

HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM

RESEARCH PROJECT #: HPCMP-FIX-24-003-F

Explainable Artificial Intelligence (AI) for Multi-Domain Combat Simulation

About ERDC-ITL:

US Army Engineer Research & Development Center's Information Technology Laboratory lead research and development in informatics, computational science, and computational engineering with an emphasis on high-performance computing, computer-aided and interdisciplinary engineering, computer science, systems engineering, and instrumentation systems.

RESEARCH LOCATION: Vicksburg, MS

PROJECT DESCRIPTION:

The purpose of this project is to research and demonstrate the use of explainable Artificial Intelligence (XAI) for reinforcement learning (RL). This research will be applied to interpret behaviors and strategies used by RL agents in a Multi-Domain Military Simulation Environment.

The overall goal of this project is to research, develop, and assess the application of XAI techniques to a reinforcement learning scenario. The main outcome of this effort will be to provide a written evaluation of XAI for explainable decisions within the application area of reinforcement learning for mission engineering. Explainable reinforcement learning is a cutting edge research area that has not been explored thoroughly for Defense. Due to the XAI field in combat simulation being a fairly recent research area, the faculty member will have unique research experience.

ANTICIPATED START DATE:

May 2024 – Exact start dates will be determined at the time of selection and in coordination with the selected candidate.

QUALIFICATIONS:

The ideal candidate must be a full-time faculty member from an accredited U.S. pre-college, college, or university. Adjunct or visiting faculty are ineligible. Basic programming skill, python preferable.

ACADEMIC LEVEL:

- Doctoral

DISCIPLINE NEEDED:

- Computer, Information, and Data Science
- Mathematics and Statistics
- Engineering
- Physics
- Science & Engineering-related