



**NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230**

CCF 15-001

Dear Colleague Letter: Employment Opportunities in the Division of Computing and Communication Foundations (CCF) in the Computer and Information Science and Engineering Directorate (CISE) (Open Until Closed)

January 8, 2015

Dear Colleague:

The Division of Computing and Communication Foundations announces a nationwide search for program directors in the following programs under the provisions of the Intergovernmental Personnel Act.

- Communication and Information Foundations (CIF), with a focus on communications, information theory, signal processing, and networking to fill a Program Director position.
- Software and Hardware Foundations (SHF), with a focus on computer architecture, computer systems, and file and storage systems.

Formal consideration of interested applicants will begin immediately upon receipt of the first application and will continue until a selection is made. We are evaluating candidates who would be available to start between July 2015 and January 2016.

1. Program Director: Communication and Information Foundations - Innovative research essential to advance the areas of communications, information theory, signal processing and networking. More information about CCF and the CIF program in particular can be found at:
http://nsf.gov/funding/pgm_summ.jsp?pims_id=503300&org=CCF&from=home.

Technical Requirements:

- Knowledge of NSF's and CCF's mission and programmatic activities, especially those in communications, information theory, signal processing, and networking.
- Familiarity with the state of the art in research in the following areas is desirable:
 - Digital communications, including millimeter wave communications, cognitive radio, spectral access and auctioning, and spectrum sharing and management;
 - Information theory, including multi-user/multi-terminal information theory, distributed coding, storage and compression (ranging from nonvolatile memory to cloud storage facilities), and advanced code design and efficient decoding algorithms and architectures (especially for non-binary/multilevel codes and non-symmetric channels);
 - Communication networks, including heterogeneous cellular networks, interference management and interference alignment, and cooperative transmission and diversity (using decentralized schemes achieving performance approaching, in the aggregate, that of centralized schemes);
 - Secure communications, including physical layer security featuring perfect secrecy and/or low

- probability of intercept, and hybrid information-theoretic/cryptographic approaches at the physical layer for privacy protection; and
- o Networked computing, sensing and communication for cyber-physical systems.

2. Program Director: Software and Hardware Foundations - Innovative research essential to advance the capability of computing systems. More information about CCF and the SHF program in particular can be found at: http://nsf.gov/funding/pgm_summ.jsp?pims_id=503301&org=CCF.

Technical Requirements:

- Knowledge of NSF's and CCF's mission and programmatic activities, especially those in computer architecture, computer systems, file and storage systems, and high performance computing systems.
- Familiarity with the state of the art in research in the following areas is desirable:
 - o Energy efficiency computing and communication architectures;
 - o Emerging device and substrate technologies, including (but not limited to) nonvolatile memory and phase-changing devices;
 - o Emerging computing paradigms, including (but not limited to) neuromorphic computing, approximate computing, quantum computing;
 - o Runtime systems and cross-layer co-designs;
 - o Computer storage systems and parallel I/O;
 - o Compiler and programming languages;
 - o Cloud computing, VM and server consolidation; and
 - o Computer systems performance evaluation.

General Requirements:

NSF Program Directors bear the primary responsibility for carrying out the Foundation's overall mission to support innovative, merit-evaluated fundamental research and education projects that contribute to the nation's technological strength, security and welfare. The position requires outstanding knowledge of research topics and communities, a commitment to high standards of ethical conduct, a considerable breadth of interest, receptivity to new ideas, a strong sense of fairness, good judgment, and a high degree of personal integrity.

Qualification requirements for the position are a Ph.D. or equivalent professional experience in the relevant discipline in science or engineering, plus six or more years of successful research, research administration, and/or managerial experience in academe, industry, or government. The position requires effective oral and written communication skills, and familiarity with NSF programs and activities is highly desirable. The incumbent is expected to function effectively both as individual within the specific NSF program and as a member of crosscutting and interactive teams. The incumbent must also demonstrate a capability to work across government agencies to promote NSF activities and to leverage program funds through interagency collaborations.

The position recruited under this announcement will be filled under the following appointment option:

Intergovernmental Personnel Assignment (IPA) Act: Individuals eligible for an IPA assignment with a Federal agency include employees of State and local government agencies or institutions of higher education, Indian tribal governments, and other eligible organizations in instances where such assignments would be of mutual benefit to the organizations involved. Initial assignments under IPA provisions may be made for a period of up to two years, with a possible extension of up to an additional two-year period. The individual remains an employee of the home institution and NSF provides negotiated funding toward the assignee's salary and benefits.

For additional information on Intergovernmental Personnel Act assignments at NSF, please see http://nsf.gov/about/career_opps/rotators/ipa.jsp.

Should you or your colleagues be interested in this position, please email a current CV accompanied by a cover letter highlighting the background that specifically relates to the program objectives to James Donlon, CCF Deputy Division Director, at jdonlon@nsf.gov.

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A HIGHLY QUALIFIED STAFF THAT REFLECTS THE DIVERSITY OF OUR NATION.**