NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 22-091

Dear Colleague Letter: Stimulating Integrative Research in Computational Cognition (CompCog)

June 2, 2022

Dear Colleague:

The National Science Foundation (NSF) supports fundamental research that is collaborative between the computer and information science and engineering (CISE) and the social, behavioral and economic sciences (SBE) fields. This research empowers our Nation to address great challenges and seize transformative opportunities. Through scientific advances and subsequent applications of these advances, research jointly supported by NSF's CISE and SBE Directorates spurs innovation, creates jobs, strengthens security and preparedness, and improves quality of life for people across the country and around the world. One research area of mutual interest is computational cognition. This Dear Colleague Letter (DCL) is intended to enhance the scientific and societal impact of the field by encouraging active dialogue across the cognitive and computational communities, facilitating bidirectional cross-fertilization of ideas and nurturing emerging areas of multidisciplinary research.

The National Science Foundation (NSF) is interested in receiving proposals to existing programs, listed below, that explore computational models of human cognition, perception, and communication and that integrate considerations and findings across disciplines. Proposals submitted to programs in the Directorate for Social, Behavioral and Economic Sciences (SBE) should include a rigorous computational context, and proposals submitted to programs in the Directorate for Computer and Information Science and Engineering (CISE) should include a rigorous cognitive context. For example, proposals that explore human cognition, perception, action, communication or learning should integrate and exploit what has been learned in the fields of artificial intelligence, natural language processing, computational neuroscience, computer vision, robotics, machine learning, human-computer interaction, data analytics or other related areas. Similarly, proposals that explore artificial systems, co-robotics, affective computing, human-AI and human-automation interaction, extended reality, visualization and related topics should leverage and integrate understanding of human cognition, perception, action control, linguistics or developmental science. **These**

computational cognition (CompCog) proposals should be synergistic with the approaches of the participating programs to which the proposals are submitted and must contain clear research components as described by those programs' solicitations or program descriptions; if they do not, they may be returned without review.

This is not a special competition or new program. A proposal in response to this Dear Colleague Letter must meet the requirements and deadlines of the program to which it is submitted but should start the proposal title with "CompCog:". Primary and secondary units of consideration on the cover sheet should indicate which participating SBE and CISE programs are most relevant. These proposals may, at the discretion of the cognizant program director, be reviewed in a special cross-directorate Computational Cognition panel that will occur sometime during the spring.

Participating programs in SBE include:

- Cognitive Neuroscience
- Decision, Risk and Management Sciences
- Developmental Sciences
- Linguistics
- Perception, Action and Cognition
- Science of Learning and Augmented Intelligence
- Social Psychology

Participating programs in CISE include:

- Robust Intelligence
- Human-Centered Computing

Questions concerning this Dear Colleague Letter should be directed to the e-mail alias CompCog@nsf.gov.

Sincerely,

Kellina Craig Henderson
Acting Assistant Director
Directorate for Social, Behavioral, and Economic Sciences

Margaret Martonosi
Assistant Director
Directorate for Computer and Information Science and Engineering