HECTOR ANDRES MEJIA VALLEJO

Information Technologies Engineer

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See my work portfolio at:
https://hector6298.github.io/my-work-portfolio/ for code
samples, publications, projects and certifications.

EXPERIENCE

Junior Data Scientist/Engineer - Nodel

📅 October 2020-Present Day   📍 Guayaquil, Ecuador

- Research and development of ML/NLP workflows.
- Construction of pipelines for Big Data/ML processing with Microsoft Azure.
- Review and improvement of existing ML methodologies.

Algorithms Teaching Assistant-Yachay Tech University

📅 March 2020-July 2020   📍 Urcuqui, Ecuador

- In charge of teaching Python to students, grading assignments and providing complementary content about programming in general.

Research Assistant - Universidad de Màlaga

📅 February 2020   📍 Màlaga, España

- Vehicle speed estimation from single roadside camera captures.
- Deep learning and computer vision algorithms for camera calibration, speed estimation and tracking.

Research Assistant - INAOE

📅 June 2019-July 2019   📍 Puebla, México

- Research on Multi Modal biometric systems.
- EEG/facial features on ML/DL models.

PROJECTS

Vehicle speed estimation from single camera feed

📅 February 2020-Present

- Graduation Project. Accepted for poster session in NeurIPS LatinX in AI workshop 2021.
- Develop deep learning models for vehicle detection, camera calibration and tracking.
- Homography transformation to translate image coordinates to flat world plane.
- Github repo: https://github.com/hector6298/titulacion_vehice_speed_estimation

COVID-19 chest x-rays pattern recognition

📅 May 2020 - Aug 2020

- Submitted two papers on different conferences: TICEC2020, DSDE2021.
- Got 0.98 AUC on classification in 13k chest x-ray dataset with 3 classes: COVID pneumonia, Non-COVID pneumonia, and normal. DSDE2021

Personal Medium Blog about Machine Learning and Cloud Computing

📅 May 2021 - Present

- Profile: https://hectormrejia.medium.com/

SOFT SKILLS

Hard-working   Curious
Motivator & Leader   Flexibility
Optimist   Self-motivated
Collaborative   Oral speaking capability
Eager to learn!

TECHNOLOGIES

Programming and Version Control

Python   C/C++   SQL   Java   Git

Machine Learning Frameworks

Tensorflow   Keras   OpenCV
Scikit-Learn, Scikit-image   Rapids-AI
Pytorch

Data/Numerical/Statistical analysis

Numpy   Pandas   Scipy   matplotlib

NLP libraries

Spacy   NLTK   Gensim
Hugging-face Transformers
Sentence Transformers

Data Engineering

Apache Spark   Apache Kafka
Delta Lake   Paho MQTT - Python
MPI4Py   Snowflake

Cloud Services (Azure)

Storage   Machine Learning
Kubernetes Services
Cognitive Services and Custom Vision
Functions   Databricks

Containerization and Orchestration

Docker - Kubernetes

DevOps and MLOps

MLflow tracker-registry-serving
Github CI/CD

LEADERSHIP

🏆 **2020 IEEE student branch President**
Yachay Tech university's IEEE student branch.

🏆 **4x Academic Excellence Award**
Given to students with 9.0/10 or more in final grade.

🏆 **Former president and founder of Yachay Tech Videogame development and Artificial Intelligence Club**
Projects, competitions and seminars for the university community.
https://github.com/yachay-tech-ai

🏆 **President of Yachay Tech Bodybuilding and Powerlifting Club**
Seminars, training and competitions for students

🏆 **2020 IEEE Hacktech COVID finalist**
One of the 15 finalists out of more than 2000 projects. Our proposal was a covid-19 anomalies detector on lungs using x-rays and AI. URL: https://devpost.com/software/ecu-ai-covid-scan-t1-hacktechcovid

🏆 **Organizing member of three Programming competitions at Yachay Tech**

PUBLICATIONS

👥 Conference Proceedings

- Carrion, Dustin et al. "A method for studying how much time of EEG recording is needed to have a good user identification." In: *Proceedings of the 6th IEEE Latin American Conference on Computational Intelligence, Guayaquil, Ecuador, 11-15 November 2019*. Institute of Electrical and Electronics Engineers.

- Mejia, Hector et al. "Pre-processing and Handling Unbalanced Data in CNN for Improving Automated Detection of COVID-19 Cases: Preliminary Results. Accepted Manuscript". In: *Communications in Computer and Information Science (CCIS)*. Springer.

- David Freire, Jonathan et al. (2021). "The Impact of Histogram Equalization and Color Mapping on ResNet-34's Overall Performance for COVID-19 Detection". In: *2021 4th International Conference on Data Storage and Data Engineering*. DSDE '21. Barcelona, Spain: Association for Computing Machinery, pp. 45–51. ISBN: 9781450389303. DOI: 10.1145/3456146.3456154. URL: https://doi.org/10.1145/3456146.3456154.

COURSES AND CERTIFICATIONS

Data8.2x Foundations of Data Science: Inferential Thinking by Re-sampling
U.C Berkeley Edx.org
📅 June 2018

Deep Learning with Tensorflow
Cognitive Class.AI
📅 January 2018

Spark Fundamentals I and II
Cognitive Class.AI
📅 September 2020

Snowflake for Developers
Udemy
📅 September 2021

RELEVANT COURSEWORK

Machine Learning · Linear Models · Probability and Statistics · Programming (In C) · Algorithm Analysis · Databases · Logic · Linear Algebra · Calculus · Differential Equations · Algorithms · Numerical Analysis · Operating Systems · Computational Complexity · High Performance Computing · Web Programming · Computer Networks · Software Engineering · Discrete Math · Image Processing · Multivariate Statistical Analysis · Neural Networks

LANGUAGES

English ●●●●○

Spanish ●●●●●

EDUCATION

B.Sc. in Information Technologies
Yachay Tech University
📅 Sept 2016 – Present   📍 Urcuqui, Ecuador

Expected date of graduation: November 2021

High School Diploma
Unidad Educativa Liceo Naval de Guayaquil
📅 2010-2016   📍 Guayaquil, Ecuador

REFEREES

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