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 | JavaScript | TensorFlow | PyTorch | OpenCV | scikit-learn | transformers | flask | ultralytics | seaborn | onnx | torchaudio | PyYaml | onnx-tf**

Personal Projects

Serverless NLP Sentiment Analysis: 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