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

Skills

Languages: Python, C++, Java, SQL, JavaScript, TypeScript

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

Libraries/Frameworks: Scikit-learn, PyTorch, Pandas, NumPy, SciPy, TensorFlow, SDV, React, Dash, Plotly, MLflow, FastAPI

Developer Skills: Agile Methodologies, Application Resiliency, Big Data, Data Warehousing Concepts

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

- Enabled the training of a predictive model for heat-related illnesses by developing a CTGAN synthesizer with SDV and Python to generate a high-fidelity synthetic dataset, overcoming the challenge of limited 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**

- 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.
- Integrated the model with an interactive chess board using Pygame and python-chess for real-time gameplay, with plans to incorporate a genetic algorithm to further refine its strategic nuances.

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.

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.
- Integrated model forecasts into event logistics, driving a 20% reduction in resource costs and an 85% decrease in waste.

Awards and Leadership

Awards: AI Scholar (2025–2026), UF President's Honor Roll (2024–Present), Machen Florida Opportunity Scholar (2023)

First Year Florida Peer Leader (Dec 2023 – Present): Demonstrated leadership in collaboration with a faculty co-instructor to develop a comprehensive syllabus and 14 detailed lesson plans, ensuring alignment with course objectives and university standards.