

**National Science Foundation
Directorate for Computer and Information Science and Engineering Advisory Committee
(CISE AC)**

January 14, 2013

**National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230**

MEETING SUMMARY

The National Science Foundation's Directorate for Computer and Information Science and Engineering's Advisory Committee (CISE AC) held a teleconference on January 14, 2014.

Welcome, Review of Agenda, and Approval of Minutes

Dr. Farnam Jahanian, Assistant Director for Computer and Information Science and Engineering (CISE) at the National Science Foundation (NSF) opened the call and welcomed the advisory committee members shortly after 3:00 PM EST. Dr. Jennifer Rexford, CISE AC co-chair, took roll. A list of attendees can be found in Appendix I. The minutes from the last AC Meeting, held on May 16-17, 2013, were approved unanimously by the AC.

CISE Overview and Update

Dr. Jahanian gave an update on CISE personnel changes. He welcomed input from the CISE AC on the formation of search committees for new Division Directors for Information and Intelligent Systems (IIS) and Computer and Network Systems (CNS). He noted that President Obama has nominated Dr. France A. Córdova to be the next Director of NSF. Dr. Cora Marrett is currently serving as both Acting Director and Deputy Director of NSF.

Dr. Jahanian gave a brief overview of the budget and CISE activities. At the time of the meeting, appropriations for Fiscal Year 2014 had not been approved, but both NSF and CISE had healthy increases in the President's budget request for that year.

Dr. Suzanne Iacono, Deputy Assistant Director for CISE, gave an overview of the impact of the recent lapse in Federal Appropriations, including NSF's preparations for an orderly shutdown, the 16-day lapse and the post-shutdown resumption of activities.

Updates were then given on several program activities. Dr. Jahanian described the Cyberlearning and Future Learning Technologies program, and the expansion of its interdisciplinary research with involvement from the Directorates for CISE; Education and Human Resources; Social, Behavioral and Economic Sciences; and Engineering. He and Dr. Howard Wactlar, Division Director for Information and Intelligent Systems (IIS), then described the interagency Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. Launched in 2013, the Initiative includes investment from NSF, NIH and DARPA.

Dr. Keith Marzullo, Division Director for Computer and Network Systems, provided updates on CISE Research Infrastructure: Mid-Scale Infrastructure - NSFCloud. This infrastructure investment will provide computers, networking and software to distributed facilities and will build upon existing CISE Research Infrastructure, Global Environment for Network Innovations (GENI), and Major Research Instrumentation (MRI) investments.

Dr. Jahanian provided an update on the eXploiting Parallelism and Scalability (XPS) program. He also provided an update on the Expeditions in Computing and Frontier awards, as well as on other center-scale Frontier awards made within the Cyber-Physical Systems (CPS) program and the Secure and Trustworthy Cyberspace (SaTC) program.

Dr. Irene Qualters, Acting Division Director for Advanced Cyberinfrastructure (ACI), updated the committee on Advanced Computing Infrastructure. Three new key deployments include the Yellowstone, Blue Waters and Stampede Supercomputers. FY 2013-2014 solicitations for new facilities are designed to retain geographic diversity, and to provide the range of resources needed by an increasingly diverse community.

Dr. Qualters also discussed the cross-agency group on the Future of High Performance Computing. The group, led by the White House Office of Science and Technology Policy (OSTP), spans the Department of Energy (DOE), the Department of Defense (DOD), the Defense Advanced Research Projects Agency (DARPA) and NSF, and will meet through the end of March. The group is considering a possible National Strategy for High-end Computing.

