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

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.

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

- Reduced manual anomaly detection time by 12 hours by spearheading the development of an autoencoder using PyTorch to detect anomalies 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.

Projects

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

- Engineered a full-stack machine learning application, from building a professional data foundation with the Lichess PGN dataset and an automated AWS S3 data pipeline, to advanced model training with PyTorch and experiment tracking with MLflow, and deploying the final model as a containerized API with Docker and Google Cloud Run.
- Achieved a 1200 Elo rating by training a Convolutional Neural Network on a dataset of over 80,000 chess games, resulting in a model capable of outperforming a beginner player.

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, PowerBI, MySQL, VS Code

Cloud & DevOps: AWS (S3), Google Cloud Platform (Cloud Run), Dagster, Docker, CI/CD, Git, Linux

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

Awards: Amentum Intern Scholarship (2025), AI Scholar (2025), UF President's Honor Roll (2024–Present), Machen Florida Opportunity Scholar (2023)