Andrew Farabow

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Education

Virginia Tech (expected grad 2023)
GPA: 3.25 B.S. in Computer Science
Relevant Courses: Data Structures, Restricted Research, Discrete Math, Calculus 1-3, Linear Algebra, Statistics, Computer Organization I
Gonzaga College High School (2015 - 2019)
GPA 3.98

Skills

Programming: Python, Java, Matlab
Frameworks: Numpy, PyTorch, OpenAI Gym, OpenCV, Pandas, Matplotlib, Visdom
Other: neural networks (fully-connected, recurrent, and convolutional), reinforcement learning, GANs, autoencoders, data analytics, Linux, Git, Kubernetes, LaTeX, Agile

Work Experience

Undergraduate Research Assistant - Virginia Tech **2019 - present**

- Working for the Hume Center for National Security and Technology under Prof. Daniel Doyle to train reinforcement learning agents on strategy games. Previously designed and trained object-detecting convolutional neural network architectures for drone navigation
- Working for the Center for Bioinspired Science and Technology under Prof. Rolf Mueller to apply deep learning to finding a robot's location with sonar sensors and tracking bats in a lab setting with DeepLabCut

Machine Learning Engineer Intern - Decipher Technology Studios **2018 - present**

- Working on a small team to develop Sense, a new product which provides deep reinforcement learning-powered predictive autoscaling for Decipher's Grey Matter service mesh
- Studied and implemented policy gradient, Q-Learning, and actor-critic approaches to deep reinforcement learning (DQN, DDPG, A2C, PPO, SAC, etc)
- Wrote a microservice environment simulator for offline training with another intern and created a rule-based autoscaler to jumpstart training via imitation learning.
- Added recurrent and convolutional layers to the neural networks to better leverage time-series data
- Collected metrics using Prometheus and Gatling and tested various model architectures on the data
- Created infrastructure to deploy Sense as a service on Openshift and Elastic Kubernetes Service.

Activities

IC CAE Associate - The Hume Center for National Security and Technology **2020 - present**

- Attend talks and workshops offered by the Hume Center's National Security Education Program

Judging Coordinator - VTHacks Organizing Team **2019 - present**

- Reached out to potential corporate sponsors and faculty judges for Virginia Tech's hackathon
- Handled judging logistics during the event and took note of improvements to implement next year

Stage Manager - Gonzaga Dramatic Association Stage Crew **2017 - 2019**

- Led a team of over 20 students in the construction of a structure over 20 ft. wide and 8 ft. tall
- Called cues during shows, maintained safe working conditions and quickly diagnosed and fixed technical issues in a high-pressure environment

Participant and Mentor - HackBI (Bishop Ireton High School Hackathon)

- Won best overall in a programming contest by writing an app that makes use of machine learning and computer vision techniques to interpret hand-written text
- Returned to HackBI in 2018 to mentor teams and teach deep learning concepts

Projects

Computable AI - co-author of a blog on machine learning, writing a Fundamentals of Deep RL series
Machine Learning Templates - flexible PyTorch implementations of a supervised learning neural network, autoencoder, GAN, and evolutionary algorithm designed for future machine learning projects
Grease Lights and Magic Mirror - coded and designed circuits for custom Arduino and Raspberry Pi-based lighting effects and optical illusions featured in high school theater productions