

Opportunity Title: The Psychology of Intuition the Implications of Creativity and Cognitive Bias for the Security Community

Opportunity Reference Code: ICPD-2023-34

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 2/28/2023 6:00:00 PM Eastern Time Zone

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

Creative and innovative thinkers provide huge benefits to the security sector and these characteristics are highly beneficial to analysts, engineers and scientists. These individuals can identify alternative solutions to reoccurring problems and adapt to new novel situations, giving an organization huge advantages. Furthermore, these individuals have a heightened sense of intuition compared to others. However, over a period of time, this creative, novel thinking can be affected by organizational cultures and group think behavior.

Degradation of novel thinking or indeed cognitive bias that may occur from conducting repetitive tasks and this is of particular risk to those who conduct routine searches and inspections to certify an environment is secure and safe. Currently end users have some technology to assist with certifying an environment is safe, but do end users become biased over time in the manner in which they use/ do not use the technology provided correctly? To some degree an element of intuition can often lead highly skilled individuals to try something new, whereas others do not demonstrate this flare for creativity. In the latter example, this can lead to both false positives and false negatives. In other words their decision making becomes biased over time, leading to risks for the organization.

Due to the repetitive nature of the tasks do these individuals lose their edge due to task fatigue or peripheral biases that render



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them unable to apply novel thinking? Are some individuals more prone to search bias than others, if so why? Could the application of game theory provide any insight into this? Is it possible to develop a psychometric tool that could assist with the nurturing of creativity?

How can differences between trained individuals be measured and what technologies could be used to prompt, focus, or even train more use of intuition/ creativity to solve a problem? The relationship between eye movements and eye tracking can demonstrate bias in an independent way. The use of augmented reality may be beneficial both during training and on task to provide prompts for the end user. How could technology improve the decision-making during searches and prevent biased thinking?

This topic will require a proposal that is a combination of applied psychology, together with some form of engineering innovation. It will also need to present new innovative approaches that have not already been explored by research for the benefit of those who conduct searches and inspections.

Example Approaches:

Eye movement research is a field of psychology that has shown how eye movements and tracking eye movements, directly influenced our attention and understanding of the world around us.

Various psychological theories have shown how task fatigue can lead to a degradation in performance.

Technologies such as augmented reality and immersive reality have been shown to be beneficial for commercial pilots to learn in a simulated environment, how to make critical decisions when faced with a real-world event.

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
- 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

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Key Words: #Game Theory, #Search Bias, #Improving Decision Making, #Human Factors and Security

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (12 )
 - **Communications and Graphics Design** (6 )
 - **Computer, Information, and Data Sciences** (17 )
 - **Earth and Geosciences** (21 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (14 )
 - **Life Health and Medical Sciences** (48 )
 - **Mathematics and Statistics** (11 )
 - **Other Non-Science & Engineering** (2 )
 - **Physics** (16 )
 - **Science & Engineering-related** (1 )
 - **Social and Behavioral Sciences** (29 )