

Opportunity Title: Reasoning for Autonomous Domain-Specific Robots

Opportunity Reference Code: ICPD-2020-17

Organization Office of the Director of National Intelligence (ODNI)

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How to Apply **Create and release your Profile on Zintellect** – Postdoctoral applicants must create an account and complete a profile in the on-line application system. **Please note: your resume/CV may not exceed 2 pages.**

Complete your application – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant.

Additional information about the IC Postdoctoral Research Fellowship Program is available on the program website located at: <https://orise.orau.gov/icpostdoc/index.html>.

If you have questions, send an email to ICPostdoc@orau.org. Please include the reference code for this opportunity in your email.

Application Deadline 2/28/2020 6:00:00 PM Eastern Time Zone

Description **Research Topic Description, including Problem Statement:**

This research topic addresses the challenge in developing reasoning for autonomous robots. Reasoning robots would require agents that perform deliberative planning. The goal of planner agents are to generate a set of synchronized high-level commands that once executed will achieve mission goals. In robotics the planner/deliberator is the locus of time-consuming computations. Usually this means such things as planning and other exponential search-based algorithms but also includes polynomial-time algorithms with large constants such as, but not limited to, certain vision processing algorithms in the face of limited computational resources. Techniques and methods for the development of autonomous goal/mission management and planning agents are needed.

Example Approaches:

- Two categories of planners are “hierarchical task network (HTN) planners” and “planner/schedulers” (Kortenkamp and Simmons, 2016; Georgievski and Aiello, 2015).
- An example software packages that supports automated planning is CASPER (Continuous Activity Scheduling Planning Execution and Re-planning).

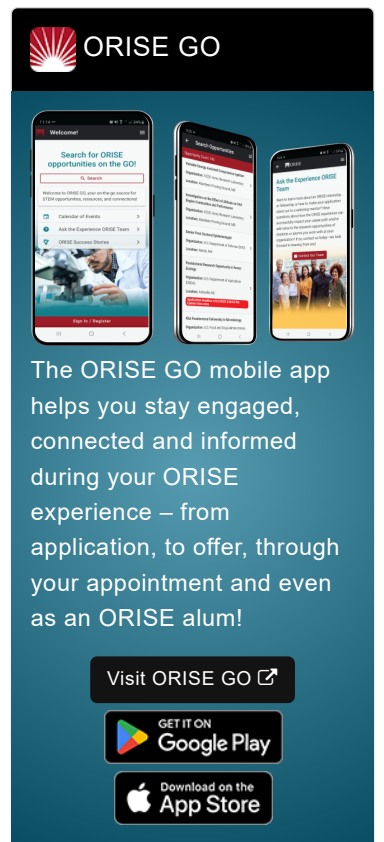
Relevance to the Intelligence Community:

Planning is a general requirement in the management of robots, therefore autonomous planners would be relevant to the mission of the Intelligence Community.

Key Words: Mission Planning, Autonomy, Cognition, Planning, Artificial Intelligence, Robotics


Qualifications **Postdoc Eligibility**


- U.S. citizens only
- Ph.D. in a relevant field must be completed before beginning the appointment and within five years of the application deadline
- Proposal must be associated with an accredited U.S. university, college, or U.S. government laboratory




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- Eligible candidates may only receive one award from the IC Postdoctoral Research Fellowship Program

Research Advisor Eligibility

- Must be an employee of an accredited U.S. university, college or U.S. government laboratory
- Are not required to be U.S. citizens

**Eligibility
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) 👁)
 - **Communications and Graphics Design** ([2](#) 👁)
 - **Computer, Information, and Data Sciences** ([16](#) 👁)
 - **Earth and Geosciences** ([21](#) 👁)
 - **Engineering** ([27](#) 👁)
 - **Environmental and Marine Sciences** ([14](#) 👁)
 - **Life Health and Medical Sciences** ([45](#) 👁)
 - **Mathematics and Statistics** ([10](#) 👁)
 - **Other Non-Science & Engineering** ([2](#) 👁)
 - **Physics** ([16](#) 👁)
 - **Science & Engineering-related** ([1](#) 👁)
 - **Social and Behavioral Sciences** ([27](#) 👁)