RODRIGO YEPEZ-LOPEZ

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I am an IT Data Analyst and Machine Learning Engineer with experience leading data engineering and analytics initiatives that support research, operational decision-making, and mission-driven programs. I have Demonstrated expertise in SQL-based data management, Python analytics, and full lifecycle project execution, including requirements analysis, system design, testing, deployment, and sustainment. I have experience working with cross-functional teams, communicating technical information to diverse audiences.

EDUCATION

University of Maryland, Baltimore County (UMBC) — **Baltimore, MD**
MS in Computer Science (3.6/4.0) — *May 2025*

American University — **Washington, DC**
BS in Computer Science — *May 2023*

SKILLS

Programming: Python, SQL, C++, C, REST APIs, Scikit-Learn, PyTorch, Keras, PySpark

MLOps & Systems: Linux, Docker, Git/GitHub, CI/CD (GitHub Actions), AWS (Redshift), automation

Soft Skills: Agile/Scrum, Technical Documentation, Cross-Functional Teamwork, Fluent (English, Spanish, French)

WORK EXPERIENCE

UMBC, Division of Information Technology — **Baltimore, MD**
General Associate — *May 2025 – Present*

- Lead the development of real-time transcription and visualization pipelines (Linux, SQL, Python, LLMs, AWS Redshift, Tableau, Power BI) to analyze classroom conversations and support research on effective classroom interactions.
- Collaborated with cross-functional Agile teams to troubleshoot and optimize deployed AI solutions.

UMBC, College of Engineering and Technology — **Baltimore, MD**
Graduate Research Assistant — *August 2023 – May 2025*

- Architected multimodal AI systems that integrated audio and text data through feature extraction, improving dementia classification accuracy.
- Built and maintained a 10TB SQL database to improve AI cancer classification.
- Collaborated weekly with cross-disciplinary teams to align technical solutions with research and business needs, standardizing diverse data formats and units to ensure consistent database integration.
- Documented technical processes to ensure reproducibility, accessibility, and compliance across research workflows.

American University, Big Data Lab — **Washington, D.C.**
Undergraduate Research Assistant — *September 2021 – May 2023*

- Developed scalable pipelines using NASA imagery using Linux, Python, SQL, and Spark, improving Nasa cloud classification by 20% and enhanced weather forecasting models.
- Independently designed and implemented an LSTM model on medical signal data to predict lung recovery up to 8 hours in advance, enabling doctors to make timely ventilator removal decisions.
- Built a real-time MLOps data drift monitoring system with Python, TensorFlow, and Spark to detect shifts in streaming data and auto-trigger model retraining.

Big Data Research Experience for Undergraduates (REU), UMBC — **Washington, D.C.**
Intern — *June 2021 – August 2021*

- Optimized compact neural networks through hyperparameter search (C, Linux, Python), reducing parameters by 30% while maintaining accuracy.
- Benchmarked model performance and created visualizations to communicate results to technical stakeholders.

PUBLICATIONS AND SELECTED CONFERENCES

- I. Whitehouse, **R. Yepez-Lopez**, R. Corizzo (2023) "Distributed Concept Drift Detection for Efficient Model Adaptation with Big Data Streams" *2023 IEEE International Conference on Big Data (BigData), Los Alamitos, CA, USA*

- Roberto Corizzo, **Rodrigo Yepez-Lopez**, Sebastien Gilbert, Nathalie Japkowicz. (2022) "LSTM-based Pulmonary Air Leak Forecasting for Chest Tube Management" *2022 IEEE International Conference on Big Data (Big Data)*

- Leah Ding, Roberto Corizzo, Colin Bellinger, Nancy Ching, Spencer Login, **Rodrigo Yepez-Lopez,** Jie Gong, Dong L. Wu. (2022) "Imbalanced Multi-layer Cloud Classification with Advanced Baseline Imager (ABI) and CloudSat/CALIPSO Data" *2022 IEEE International Conference on Big Data (Big Data)*

- Sokhna A. York, Alina M. Ali, David C. Lashbrooke, **Rodrigo Yepez-Lopez,** Carlos A. Barajas, Matthias K. Gobbert, Jerimy C. Polf. (2021) "Promising Hyperparameter Configurations for Deep Fully Connected Neural Networks to Improve Image Reconstruction in Proton Radio-therapy" *2021 IEEE International Conference on Big Data (Big Data)*