RONIE MARTÍNEZ

Quito, Ecuador

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EDUCATION

MS in Artificial Intelligence — 2020
Universidad Internacional de La Rioja UNIR, La Rioja, Spain
Tesis: Deep learning models for assisted diagnosis in melanoma skin cancer detection.
Supervisor: Dr Claudia Villalonga Palliser

BSc in Electronics and Telecommunications — 2017
Universidad de las Fuerzas Armadas - ESPE, Quito, Ecuador
Tesis: Analytical performance of Digital Terrestrial Television transmitter stations for mobile broadcasting.
Supervisor: Prof Gonzalo Olmedo

PROFESSIONAL EXPERIENCE

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 — Oct 2015 - Nov 2021
Dismafer

- 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 — Aug 2014 - Jan 2015
Linkzartec

- 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 — Mar 2014 - Apr 2014
Alamos High School

- 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

Lecturer   **2023 - current**

Computer Science School, Universidad Internacional del Ecuador UIDE

· Modules delivered:

- 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.
- Web Programming for Human-Computer Interaction - BS. in Information Technology.

· Generated content for:

- 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.

· Tutor for graduation projects (10) for the Master's Degree in Cybersecurity.

Invited Lecturer   **2024**

Universidad Iberoamericana del Ecuador - UNIBE

· Module delivered: Data Analysis and Interpretation Master's Degree in Big Data and Data Science.

Teaching Assistant   **2013 - 2014**

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

· 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   **2013**

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

· 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

Co-Investigator   2024 - current

Biomedical Data Science Laboratory (BDS_Lab), Universidad Internacional del Ecuador UIDE

· 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   2019 - 2020

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

· 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   2013 - 2017

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

· 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.

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

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

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

· 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.

PUBLICATIONS

Journal

· 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. https://doi.org/10.51736/sa
· 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, como estrategia para fortalecer las competencias transversales en estudiantes de educación superior. Reincisol., 4(7), 3846-3869. https://doi.org/10.59282/reincisol.V4(7)3846-3869
· 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. Prohominum, 7(2), 137-149. https://doi.org/10.47606/ACVEN/PH0338

· Armendáriz-Castillo, I., García-Cárdenas, J., Espinosa, P., Hidalgo-Fernández, K., Peña-Zúñiga, L., **Martínez, R.**, Moromenacho, J., Herrera-Yela, A., Cruz-Varela, J., Saucedo-Sariñana, A., Cerdán, M.-E., López-Cortés, A., & Guerrero, S. (2025). Metabolic pathways of Alternative Lengthening of Telomeres in pan-carcinoma. PloS one, 20(2), e0314012. https://doi.org/10.1371/journal.pone.0314012

Conference

· **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), Cartagena, Colombia, (pp. 1-6). IEEE. doi: 10.1109/ColComCon.2017.8088190.

COURSES — MOOC

Microsoft AI & ML Engineering Professional Certificate   In progress
Microsoft

· Foundations of AI and Machine Learning (Eng)
· AI and Machine Learning Algorithms and Techniques (Eng)
· Building Intelligent Troubleshooting Agents (Eng)
· Microsoft Azure for AI and Machine Learning (Eng)
· Advanced AI and Machine Learning Techniques and Capstone (Eng)

Meta Front-End Developer Professional Certificate   In progress
Meta

· Introduction to Front-End Development (Eng) (19H).
· Programming with JavaScript (Eng) (46H).
· Version Control (Eng) (18H).
· HTML and CSS in depth (Eng) (30H).
· React Basics (Eng)
· Advanced React (Eng)
· Principles of UX/UI Design (Eng)
· Front-End Developer Capstone (Eng)
· Coding Interview Preparation (Eng)

Amazon Junior Software Developer Professional Certificate   In progress
Amazon

· Introduction to Software Development (Eng) (28H).
· Programming with Java (Eng) (26H).
· Data Structures and Algorithms (Eng) (43H).
· Database Management with Java and SQL (Eng)
· Full Stack Web Development (Eng)
· Generative AI in Software Development (Eng)
· Application Development (Eng)

Diplomado en IA Aplicada a Docencia (Spa) - Diploma in Artificial Intelligence Applied for Teaching (55H).   2024
Universidad de las Américas UDLA

· Inteligencia Artificial (IA): Interacciones y prompts (Spa) - Artificial Intelligence (AI): Interactions and Prompts. *Universidad de Palermo UP* (14H).
· AI para docentes: Transforma tu enseñanza con ChatGPT (Spa) - AI for Educators: Transform Your Teaching with ChatGPT. *Universidades Anáhuac* (9H).

· ChatGPT - Usos y Estrategias (Spa) - ChatGPT - Uses and Strategies. *Tecnológico de Monterrey* (18H).
· IA generativa en el aula (Spa) - Generative AI in the Classroom. *Universidad Nacional Autónoma de México* (11H).

Diplomado en Habilidades Prácticas Docentes S.XXI (Spa) - Diploma in 21st Century Practical Teaching Skills (40H). 2024
Universidad de las Américas UDLA

· Formación docente basada en la práctica para desarrollar habilidades del siglo XXI (Spa) - Practice-based teacher training to develop 21st century skills. *Pontificia Universidad Católica de Chile UC* (27H).
· What future for education? (Eng). *University of London* (13H).

Introduction to NoSQL Databases (Eng) 2024
IBM

Certificate (18H).

Introduction to MongoDB (Eng) 2024
MongoDB

Certificate (15H).

Estrategias de atención educativa inclusiva: competencias básicas y valores necesarios para trabajar en entornos educativos inclusivos (Spa) - Inclusive educational attention strategies: basic skills and values necessary to work in inclusive educational environments 2024
Consejo de Educación Superior - CES (Higher Education Council)

Certificate (40H).

Starter pack Enseñanza en Línea (Spa) - Online Teaching Starter Pack 2024
Universidad Internacional del Ecuador UIDE

Certificate (160H).

Practical Data Science with MATLAB Specialization (Eng) 2021
MathWorks

· Exploratory Data Analysis with MATLAB (Eng).
· Data Processing and Feature Engineering with MATLAB (Eng).
· Predictive Modeling and Machine Learning with MATLAB (Eng).
· Data Science Project: MATLAB for the Real World (Eng).

Generative Adversarial Networks - GANs Specialization (Eng) 2020
deeplearning.ai

· Build basic and better Generative Adversarial Networks (GANs) (Eng).
· Apply Generative Adversarial Networks (GANs) (Eng).

MATLAB Programming for Engineers and Scientists Specialization (Eng) 2020
Vanderbilt University

· Introduction to Programming with MATLAB (Eng).
· Mastering Programming with MATLAB (Eng).
· Introduction to Data, Signal, and Image Analysis with MATLAB (Eng).

Deep Learning Specialization. Master Deep Learning, and Break into AI (Eng) 2020
deeplearning.ai

· Neural Networks and Deep Learning (Eng).
· Improving Deep Neural Networks (Eng).

- Structuring Machine Learning Projects (Eng).
- Convolutional Neural Networks (Eng).
- Sequence Models (Eng).

REFERENCES

Jaime Ibarra, MSc, FHEA
Former Cibersecurity Professor at Universidad Internacional del Ecuador - UIDE
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Prof Carlo Kleber da Silva Rodrigues
Professor at Universidade Federal do ABC - UFABC, São Paulo, Brasil
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