accuracy of meteorological assessments.
- Developed technical reports with actionable insights into risk management and resource planning.

Data Quality Control Analyst
Instituto Nacional de Meteorología e Hidrología (INAMHI). *6 months* 06/2023 - 12/2023

- Designed RNN and Random Forest models to forecast meteorological variables and river flow rates with enhanced accuracy.
- Implemented data-filling techniques and quality control measures for hydrometeorological datasets.
- Analyzed and visualized data using Python to identify gaps and validate information integrity.

Project Coordinator Assistant
Universidad del Azuay. *9 months* 10/2022 – 06/2023

- Coordinated project activities and facilitated communication between researchers and external stakeholders.
- Managed budgets and monitored researchers' progress to align objectives with milestones.
- Documented achievements and activities to ensure transparency and support informed decision-making.

Software Developer
Instituto Nacional de Meteorología e Hidrología (INAMHI). *6 months* 03/2022 – 09/2022

- Developed threshold methodologies for meteorological variables, enhancing early warning systems for climate risk areas.
- Conducted meteorological data analysis and hydrological modeling to predict flooding and weather risks in urban watersheds.
- Designed a runoff estimation algorithm using soil permeability and rainfall data.

Water Resources Analyst and Manager
Empresa Pública de Agua Potable y Alcantarillado Santa Cruz. *3 months* 02/2020 - 05/2020

- Ensured water potability by analyzing chlorine levels, supporting resource management and public health efforts.
- Developed Java-based simulations and algorithms for sewage design and optimizing water distribution flow rates.
- Digitalized water distribution network maps, improving infrastructure visualization and management.

Education

Universidad Regional Amazónica Ikiam **Graduated:** 03/2022
Water Science Engineer
Relevant Courses: Numerical Methods and Mathematical Modeling, Fluid Mechanics, Applied Hydrology,

Geographic Information Systems, Ecohydrology, Hydraulics I and II, Water and Sanitation, Water-Sensitive Design, Hydrogeology, Water Governance.

Projects and Achievements

Reviewer for Journal of Hydroinformatics: Provide peer reviews for scientific articles, contributing to the advancement of research in hydroinformatics and ensuring the quality and integrity of published work.

Student Exchange in Finlandia (ERASMUS+): Participated in a five-month ERASMUS+ program in Finland, receiving specialized training from international instructors in environmental and scientific fields. This experience enhanced my intercultural communication, teamwork, and adaptability while broadening my perspectives on sustainability, data analysis, and project management through collaboration with professionals from diverse backgrounds.

Modelling Systems: Design and develop applications for Hydraulic and Watershed modelling using Python and Java.

Publications

Author of "*Rasgos funcionales de las hojas de los helechos como respuesta a variables ambientales.*"

Coauthor of "*Mass Mortality as a Way of Structuring Amazonian and Alpine Tree Populations: Evidence After Storm Vaia."*

Coauthor of "*Normal y lognormal: dos distribuciones de frecuencias y una Teoría Neutral Unificada para estudiar los bosques tropicales."*

Courses and Training

CS50's Introduction to Databases with SQL 12 hours

- Learn the fundamentals of SQL, including querying, designing, and writing database schemas.
- Understand how to relate data across tables, optimize queries, and scale databases for performance.
- Gain hands-on experience in creating and managing databases, along with best practices for efficient data retrieval and storage.

Practical Time Series Analysis 25 hours

- Statistical data analysis.
- Built models to describe and predict information based on prior series data.

Sequences, Time Series and Prediction 22 hours

- Data analysis and prediction for stocks, sales, etc.
- Applied recurrent neural networks (RNN) and LSTM.

Computer Vision with Embedded Machine Learning 30 hours

- Used Raspberry Pi and deep learning to integrate neural network algorithms for real-time object detection.

Data with Python 12 hours

- Data management in Python.
- Load and process CSV files.

Forecast Techniques for Warm Events 30 hours

- Importance, applications, and basics of climatology.

- Severe meteorological event analysis: YAKU.
- Case studies of severe rainfall events.

Meteorological Observations 30 hours

- Meteorological observations and measurements.
- Conventional and automated meteorological stations.

Hydrological Forecasting Techniques for ENSO 30 hours

- Python for hydrometeorological data.
- Satellite precipitation data usage and validation.
- Introduction to hydrological forecasting techniques.
- Model error and uncertainty evaluation.

Immediate Prediction Techniques "NOWCASTING" 30 hours

- Python.
- GOES-16 data processing.
- Physical principles and satellite data interpretation.
- Nowcasting stages: Convective initiation | Maturation | Dissipation.

International Water Law 10 hours

- Examined regulations for transboundary waters, particularly rivers, lakes, and aquifers.
- I studied principles and legal standards governing resource usage, sharing, management, and protection.

II National Meeting of Water Youths of Ecuador. Water for Peace 20 hours

- Understand social problems, from different perspectives, caused by the distribution and management of water resources.
- Collaborate in designing methodologies for short- and long-term solutions to water-related issues.

Introduction to Thermodynamics: Transferring Energy from Here to There 10 hours

- Understand the tools necessary to analyze energy systems.
- Understand energy systems and demands, and how they relate to challenges such as clean water, health, food, resources, and poverty.

Nanotechnology: A Maker's Course 26 hours

- Learned fundamental concepts of nanotechnology.
- Understood processes and machines operating at atomic and subatomic levels.

Additional Information

Languages

- Spanish: Native.
- English: Advanced.
- Portuguese: Intermediate.
- Japanese: Basic.

Driver's License

- Type A (for motorcycles).
- Type B (for vehicles).