Marcos Hernandez

Computer Science & Business Information Systems

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Education

Eastern Connecticut State University – Willimantic, CT — May 2025
B.S. **Computer Science**, Minor: **Data and Information Engineering** — **GPA 3.47**
B.S. **Business Information Systems** — **GPA 3.41**

Relevant Courses

Business Intelligence & Data Solutions	Rapid IT Dev (Agile)	AWS Data Engineering Foundations
Business Database Management (SQL)	Software Engineering	Data Mining & Machine Learning

Technical Skills

Programming & Scripting: Python (OOP), Java, SQL (PostgreSQL, MySQL), Bash/Zsh
Cloud & Data Platforms: AWS (Glue, S3, EC2, Lambda, DynamoDB), Snowflake, Tableau
Development Tools: Docker, Git/GitHub, Jupyter Notebook, VS Code
Professional Skills: Leadership, English/Spanish, Non/Technical Communication, Problem Solving

Research & Projects

Senior Research: ETL Data Pipelines Optimization – Python
Evaluating Dynamic Mapping Matrix vs Traditional ETL Mapping for Optimized Data Processing

- Engineered 3 **transformation pipeline** implementations on NYC Taxi data using **Python**.
- Modeled matrix based ETL logic via NumPy to emulate DMM sparsity and compaction.
- Delivered **85% memory savings** and improved runtime with **benchmarking** controls.

Weather Data Engineering Pipelines – Snowflake, AWS

- Built **scalable** ETL data pipelines with Python, **SQL**, Snowpark, and AWS **S3** external data.
- Automated workflows with GitHub Actions and Snowflake's Task DAG API, following **CI/CD**.
- **Modeled data** using star schemas and monitored performance via Snowsight dashboards.

Software Classification Optimization – Machine Learning/AI, Tableau

- Evaluated 7 software fault prone classifier models (NB, MLP, kNN, SVM, LR, C4.5, RF100).
- Applied **feature engineering**, dimension reduction, and model evaluation in confusion matrices.
- Achieved **82.45% peak AU**C using 10-run, 5-fold cross-validation on telecom software datasets.
- **Visualized** 28+ model results in **Tableau**, to **analyze** performance gains in feature reduction.

Hand Gesture Audio Control System – Deep Learning/AI, PyTorch, Computer Vision

- Optimized a custom trained CNN on a curated dataset for real time hand gesture recognition.
- Architected full **AI pipeline** with data augmentation, early stopping, and model checkpointing.
- Achieved **83% test accuracy** via optimized training on the HaGRID dataset using 6 gestures.
- Integrated live webcam inference with Apple Music, enabling hands-free gesture control.

Experience

Network Admin Intern – *ECSU IT Department* | Willimantic, CT — Aug 2024 - Nov 2024

- Collaborated on a **$7M** network infrastructure upgrade, completed one week ahead of schedule.
- Created a VoIP cube upgrade plan with **<30s downtime**, improving redundancy.
- Recovered and optimized **$100K+** in hardware, cutting project costs and time.
- **Balanced** large-scale fiber, switch, and software deployment projects with real-time IT support.

Teaching Assistant – *ECSU CSC Department* | Willimantic, CT — Jan 2024 - May 2024
Course: Introduction to Python and Machine Intelligence

- Supported 20+ students in Python, SDLC, **OOP**, and **data manipulation** using **Pandas**.
- Led hands on **data preprocessing** and ML lab sessions in Jupyter Notebook.
- Guided kNN model development using Scikit-learn, teaching evaluation via confusion matrices.

Leadership, Activities, & Honors

- **Tableau Ambassador** - Founded a 20+ member data visualization learning group. 2024-2025
- **Upsilon Pi Epsilon** - National Honor Society in Computing Sciences. 2024
- **Mentor** - Advised 4 new scholars on relocation, academic planning, and integration. 2022-2024
- **President/Treasurer** - Led BIS-ITSA, managed budgets, and organized career events. 2021-2023
- **Valedictorian/Scholar** - $80K TheDream.US award; Savannah Classical Academy. 2021-2025