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. Eager to contribute to a collaborative, data-driven environment by developing robust, low-latency models that thrive in rapidly changing market conditions.

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 a statistical model to automate the detection of anomalies in large-scale, high-frequency time-series data (11,000+ data points per exercise set), drastically reducing 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 for training and validating predictive models, directly addressing sparse data challenges.
- 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

Predictive Modeling for Strategic Decision-Making (EvoChess) | Python **Mar. 2025 – Apr. 2025**

- Built a predictive model using a Convolutional Neural Network (CNN) trained on over 80,000 unique game states to forecast the optimal next move, achieving gameplay superior to a beginner player (est. 900 Elo).
- Engineered a data processing pipeline to transform and structure complex game data into matrices suitable for model training and validation.

Low-Latency Graph Traversal and Optimization | C++ / Crow & React **Mar. 2025 – Apr. 2025**

- Designed and implemented a high-performance C++ traversal system for a large-scale social network graph (100,000+ nodes), utilizing BFS and A* algorithms to optimize pathfinding for six degrees of separation.
- Built a Crow-based HTTP server for low-latency query responses, demonstrating skills in building efficient, data-centric backend systems.

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

- Developed and validated a predictive model for event resource needs, achieving a 0.958 R^2 score by implementing a custom gradient descent algorithm to solve a complex optimization problem.
- Deployed the model's forecasts into event logistics, directly driving a 20% reduction in resource costs and an 85% decrease in material waste.

Skills and Achievements

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

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

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)