Dr. Jahanian wrapped up the CISE updates. The recent work of the Postdoc Subcommittee has been shared with the Computing Community Consortium (CCC), which has announced efforts with NSF to do a study aimed towards identifying best practices. Proposals have been received. Of the nineteen 2012 PECASE awardees named by NSF, four were from CISE. A Faculty Early Career Development (CAREER) Writing workshop will be held on March 31st in the DC area to encourage Program Officers to attend and work with students. Some of the talks will be made available online. No major changes in the CAREER program will be made this year. The next CISE AC Meeting will be held at NSF headquarters from May 15-16, 2014. The Advisory Committee for Cyberinfrastructure will meet April 2-3, 2014.

Update from CISE AC Vision 2025 Working Group

CISE AC member, Dr. James Landay noted that the CISE Vision 2025 efforts began with a CISE AC breakout session to envision possible future trends in computing. The results of this brainstorming session were presented at last May's AC meeting.

The CISE AC and CCC are working together to plan several workshops in this area. The team includes David Culler, James Landay, Jennifer Rexford from the CISE AC; and Limor Fix, Ed Lazowska, and Beth Mynatt from CCC. The planned workshops will address the "Smart World" characterized by smart objects, sensing, data and analytics; the new renaissance of independent manufacturing; and underlying technologies for novel interactions between people and/or machines, including deep learning, speech recognition and holographic displays.

The topics addressed by these workshops aren't meant to represent the entire future of computing, but rather identify key areas where growth is expected. The goal is for a report-out from all of the workshops to occur during the Computing Research Association (CRA) Snowbird conference in July 2014.

Dr. Jahanian thanked the team for its continuing efforts.

Update from CISE AC Mid-Scale Infrastructure Subcommittee

CISE AC member, Dr. Jim Kurose acknowledged committee members and contributing NSF staff. He noted that the CCC-solicited whitepapers yielded tremendously thoughtful turnout. The subcommittee's work wrapped up last year, and they are now wrapping up a short report to be circulated to the AC for comment and approval at the next meeting.

Dr. Fran Berman noted that the report will include roughly three recommended areas: 1) ways of linking NSF efforts to outcomes/impact, 2) examination of business models and creating linkages between NSF and other sectors, 3) providing more specifics on cloud services and facilities that support research projects.

Planning for May Meeting, Wrap-up, and Closing Remarks

The group discussed potential topics for the May meeting, such as: the sustainability of large-scale projects and infrastructure in terms of people; community building; faculty hiring, teaching, research, and funding in the future; the increasing appreciation of the CISE disciplines within other disciplines as demonstrated by Nobel prizes and the growing use of big data; trends towards interdisciplinary science; and the role of CSE departments with respect to data science. Dr. Rexford suggested that two or three subgroups discuss these topics at the May meeting.

Dr. Jahanian thanked the AC for their participation, noting that the members' involvement and engagement is extremely important and their work through the AC and working groups helps to provide input for the development of new programs, priorities, and portfolios in NSF/CISE. He thanked Drs. Rexford and Culler for their leadership.

Drs. Rexford and Culler adjourned the meeting at 4:55pm.

Appendix I: Attendance for January 14, 2014 CISE AC Call

AC Members Present on the Conference Call

Francine Berman, Rensselaer Polytechnic Institute

David Culler, University of California at Berkeley

Teresa Dahlberg, Univ. North Carolina - Charlotte

Susan Davidson, University of Pennsylvania

Jose Fortes, University of Florida

Juan Gilbert, Clemson University

James Kurose, University of Massachusetts Amherst

James Landay, University of Washington

Peter Lee, Microsoft Research Redmond

Jennifer Rexford, Princeton University

Ronitt Rubinfeld, Massachusetts Institute of Technology

Rob Rutenbar, University of Illinois

Stefan Savage, University of California, San Diego

Robert Schnabel, Indiana University

Alex Szalay, The Johns Hopkins University

AC Members Absent from the Conference Call

Jaime Carbonell, Carnegie Mellon University

Henrik Christensen, Georgia Institute of Technology

Brent Hailpern, IBM Research - Almaden

Charles Isbell, Jr., Georgia Institute of Technology

Jeffrey Vitter, University of Kansas