Joseph Spagnoli

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Education

University of Florida | Gainesville **Aug. 2023 – May 2027**
Bachelor of Science in Computer Science, Minors: Electrical Engineering, Statistics **GPA: 4.0**
Certificates in AI Fundamentals and Applications and Data Analytics

Experience

AI Intern **Jun. 2025 – Present**
Humanworks Lab | NASA Johnson Space Center (JSC)

- Significantly reduced manual analysis time by spearheading the development of an automated anomaly detection system for ISS ARED machine sensor faults, processing over 11,000 data points per exercise set in large-scale time-series data.
- Implemented a CI/CD pipeline with PyTest and GitLab runners to ensure code quality and deploying an end-to-end pipeline with Dagster.
- Engineered a comprehensive dashboard using Dash, Plotly, and SciPy, improving data analysis efficiency by 15% and enhancing readability with color-coded channels and metadata-on-hover functionality.

System Administrator Intern **May 2025 – Present**
IFAS | University of Florida

- Managed technology needs for 25+ faculty, providing technical support and leading system maintenance, imaging, and deployment to ensure seamless technology integration and reliability.
- Provided hands-on assistance with Active Directory, including user account management and basic group policy tasks.
- Delivered essential technical support by performing troubleshooting for common hardware and software issues to ensure operational uptime.

AI Scholars Researcher **Oct. 2024 – Present**
M.E. Rinker, Sr. School of Construction Management | University of Florida

- Developed a CTGAN synthesizer using SDV and Python to generate high-fidelity synthetic data, creating the foundational dataset for initial artificial neural network training in the absence of real-world data.
- Investigated key physiological (5-8 features) and environmental (12-13 features) variables to enhance predictive models for heat-related illnesses in construction workers.
- Contributed to the design of an ANN framework for real-time heat strain prediction, paving the way for IoT integration in wearable devices to improve workplace safety.

Projects

EvoChess | Python **Mar. 2025 – Apr. 2025**

- Trained a Convolutional Neural Network on over 80,000 chess games, achieving a predictive accuracy that enables gameplay superior to a beginner player (est. 900 Elo).
- Processed and transformed chess game data into structured matrices, enhancing both model training and move prediction accuracy.
- Integrated the model with an interactive chess board using Pygame and python-chess for real-time gameplay.

Six Degress of Twitter | C++ / Crow & React **Mar. 2025 – Apr. 2025**

- Designed and implemented a C++ adjacency list and traversal system using BFS and A* algorithms to explore six degrees of separation in a large-scale social network graph of 100,000 nodes.
- Built a Crow-based HTTP server to return JSON responses for graph metrics and pathfinding queries.
- Collaborated on integration with a React/TypeScript frontend that visualizes connections through an interactive, force-directed graph interface.

Data-Driven Resource Optimization | Python **Jul. 2024 – Aug. 2024**

- Developed a custom gradient descent algorithm to minimize the errors squared cost function for predicting event resource needs.
- Visualized cost function progression using Matplotlib and validated model performance, achieving an R^2 score of 0.958 with Scikit-learn.
- Integrated model forecasts into event logistics, driving a 20% reduction in resource costs and an 85% decrease in waste.

Skills and Achievements

Languages: Python, C++, R, Java, SQL, JavaScript, TypeScript **Tools**: Jupyter Labs, Git, Linux, PowerBI, MySQL, VS Code

Libraries/Frameworks: Scikit-learn, PyTorch, Pandas, NumPy, SciPy, Matplotlib, Seaborn, TensorFlow, SDV, React, Dash, Plotly, Statsmodels, Express.js, Node.js

Relevant Coursework: AI Fundamentals, Intro to Machine Learning, Intro to Software Engineering, Data Structures and Algorithms, Programming with Data in R, Engineering Statistics, Differential Equations

Awards: AI Scholar (2025–2026), UF President's Honor Roll (2025–Present), Machen Florida Opportunity Scholar (2023)