

# Ronie Martínez

AI, ML & DL | DataScience | Development

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## About Me

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I am a dedicated and versatile professional with a robust background in Artificial Intelligence, Machine Learning, and Data Science, complemented by a solid foundation in software development. My academic journey, crowned with a Master's degree in Artificial Intelligence and a Bachelor's in Electronics and Telecommunications, has provided me with a deep understanding of both theoretical frameworks and their practical applications. I thrive on tackling complex challenges and have a proven track record of developing innovative solutions, ranging from sophisticated deep learning models for medical diagnostics to dynamic and interactive web applications.

My professional experience is diverse, spanning freelance consulting, research advising, and engineering roles. I have a passion for education and have been actively involved in teaching and mentoring, sharing my knowledge in areas like programming, data

education and have been actively involved in teaching and mentoring, sharing my knowledge in areas like programming, data science, and AI. As a lifelong learner, I am constantly exploring new technologies and methodologies to stay at the cutting edge of the industry. I am proficient in a variety of programming languages and tools, including Python, JavaScript, Java, C++, MATLAB, and the full web stack. My goal is to leverage my skills and experience to contribute to meaningful projects that push the boundaries of technology and create a positive impact.

## Professional Experience

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### **Freelancing @ Research UIO**

*Jan 2013 - Current*

- Tutoring, private classes, consulting, project development, and research advising in artificial intelligence, machine learning, data science, digital communications, algebra, and basic robotics.
- License plate detection and recognition systems using WPOD-NET, the MobileNetV2 model, and image processing.
- Removal of the pectoral muscle and segmentation for an aided breast cancer diagnosis system using image processing.
- Valvulopathies detection system from ECG using 1-D CNNs.
- Machine Learning-Based Classification for Cocoa Beans through images.
- Predictive Modeling and Machine Learning for Private Logistics.
- Data visualization for Covid-related information.
- Machine Learning-Based Prediction for Electric Transformer's Load Capacity.

### **Administrative and Projects Assistant at Dismafer**

*Oct 2015 - Nov 2021*

- Accounting, administrative and manager assistant.
- Project consulting for space automation within smart homes.
- Training for the suitable use of smart home device for smooth automation.

### **Junior Engineer at Linkzartec**

*Aug 2014 - Jan 2015*

- Testing implementation and evaluation of the electronics systems at "Calderon Teaching Hospital" i.e. audio, illumination, access, CCTV, fire control, queuing systems and intercoms.
- Electronic systems design for Telefonica Ecuador CAVs (customer service and sales centers).
- Setting and maintenance of DVRs (digital video recorders) and MDVRs (mobile digital video recorders).

### **Instructor/Exhibitor at Alamos High School**

*Mar 2014 - Apr 2014*

- Conducted workshops in Python programming, HTML and CSS.
- Development of a vehicle controlled by Wi-Fi and live streaming using Raspberry Pi.

## Teaching and Laboratory

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### **Lecturer**

*Information and Computer Science Department DICC, Escuela Politécnica Nacional EPN*

*2025 - current*

- Programming I with C++ - BEng. in Computer Science.
- Programming II with Java - BEng. in Data Science and Machine Learning.
- Computer Architecture - BEng. in Computer Science.
- Computer Architecture - BEng. in Software.

### **Lecturer**

*Computer Science School, Universidad Internacional del Ecuador UIDE*

- Data Storage and Attachment - Master's Degree in Information Systems and Business Intelligence.
- Data Analysis, Modelling and Management in Data Science - Master's Degree in Data Science and Machine Learning.
- Machine Learning - Master's Degree in Information Systems and Business Intelligence.
- Image and Signal Processing - Master's Degree in Applied Artificial Intelligence (Lecturer Assistant).
- Technology and Society - BS. in Information Technology.
- Programming Logic - BS. in Information Technology.
- Introduction to Internet Networking - BS. in Information Technology.
- Info Model, Store & Retrieval - BS. in Information Technology.
- Introduction to Java Technologies - BS. in Information Technology.
- Applied Programming Language for Information Technology - BS. in Information Technology.
- Web Programming for Human-Computer Interaction - BS. in Information Technology.
- Data Analysis, Modelling, and Management in Data Science - Master's Degree in Data Science and Machine Learning.
- Web Programming for Human-Computer Interaction - BS in Information Technology.
- Intermediate Database Management Systems - BS in Information Technology.

## **Invited Lecturer**

*Universidad Iberoamericana del Ecuador - UNIBE*

2024

## **Teaching Assistant**

*Department of Electrics and Electronics, Universidad de las Fuerzas Armadas - ESPE*

2013 - 2014

- Supervised and reviewed a course named "Data Communication" throughout the provision of feedback and the execution of mentoring sessions to undergraduate students.
- Reviewed and marked exams based on results and performance.
- Taught a module about error detection and correction over communication channels.

