NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

NSF 16-036

Dear Colleague Letter: CPS EAGERs Supporting Participation in the Global City Teams Challenge

Dear Colleague:

The N -ional Institute of Standards and Technology (NIST) launched the 2016 Global City Teams Challenge (GCTC; see http://www.nist.gov/cps/sagc.cfm) with a kickoff meeting on November 12-13, 2015, in Gaithersburg, MD. This meeting brought together city planners and representatives from technology companies, academic institutions, and non-profits with the aim of fostering teams that will contribute to an overall vision for Smart and Connected Communities (S&CC) - effectively integrating networked information systems, sensing and communication devices, data sources, decision-making, and physical infrastructure to transform communities by improving quality of life, environmental health, social well-being, educational achievement, or overall economic growth and stability.

NIST's GCTC builds upon the National Science Foundation's (NSF) longstanding investments in cyber-physical systems (CPS). NSF established the CPS program in 2008 to develop the principles, methodologies, and tools needed to deeply embed computational intelligence, communications, and control, along with new mechanisms for sensing, actuation, and adaptation, into physical systems. The NSF CPS program, which today includes the participation of the U.S. Department of Homeland Security, U.S. Department of Transportation, National Aeronautics and Space Administration, and National Institutes of Health, has funded a strong portfolio of projects that together have pushed the boundaries of fundamental knowledge and systems engineering in core science and technology areas needed to support an ever-growing set of application domains. CPS investments are enabling systems that are central to emerging S&CC infrastructure and services, including in areas such as intelligent transportation systems (ground, aviation, and maritime), building control and automation, advanced manufacturing (including cyber-manufacturing), healthcare and medical devices, and the burgeoning Internet of Things (IoT). Dependability, security, privacy, and safety continue to be central priorities for the program in pursuing the vision of a world in which CPS dramatically improve quality of life. Along the way, the CPS program has also nurtured a vibrant CPS research community.

With this Dear Colleague letter (DCL), NSF is announcing its intention to fund EArly-Concept Grants for Exploratory Research (EAGER) proposals to support NSF researchers participating in the NIST GCTC, with the goal of pursuing novel research on the effective integration of networked computing systems and physical devices that will have significant impact in meeting the challenges of Smart and Connected Communities. **Researchers must be members of, or be seeking to establish, GCTC teams that build upon the results of previous or active NSF-funded projects, and must provide evidence of active team membership and participation as part of the submission.** [Note that, while this DCL is aligned with NSF's broader efforts in Smart and Connected Communities (see http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf15120), a key requirement for this DCL is active participation in a GCTC team.] Proposals should emphasize the fundamental research inherent to the real-world problems being addressed; the manner in which the proposed solutions will be adopted by one or more local communities; and the potential challenges with respect to both research and

deployment. Successful proposals will quantify the magnitude of potential societal impacts; and will result in transformative, long-term benefits rather than incremental advances. Finally, proposals must address why the work is appropriate for EAGER funding (see details below), including what key risks will be mitigated to facilitate future high-reward advances and why the timing of the project will maximize the potential for success.

The deadline for submission of EAGERs is April 1, 2016, but earlier submissions are encouraged, and decisions will be made on a first-come, first-serve basis.

Submission of EAGER proposals will be via Fastlane or Grants.gov. EAGER submissions should follow the NSF's Grant Proposal Guide (GPG) II.D.2 (see http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). (As noted in the GPG, EAGER is a funding mechanism for supporting exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work may be considered especially "high-risk/high-reward," for example, in the sense that it involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives.)

An investigator may be included in only one submission in response to this DCL; if more than one is submitted, only the first one will be considered.

For further information, please contact the cognizant CPS program directors:

- David Corman, CISE/CNS/CPS, dcorman@nsf.gov;
- Kishan Baheti, ENG/ECCS/EPCN, rbaheti@nsf.gov;
- Sylvia Spengler, CISE/IIS/CPS, sspengle@nsf.gov; and
- Gurdip Singh, CISE/CNS/CSR, gsingh@nsf.gov.

Sincerely,
Jim Kurose
Assistant Director, CISE

Pramod Khargonekar
Assistant Director, ENG