Request for Information – Community Influence on Human Judgment During Information Processing Tasks

RFI Number: DEVCOM-ARL -RFI-24-01-HC
Agency: U.S. Army Combat Capabilities Development Command - Army Research Laboratory

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Request for Information (RFI): Community Influence on Human Judgment During Information Processing Tasks

ARL is seeking information on interdisciplinary theories and models for collective influences on human judgment during information processing tasks and prior to collective decision making. This RFI is issued for **planning purposes only**, and it does not constitute a formal solicitation for proposals or suggest the procurement of any material, data sets, etc. The following sections of this announcement contain details on the specific scientific areas of interest, along with instructions for the submission of responses.

Background and Scope:

During information processing tasks, the formation of judgments on the utility of information from a wide variety of sources by analysts (working alone or in teams) is influenced by (a) other people in their networks, (b) the available information they consume, (c) potential interactions with virtual agents, and (d) their own internal predispositions based on background, training, and values. These analysts' capabilities and performance on such tasks can be expanded and augmented through intelligent systems or information agents leveraging technologies such as Large Language Models (LLMs) or through additional information gained from social media and social networking platforms. However, such human-agent teaming approaches can lead to the emergence of new biases and challenges surrounding the reliability of such judgments made to accept/reject each piece of information being processed. These phenomena reside at the conscious and subconscious levels, further expounding the challenges to understand their impact on judgment formation.

This RFI seeks to elicit interdisciplinary perspectives on the judgment formation process in the context of analysts being embedded in larger communities and inundated with algorithmically driven information.

Responses to this RFI should answer **any or all of the following questions**:

1. Do you have an existing theoretical lens for modeling judgment formation prior to collective decision making? If so, please explain.
2. What types of cognitive biases are involved in judgment formation when information technologies such as LLMs, social media, and social networking platforms are involved? What new cognitive biases might emerge?

3. How is collective judgment formation affected by differences in the modalities of information presentation (e.g., free-form text, instructions, tables, maps, diagrams, audio, and video) in neurodiverse[1] teams?

4. How do the five Vs of big data (volume, value, variety, velocity, and veracity), applied to the information made available to analysts, affect judgment formation? For value and veracity specifically, how are uncertainty and deception treated in formal theories or models?

5. How does the non-uniform cost of information induce bias on collective judgment in environments that require active retrieval, passive retrieval, and mix-mode strategies?

6. How can human-agent teaming be leveraged to support shift-work for information analysts? What measurable impacts on effective decision making have been observed by adding intelligent information agents into human teams of knowledge workers?

7. How might human-agent interactions influence the development of individual beliefs and knowledge systems? How might agent-facilitated human interactions influence the transfer of beliefs and knowledge from one individual or team to another?

8. Collective judgments are dynamic and continually evolve. What potential theoretical constructs or models might predict emerging vulnerabilities or strengths in these judgments when they are created through distributed knowledge systems, decentralized decision making, feedback mechanisms, and shared values?

For the purpose of this RFI, ARL is interested in a multidisciplinary approach that includes both theoretical and experimental angles drawing on literature from some combination of the social sciences, computer science, business, engineering, and/or neuroscience. Individual disciplinary perspectives that can be integrated into multidisciplinary theories and models are also welcomed.

Preparation Instructions to Respondents:

ARL requests that submittals briefly, clearly, and directly address any or all of the specific questions and outline any known critical scientific issues/obstacles. As research in this space is multidisciplinary, team responses are acceptable. Because ARL is interested in an integrated approach, responses from teams with complementary areas of expertise are encouraged. ARL welcomes responses from all capable and qualified sources from within and outside of the United States. This announcement contains all the information required to submit a response. No additional forms, kits, or other materials are needed.

Responses have the following formatting requirements:

1. A one-page cover sheet that identifies the title, organization(s), respondent's technical point of contact - including names, address, phone number, and email addresses of all co-authors, and clearly indicating its association with RFI-24-01-HC;

2. Answers to the above question(s) including current and potential research directions limited to 5 pages in minimum 12-point Arial font, color graphics if relevant, appropriate for single-spaced 8.5 by 11-inch paper, with 1-inch margins);
3. A list of citations (any significant claims or reports of success must be accompanied by citations);
4. An appendix of critical reference papers or white papers (no more than 3) associated with answers.

Submission Instructions to Respondents:

Responses to this RFI are due no later than 5:00 P.M., Eastern Time, on 22 November, 2023. All submissions must be electronically submitted to ARL-CIHJ-RFI@army.mil as a PDF document. Inquiries to this RFI must be submitted to ARL-CIHJ-RFI@army.mil. Do not send questions with proprietary content. No telephone inquiries will be accepted.

Disclaimers and Important Notes:

This is an RFI issued solely for information and planning purposes and does not constitute a solicitation. Respondents are advised that ARL is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI.

Responses to this notice are not offers and cannot be accepted by the Government to form a binding contract. Respondents are solely responsible for all expenses associated with responding to this RFI. ARL will not provide reimbursement for costs incurred in responding to this RFI. It is the respondent's responsibility to ensure that the submitted material has been approved for public release by the information owner.

The Government does not intend to award a contract on the basis of this RFI or to otherwise pay for the information solicited, nor is the Government obligated to issue a solicitation based on responses received. **Neither proprietary nor classified concepts or information should be included in the submittal**.

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Reference:

1. Armstrong, T. (2011). *The Power of Neurodiversity: Unleashing the Advantages of Your Differently Wired Brain*. Da Capo Lifelong Books.