## **Laboratory Assistant**

*Department of Electrics and Electronics, Digital Television Laboratory, Universidad de las Fuerzas Armadas - ESPE*

2013

- Prepared test beds for CONATEL to validate TVs' performance under the ISDB-Tb standard for DTT (Digital Terrestrial Television).
- Used the tools from the Digital Television Laboratory to satisfy and comply the tests proposed by MINTEL for the corresponding approval and television certification.
- Used software (VillageFlow, StreamXpress y StreamXpert) and hardware (transmission and reception antennas, radio frequency amplifiers, televisions, decoders, etc.) relevant to perform certification of receiving equipment
- Developed and tested interactive Ginga applications for DTT using Eclipse Galileo y Ginga Windows.

## **Research Experience**

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### **Co-Investigator**

*Biomedical Data Science Laboratory (BDS\_Lab), Universidad Internacional del Ecuador UIDE*

2024 - current

- Metabolic Pathways of Alternative Lengthening of Telomeres in Pan-Carcinoma.

- Exploration of Andinan and Galapagos pytho-metabolites as potential inhibitors for colorectal adenocarcinoma and breast cancer: a docking and molecular dynamics analysis.
- Mindfulness-based intervention model with real-time respiratory flow monitoring for enhancing cognitive function and well-being.

## **Master's Research**

*Department of Engineering and Technology, Universidad Internacional de La Rioja UNIR*

*2019 - 2020*

- Conducted a comparison of deep learning models used for melanoma skin cancer detection, selected the best option to attempt the reduction of the related mortality rate through early detection, and proposed a model for a Computer Aided Diagnosis (CAD) System.
- Conducted critical discussions according to the results of the models' performance based on specific metrics and the trend of using convolutional neural networks (CNN), data augmentation and transfer learning.

## **Research Assistant**

*WiCOM Energy Research Group, Universidad de las Fuerzas Armadas - ESPE*

*2013 - 2017*

- Evaluated the performance for digital television transmitter stations using ISDB-T standard over AWGN and fading channel.
- Modeled a complete DTT (ISDB-T) system following a mathematical approach for each process and developed a simulation environment to support and compare theoretical and simulated results.
- Proposed a Cloud-Tx model to enhance the performance in limited conditions (e.g., Low SNR scenarios), with excellent results regarding BER and signal quality over all the three definition modes in the ISDB-T standard.

## **Research Assistant**

*Department of Electrics and Electronics, Universidad de las Fuerzas Armadas - ESPE*

*2013 - 2017*

- Designed and developed a tool oriented to enhance fine motor skills in people with Down Syndrome.

## **Research Assistant**

*Computer Networks Research Group, Universidad de las Fuerzas Armadas - ESPE*

*2013 - 2017*

- Co-created the novel research group with the cooperation and mentoring of an international researcher from Brazil.
- Conducted literature review and analysed neighbors selection algorithms regarding on-demand video services for BitTorrent-based systems.
- Assisted and proposed mechanisms for distribution of multimedia content over computer networks.

## **Projects**

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### **License Plate Detection and Recognition**

Developed a system for license plate detection and recognition using WPOD-NET and MobileNetV2.

### **Breast Cancer Diagnosis Aid**

Created a system for the removal of the pectoral muscle and segmentation for an aided breast cancer diagnosis system using image processing.

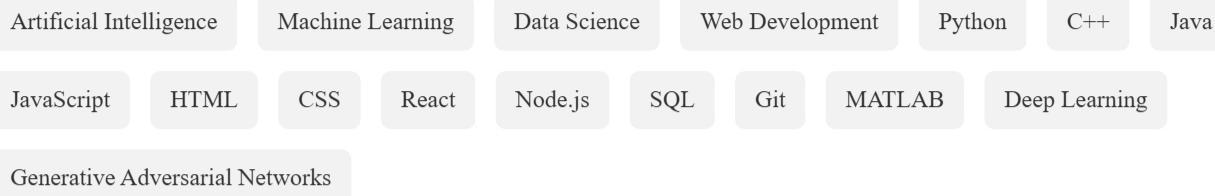
### **Valvulopathies Detection**

Built a valvulopathies detection system from ECG using 1-D CNNs.

## Predictive Modeling for Logistics

Designed and implemented predictive models and machine learning algorithms for private logistics.

