Dimitri Vavoulis

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Key Skills: **Machine Learning | Natural Language Processing | Computer Vision | Cloud Architecture (AWS) | Big Data Processing | Serverless Computing | Statistical Modeling | Python | SQL | TensorFlow | PyTorch**

Personal Projects

[aws-serverless-nlp-sentiment-4M-product-reviews](): Developed a **scalable DistilBERT-based sentiment analysis model** for **4M+ product reviews**, achieving **99.73% accuracy**. Designed a **serverless AWS architecture** for cost-effective, high-performance processing, with **detailed implementation plans** for future deployment as a **low-cost market research tool**.

[x-ray-bone-fracture-detection-app](): Created a **YOLOv8l-powered application** for detecting **bone fractures in X-ray images** with **millisecond response time**.

[customizable-real-estate-market-forecasting-tool](): Developed a customizable **SARIMA-based forecasting tool** for real estate market trends, featuring **ready-to-use models for 10 states** with up to **99.43% accuracy**. Utilizes monthly-updated **Zillow Home Value Index (ZHVI)** data to predict trends at various geographical levels (states, cities), offering a **scalable, low-maintenance solution** for comprehensive market analysis.

Education

University of Puerto Rico, Río Piedras, PR

Bachelor of Physics, minor EE   May 2025

Professional Experience

University of Puerto Rico, Río Piedras, PR

AI Developer | July 2022 – December 2024
- Implemented **Feature Pyramid Network** with **100% accuracy** for sargassum tracking using **TensorFlow**.
- Deployed ML model on **Google Earth Engine** and **Google AI Platform** for real-time satellite imagery analysis.
- Collaborated with **Department of Energy** on large-scale environmental monitoring project.

Purdue University, Río Piedras, PR

AI Research Fellow | June 2024 – August 2024
- Developed **AlexNet-based CNN** with **92% accuracy** for sargassum classification and **100%** for seagrass.
- Utilized **Google Colab** for model training and deployment in ocean vegetation monitoring system.
- Partnered with **NASA** and **Department of Navy** to create ML-powered marine ecosystem alert system.

Purdue University, Río Piedras, PR

Climate Scholar | June 2023 – August 2023
- Created statistical model for solar radiation prediction with **95.02% accuracy.**
- Applied **data science** techniques to analyze and forecast hourly solar radiation patterns.

Colorado Space Grant Consortium, Río Piedras, PR

Team leader – RockSat-C 2022 | August 2021 – June 2022
- Led **25-person team** in designing and building **NASA**-launched atmospheric probe.
- Managed **$56,440** budget, ensuring compliance with national security regulations.
- Developed **Python** software for autonomous probe system execution.
- Optimized hardware-software integration for space-grade equipment.

Certifications

Certified AWS Cloud Practitioner	July 2026
Deep Learning Specialization, DeepLearning.AI	June 2023
Federal Contracts Certification, Purdue University	August 2023

Associations

Society of Hispanic Professional Engineers (SHPE)	March 2023