Joseph Spagnoli

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PROFESSIONAL SUMMARY

A highly motivated Computer Science student (4.0 GPA) with minors in Electrical Engineering and Statistics. Seeking a Quantitative Research internship to apply a strong foundation in statistical modeling, machine learning, and Python/C++ development to build and optimize trading strategies. Proven experience in developing mathematical models for complex, real-world problems.

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)
- Spearheaded the development of an anomaly detection system to automate the identification of ISS ARED machine sensor faults in large-scale time-series data (11,000+ data points per exercise set), aiming to drastically reduce manual analysis time.
- 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.
- Actively evaluating statistical anomaly detection methods and transitioning to supervised learning models to enhance predictive accuracy and system reliability.

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.

System Administrator Intern   **May 2025 – Present**
Division of Student Life | 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.

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)