zintellect
climb higher

Opportunity Title: Planning, Coordination and Logistics of Multi-Agent Heterogeneous Teams
Opportunity Reference Code: ARL-R-CISD-300109

Organization DEVCOM Army Research Laboratory

Reference Code ARL-R-CISD-300109

Description **About the Research**

This Post-Doc researcher is embedded within a team of multi-disciplinary scientists and engineers located at the Army Research Lab at Aberdeen Proving Ground, MD. The team's research focus is on aerial and ground based robotics systems and autonomy with the objective to further the fundamental sciences of these fields as tailored by Army relevant problems and end goals. In specific, this opportunity will be formulating research in the area of autonomous multi-agent teams with an emphasis on the energy constraints associated with their mission planning and logistics of operation. The goal of this research is to develop new techniques and algorithms that can better plan the missions of aerial and ground based robotic teams. Research outcomes will be implemented in software to be evaluated in live and simulated environments coordinated with other team members.

Responsibilities:
Will perform research in multi-agent teams of autonomous systems with an emphasis on tasking systems in resource constrained environments. Primary responsibilities will be to formulate the research space and apply known and new techniques to Army relevant problems for autonomous teams of systems with a focus on fundamental research to push the state of the science. This opportunity additionally includes contributing guidance to the current project team and to external university partners in this field. The individual for this opportunity will also publish results to the larger scientific community to expand the body of knowledge through formal conference and journal submissions. Finally, the opportunity will need to support demonstrations in simulation and on live systems.

Qualifications:
PhD in Artificial Intelligence, Operations Research, Computer Science or related field. Track record of top research in multi agent systems, coordination, logistical planning of vehicle routes, resource constrained planning, heterogeneous teaming and task allocation as possibly applied to autonomous systems.
Experience in applied applications and running algorithms on live systems or in simulation environments is a plus, including
knowledge and/or experience in programming languages of Python, C++, or C#.

Keywords: Artificial Intelligence, operations research, Computer Science, multi-agent systems, logistical planning, vehicle routing, resource constrained planning, heterogeneous teaming, task allocation, autonomous systems, routing optimization
live systems, simulation environments
Python, C++, C#

Opportunity Title: Planning, Coordination and Logistics of Multi-Agent Heterogeneous Teams
Opportunity Reference Code: ARL-R-CISD-300109

ARL Advisor: James Dotterweich

ARL Advisor Email: james.m.dotterweich.civ@mail.mil

About CISD

The Computational and Information Sciences Directorate (CISD) conducts research in a variety of disciplines relevant to achieving and implementing the so-called digital battlefield. Problems address the sensing, distribution, analysis, and display of information in the modern battle space. CISD research focuses on four major areas: communications, atmospheric modeling, battlefield visualization, and computing

About ARL-RAP

The Army Research Laboratory Research Associateship Program (ARL-RAP) is designed to significantly increase the involvement of creative and highly trained scientists and engineers from academia and industry in scientific and technical areas of interest and relevance to the Army. Scientists and Engineers at the CCDC Army Research Laboratory (ARL) help shape and execute the Army's program for meeting the challenge of developing technologies that will support Army forces in meeting future operational needs by pursuing scientific research and technological developments in diverse fields such as: applied mathematics, atmospheric characterization, simulation and human modeling, digital/optical signal processing, nanotechnology, material science and technology, multifunctional technology, combustion processes, propulsion and flight physics, communication and networking, and computational and information sciences.

A complete application includes:

- **Curriculum Vitae or Resume**
- **Three References Forms**
  - An email with a link to the reference form will be available in Zintellect to the applicant upon completion of the on-line application. Please send this email to persons you have selected to complete a reference.
  - References should be from persons familiar with your educational and professional qualifications (include your thesis or dissertation advisor, if applicable)
- **Transcripts**
  - Transcript verifying receipt of degree must be submitted with the application. Student/unofficial copy is acceptable

If selected by an advisor the participant will also be required to write a **research proposal** to submit to the ARL-RAP review panel for :

- Research topic should relate to a specific opportunity at ARL (see Research Areas)
- The objective of the research topic should be clear and have a defined outcome
- Explain the direction you plan to pursue

Opportunity Title: Planning, Coordination and Logistics of Multi-Agent Heterogeneous Teams
Opportunity Reference Code: ARL-R-CISD-300109

- Include expected period for completing the study
- Include a brief background such as preparation and motivation for the research
- References of published efforts may be used to improve the proposal

A link to upload the proposal will be provided to the applicant once the advisor has made their selection.

Questions about this opportunity? Please email ARLFellowship@orau.org

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Engineering** (27 👁)
  - **Mathematics and Statistics** (10 👁)
- **Age:** Must be 18 years of age