## Skills



## Education

### MS in Artificial Intelligence

Universidad Internacional de La Rioja UNIR, La Rioja, Spain - 2020

### BSc in Electronics and Telecommunications

Universidad de las Fuerzas Armadas - ESPE, Quito, Ecuador - 2017

## Publications

- Martínez Gordon, R. S., López Mendoza, X. P., Freire Díaz, J. P., & Cázar Cisneros, A. E. (2025). Enseñanza Inteligente de la Matemática: Aplicaciones del Machine Learning y la IA en la Educación Superior. Páginas Brillantes Ecuador. Quito, Ecuador.
- Mardones, A. M., Vega, R. G. A., Trujillo, F. K., Martínez, R., Acarapi, J. M., & Bastidas, J. O. G. (2025). Gamification and digital environments in higher education: Enhancing motivation and experiential learning. In Seminars in Medical Writing and Education (Vol. 4, p. 5). AG Editor (Argentina).
- Martínez Gordon, R. S., Becerra Zurita, M. A., Guallachico Guallachico, L. A., & Paguay Salguero, J. F. (2025). Matemáticas aplicadas a proyectos del mundo real: Resolución de problemas con TIC y pensamiento crítico. Páginas Brillantes Ecuador. Quito, Ecuador.
- Manzano, J. E. E., Martínez, R., Armijos, F. A. P., García, M. M. G. (2025). Evaluación del uso del enfoque STEAM en el rendimiento académico en secundaria. Sinergia Académica, 8(5), 845-856.
- Naranjo, B. M. M., García, M. M. G., Manzano, J. E. E., Martínez, R. (2025). Uso de simuladores virtuales en la enseñanza de conceptos abstractos. Sinergia Académica, 8(4), 713-727.
- Arango, M. D. L. V., Martínez, R., Castillo, E. A. R., Mendoza, R. R. P. (2025). Desarrollo de la comunicación efectiva, el trabajo colaborativo y la capacidad para la resolución de problemas, a través del Aprendizaje Basado en Proyectos.
- Reyes, A. T. C., Pallasco, L. R. A., Alexandra, P. G. Y., Quishpe, E. R. A., Martínez, R. (2025). Integración de metodologías de aprendizaje basado en la investigación para fomentar competencias científicas en estudiantes universitarios.
- Armendáriz-Castillo, I., García-Cárdenas, J., Espinosa, P., Hidalgo-Fernández, K., Peña-Zúñiga, L., Martínez, R., et al. (2025). Metabolic pathways of Alternative Lengthening of Telomeres in pan-carcinoma. PloS one, 20(2), e0314012.
- Martínez, R., Olmedo, G., & Paredes, N. (2017, August). Analytical performance of digital terrestrial television transmitter stations for mobile broadcasting using ISDB-T standard over AWGN and fading channel. In 2017 IEEE Colombian Conference on Communications and Computing (COLCOM).

## Courses & Certifications



- Con gafas violeta igualdad de género en la escuela
- Introducción a la sustentabilidad hacia un futuro posible
- ODS y sostenibilidad una mirada desde los colegios
- Introducción a la Responsabilidad Social Universitaria
- Objetivos de desarrollo sostenible para América Latina y el Caribe

### **Diploma in Design and Educative Gamification (2025)**

- Designing Learning Innovation
- e-Learning Ecologies: Innovative Approaches to Teaching and Learning for the Digital Age
- Docencia con pedagogía activa mediada con tecnología digital

### **Microsoft AI & ML Engineering Professional Certificate (In progress)**

- Foundations of AI and Machine Learning
- AI and Machine Learning Algorithms and Techniques
- Building Intelligent Troubleshooting Agents
- Microsoft Azure for AI and Machine Learning
- Advanced AI and Machine Learning Techniques and Capstone

### **Meta Front-End Developer Professional Certificate (In progress)**

- Introduction to Front-End Development
- Programming with JavaScript
- Version Control
- HTML and CSS in depth
- React Basics
- Advanced React
- Principles of UX/UI Design
- Front-End Developer Capstone
- Coding Interview Preparation

### **Amazon Junior Software Developer Professional Certificate (In progress)**

- Introduction to Software Development
- Programming with Java
- Data Structures and Algorithms
- Database Management with Java and SQL
- Full Stack Web Development
- Generative AI in Software Development
- Application Development

### **Diploma in Inclusive Education and Disability (2025)**

- Diversity and Inclusion in Education.
- Understanding disability in university settings.
- Disability Inclusion in Education: Building Systems of Support.
- Social inclusion of people with disabilities from a rights-based perspective..

### **Diploma in Artificial Intelligence Applied for Teaching (2024)**

- Artificial Intelligence (AI): Interactions and Prompts.
- AI for Educators: Transform Your Teaching with ChatGPT.
- ChatGPT - Uses and Strategies.

 **Diploma in 21st Century Practical Teaching Skills (2024)**

- Practice-based teacher training to develop 21st century skills.
- What future for education?

 **Introduction to NoSQL Databases (2024)**

 **Introduction to MongoDB (2024)**

 **Inclusive educational attention strategies (2024)**

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