Andrew Festa

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Languages and Frameworks

Languages: Python, C#, C++, SQL, NoSQL, Matlab
Frameworks: PyTorch, Tensorflow, SciPy, OpenCV, CUDA, GIT, ROS

Work Experience

G2i **Delray Beach, FL**
Software Engineer (Remote Contract) *Feb. 2024 - Present*

- Increased efficiency of training LLMs by identifying performance deviations between models in 70% of cases within 4 to 5 interactions
- Improved model accuracy and reliability by refining prompts and evaluating ground truth for math and reasoning tasks
- Enhanced debugging and problem-solving skills of language models by assessing their performance on Python code issues and API-based tasks

Oregon State University **Corvallis, OR**
Graduate Research Assistant *Jun. 2022 - Sep. 2023*

- Published research in top multiagent and evolutionary journals demonstrating a 35% increase in learning speed and a 10% enhancement in performance compared to prior asymmetric island models
- Authored a detailed literature review on multiagent temporal abstractions over extended time horizons, identifying three promising research directions to advance the field, and detailed how these approaches might be extended for future work
- Developed a machine learning framework using reinforcement and evolutionary learning to model inter-agent dependencies arising from environmental dynamics, enhancing system performance and robustness under shifting conditions

Graduate Teaching Assistant *Sep. 2021 - Jun. 2022*

- Reduced workload by over 85% by automating grading and feedback for algorithm implementations in multiple programming languages
- Led teaching sections comprising of over 150 students on architectural design of software with a focus on clean and maintainable code
- Formulated teaching plans for algorithm design and analysis, mobile and web development, and data structures

IOMAXIS **Springfield, VA**
Artificial Intelligence Software Engineer *Sep. 2019 - Aug. 2021*

- Designed a proof-of-concept multiagent self-learning algorithm for search and rescue efforts in constrained environments in AirSim and documented key insights in an organizational white paper, guiding future reinforcement learning projects
- Increased targeted proposals by 50%, securing four additional contracts in six months by leveraging NLP models to match company skills with proposal requirements using LLMs, RNNs and bag-of-words with feature extraction
- Conducted research on audio separation for multiple individuals using spectrogram analysis, evaluating various machine learning models, features, and losses to determine the most effective techniques

Artificial Intelligence Software Engineer Intern *May 2018 - Sep. 2019*

- Achieved 95% top-3 accuracy in landmark recognition from a spare dataset of phone images without metadata by developing a system using a Siamese network pre-trained on YOLOv3 and fine-tuned using triplet loss
- Implemented protocols for detecting and reacting to potential zero-day threats from malicious actors on a secure network able to cordon off portions of a network in less than 8 seconds
- Developed a decentralized data capture and analysis system for enhancing network security using software-defined networking and secure protocols for node authenticity and encrypted data exchange

UTC Aerospace Systems **Raleigh, NC**
Software Engineer Co-op *Jan. 2017 - Aug. 2017*

- Ensured compliance with FAA regulations by designing and implementing a test harness in Simulink, MATLAB, and C++ to verify and validate code functionality on target systems for aircraft fire detection systems
- Reduced workload of customer reporting by automating metric reports on adherence and completion of functional and technical requirements
- Performed requirement and code reviews in C++ and MATLAB for style, completeness, and accuracy

Education

Oregon State University **Sep. 2021 - Sep. 2023**
Master of Science: Robotics *GPA: 3.57*

Rochester Institute of Technology **Aug. 2018 - May 2020**
Master of Science: Computer Science *GPA: 3.6*

Rochester Institute of Technology **Aug. 2015 - May 2020**
Bachelor of Science: Computer Science and Electrical Engineering *GPA: 3.63*

Projects

Publications

- *Reinforcing Inter-Class Dependencies in the Asymmetric Island Model* (GECCO '24, Best paper nomination)
- *Influence-Focused Asymmetric Island Model* (AAMAS '24, Extended abstract)
- *Data Representation for Motor Imagery Classification* (RIT Respository 2020)

Distributed Optimization of Asymmetric Actors

- Developed framework for optimizing action sequences in an MMORPG that sits on top of a simulator commonly used by the community
- Discovered solutions 15% more optimal than previously understood that better informed players about complex game interactions
- Reduced training time by over 40% through balancing of how and when policies are shared between distributed optimizer components

Brain-Controlled Interface Headset

- Created intuitive control interface for computers that allows users to input movement commands through electroencephalography (EEG)
- Improved quality of gathered data by 45% by through incorporating software filters and cable shielding to reduce effects of noise
- Optimized input latency to less than 0.2 seconds by training recurrent neural networks to classify time-series EEG signals