Lance Penaflor

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EDUCATION

University of West Florida — Pensacola, FL
Bachelor of Science in Computer Science; Minor in Statistics; Certificate in Data Science — *May 2027*
- **Relevant Coursework:** Data Structures & Algorithms, Mathematical Statistics, Tools for Data Science, Database Systems, Software Engineering 1

EXPERIENCE

Machine Learning & Statistics Researcher *University of West Florida* — Oct. 2024 – Present
- Built cancer classification pipeline on mass spectrometry data (**75% accuracy, 80% specificity**) using SVM, Random Forest, and XGBoost.
- Reduced feature space by **99.8%** with wavelet transforms + PCA, cutting training time and improving interpretability.
- Improved minority-class recall by **15%** via SMOTE oversampling and Grid Search CV tuning. .
- Delivered model benchmark reports across **accuracy, precision, recall, and F1**, informing selection of optimal algorithm.

Data Science Educator *University of West Florida* — Aug. 2024 – Present
- Founded a **35+ member Python/data science community**, lowering barriers to coding and Data Science.
- Created **10+ interactive Colab notebooks** (¿200 views) for Python, statistics, and ML instruction.
- Led **weekly coding sessions (10+ attendees)** that improved student confidence with applied ML.
- Co-ran faculty workshops reaching **50+ students**, enhancing exposure to data science tools.

Undergraduate Teaching Assistant *University of West Florida* — Jan. 2025 – Present
- Supported **120+ students** across C++, Algorithms, and Statistics courses, boosting performance through targeted guidance.
- Replaced calculator workflows with **Python labs**, improving reproducibility and aligning with industry practices.
- Co-Produced accessible course materials meeting **100% compliance** with disability mandates.

PROJECTS

Spotify Recommender System | *Python, Spotify API, Scikit-learn*
- Designed a recommender system using user listening data and Spotify's API to generate song recommendations..
- Implemented cosine similarity to suggest songs tailored to the user's top genres and moods.
- GitHub: https://github.com/lancemelon/recommender_sys

Data Science Learning Platform | *React, Node.js, TypeScript, Express*
- Deployed **browser-based coding + AI tutor platform** with **50+ users**, reducing onboarding by ~40%.
- Led a **3-person dev team** to maintain tutorials, ensure stability, and ship updates via Vercel.
- Live: https://pads-murex.vercel.app/

Wavelet Perturbations on LLM Embeddings (In Progress) | *Python, HuggingFace, PyTorch, NumPy, PyWavelet*
- Designed wavelet-based embedding perturbations preserving semantics in GPT-2 outputs, advancing **robustness research**.
- Compared logits and distributions to quantify differences, contributing to **LLM interpretability and safety**.
- GitHub: https://github.com/lancemelon/llm_perturbation

TECHNICAL SKILLS

Programming: Python, SQL, C++, JavaScript, TypeScript, Java
ML & Data: NumPy, Pandas, Scikit-learn, PyTorch, TensorFlow, Oracle, MatPlotLib, Statistics, Probability, Linear Algebra, Machine Learning, Data Analysis
Web: React, Node.js, Express, Firebase, Vercel, Git, Agile Development, REST API