David Earnest

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EDUCATION

University of Cincinnati **Graduated May 2024**
Bachelor of Science, Computer Science GPA: 4.00

- Primary Coursework: Deep Learning, Machine Learning, Artificial Intelligence, Reinforcement Learning, Genetic Algorithms, Statistics, Probability, Non-Convex Optimization, Data Structures, Algorithms, Computer Architecture, Operating Systems, Theory of Computation, Complex Analysis

SKILLS

Programming: Python, C++, Java, SQL, Prolog, Haskell
Frameworks/Tools: PyTorch, NumPy, Matplotlib, Scikit-Learn, LaTeX
Operating Systems: Windows, macOS, Linux

EXPERIENCE

Northrop Grumman | Machine Learning Engineer Intern **May 2021 – Aug 2023**

- Developed a Deep Reinforcement Learning approach for autonomous control of aircraft/vehicles
- Generated optimal courses of action using Reinforcement Learning and Genetic Algorithms
- Developed a method for differentiating human-generated text from Large Language Model generated text
- Optimized sampling code to reduce runtime from 50 minutes to 10 seconds
- Used Large Language Models for decision support
- Completed large-scale data gathering and processing for Natural Language Processing (NLP) tasks

Siemens PLM Software | Software Engineer Intern **May 2019 – Aug 2020**

- Wrote code to determine and update the orientation of user-placed parts
- Fixed several longstanding bugs in Siemens NX (CAD) code
- Wrote test cases for Siemens NX (CAD) routing code
- Added new UI and functionality to Siemens NX (CAD) application

PROJECTS (ACHIEVEMENTS)

Action Space Constraints for Offline Reinforcement Learning | Python **Sep 2023 – Present**

- Explored different approaches to Offline RL by constraining the learned policies action space to remove actions unlikely under the behavioral policy

GA Populations as Ensembles | Python **Apr 2023 – May 2023**

- Explored the benefits of treating Genetic Algorithm populations a ensembles

State Perturbation for Exploration in RL | Python **Apr 2023 – May 2023**

- Examined a new approach to using state perturbation to explore in RL

Proton Collison Detection | Python **Nov 2022 – Dec 2022**

- Trained a bidirectional LSTM and U-Net model to predict proton-proton collision points in LHC experiments

Checkers AI | Python **Apr 2019 – May 2019**

- Designed an AI agent that plays checkers using the Minimax algorithm and PyGame

ACTIVITIES

Massive Open Online Courses – Student **Jun 2018 – Present**

- MITx 6.86x: Machine Learning with Python - From Linear Models to Deep Learning (Certificate)
- MITx 6.431x: Probability – The Science of Uncertainty and Data (Certificate)
- MITx 6.00.1x: Probability – Introduction to Computer Science and Programming Using Python (Certificate)

AWARDS & HONORS

Outstanding Senior Design Project Award (1 of 2 CS senior projects given the award at UC) **May 2024**
Mantei Mae Scholar (Awarded to top ~15 students majoring in CS, EE, or CE at UC) **Aug 2022 – Present**
Cincinnatus Scholar **Aug 2019 – Present**
Tau Beta Pi Honor Society **Aug 2022 – Present**