



National Science Foundation (NSF)

Computer and Information Science and Engineering (CISE) Advisory Committee (AC)

Meeting Minutes

Meeting Summary

Advisory Committee (AC) for the National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) convened on December 6 and December 7, 2023. The meeting was held in person and virtually.

Wednesday, December 6, 2023 (all times Eastern)

9:30 AM Welcome, introductions, approval of minutes, and agenda review

CISE AC co-chair Dr. Enrico Pontelli opened the meeting. Minutes from the June 2023 meeting were accepted without changes.

9:45 AM New members welcome and introductions

Advisory Committee members and NSF CISE leadership/attendees introduced themselves. Introductions included those of new AC members Dr. Antonio Delgado, Dr. Brittany Duncan, and Dr. Kinnis Gosha.

10:00 AM NSF and CISE update

Dr. Margaret Martonosi, Assistant Director for CISE, gave her final update and reflections on her time at NSF during the past four years entitled: "CISE Looking back and Looking forward". Dr. Martonosi presented on three themes: CISE in a Post-Moore's Law World; the Transcendence of AI; and Designing Beneficial Socio-technical Systems.

11:00 AM Break

11:30 AM Computing and Sustainability

Dr. Roch Guerin, CISE AC member, gave a presentation on sustainable computing and computing for sustainability. Dr. Guerin discussed three goals: to advance a scientific agenda and increase awareness, initiate interdisciplinary community-building efforts, and identify necessary/missing resources to realize this scientific agenda. Dr. Guerin highlighted the opportunity to enhance the prioritization of sustainability issues within the computing community. Dr. Guerin acknowledged the CISE Design of Environmental Sustainability in Computing program, which responds to sustainable computing topics raised by the CISE AC

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during the May 2022 meeting and highlighted by the CISE AC report on computing and sustainability. Dr. Guerin discussed how CISE AC activities would complement a recent Computing Community Consortium workshop on “Building Resilience to Climate-Driven Extreme Events with Computing Innovations”.

12:11 PM Approval of a charge letter to form a CISE AC subgroup on computing and sustainability was put to a vote. Motion seconded and approved.

12:13 PM The CISE AC considered topics for additional subcommittees. The AC members discussed ways to support sharing best practices emerging from CISE-funded projects to different areas of transition-to-practice. The potential of this as an intersectional opportunity between CISE and TIP was discussed. The AC will consider formation of a transition-to-practice subcommittee.

12:27 PM Lunch

1:30 PM Status of a National Artificial Intelligence Research Resource

Katie Antypas, the Office Director for Advanced Cyberinfrastructure at NSF, gave a presentation on the National Artificial Intelligence Research Resource (NAIRR)—a widely-accessible, national research infrastructure that will advance the U.S. AI research and development environment, discovery, and innovation by empowering a diverse set of users (AI researchers, domain scientists applying AI, and students and educators). The NAIRR Pilot will launch in January 2024. The NAIRR Interagency Working Group, led by OSTP and NSF, aims to build a community across agencies and get feedback for design as they move forward.

1:53 PM Opened for Q&A

The discussion included ways the NAIRR Pilot can provide incentives for communities to come together and create robust, AI-ready, searchable datasets. The AC discussed the difficulties AI researchers face in accessing the resources that are often only available to domain scientists, as well as the opportunity for questions in other scientific domains to drive advances in AI itself.

2:00 PM Overview of CISE Minority-Serving Institutions Research Expansion Program

Dr. Ellen Zegura, Division Director for Computer and Network Systems at NSF, presented on the CISE Minority-Serving Institutions Research Expansion Program (CISE-MSI). Dr. Zegura highlighted that all CISE units participate in the program. She discussed the significant institutional diversity across MSIs. She also noted the geographic intersections with EPSCoR and the differences. CISE is monitoring the follow-on funding for CISE-MSI projects from CISE core programs.

2:32 PM Opened for Q&A

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Members discussed the challenges of attrition of MSI faculty after receiving NSF awards. AC member Dr. Antonio Delgado also mentioned barriers for MSIs in applying to solicitations that require collaborations with other institutions, which may not be fully prepared to facilitate an effective collaboration with an MSI. The CISE AC also discussed the feasibility of eligibility for institutions with significant service for persons with disabilities.

2:48 PM Broadening Participation in Computing

Dr. Enrico Pontelli gave a presentation on the strategic plan for broadening participation in computing (BPC). Dr. Pontelli explained that CISE AC members have been discussing the status of CISE BP programs, and should consider updating the CISE AC 2012 Broadening Participation Strategic Plan. Preliminary review suggested that the vision and goals are still valid. At the same time, there have been significant changes in computing curriculum, but still a limited change in representation/diversity, and it remains unclear how metrics are being used to inform best practices as well as how to institutionalize changes. Dr. Pontelli proposed the establishment of a new CISE AC subgroup on Broadening Participation in Computing to review the landscape since the last plan and offer advice for the future.

There was discussion about the types of partnerships that can contribute to broadening participation in computing, including K-12, industry, and professional organizations. The AC noted the change in leadership and faculty culture in recognizing broadening participation as a goal. The AC discussed BPC as a research topic at the boundary of social, education, and computing issues and the sharing of research in best practices.

3:13 PM Dr. Pontelli opened a request to vote for the charge letter to create the BPC subcommittee. The motion was seconded, no opposed. The motion passed.

3:30 PM Break

3:45 PM Report of the Committee of Visitors for Computing and Communication Foundations, Computer and Network Systems, and Information and Intelligent Systems

Dr. Sonia Fahmy, Chair of the Committee of Visitors, presented the findings and recommendations of the COV review. The COV expressed concerns about the limitations in CISE resources compared to the criticality of CISE's role in NSF's mission. Dr. Fahmy elaborated on the twelve (12) recommendations offered by the COV. It was noted that CISE will offer a response to the COV recommendations at the next CISE AC meeting.

4:22 PM Opened for questions.

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AC Members asked if the COV review included the structure of CISE. COV member Roch Guerin responded that internal structural barriers were not identified. COV member Raja Kushalnagar also shared that structural issues were not identified within CISE, but that they did recommend increased information sharing across divisions.

4:35 PM The AC moved to vote on acceptance of the COV report. The motion was seconded and the report was accepted.

4:45 PM Recap of Day 1 and look-ahead to Day 2

Co-Chair Dr. Enrico Pontelli provided an overview of Day 1 and asked attendees to prepare their thoughts for the Day 2 discussion and topics to share with NSF leadership.

5:00 PM Adjourn for the day

Thursday, December 7, 2023 (all times Eastern)

9:30 AM Welcome and overview of day

Co-Chair Dr. Klara Nahrstedt provided a summary of Day 1 activities and an overview of the Day 2 agenda and expectations for each session.

9:37 AM CISE AC liaisons status reports

AC Member and CEOSE liaison Dr. Timothy Pinkston provided a summary of the CEOSE report including recommendations and suggestions for immediate action to address disparities in representation. Dr. Pinkston highlighted key recommendations, including increased awareness and recognition of intersectionality, inclusion of persons with disabilities in considering persons from underrepresented groups, and changes in terminology used in the latest CEOSE report.

AC Member and ACCI Liaison Dr. Padma Raghavan provided an overview of the recent ACCI Working group meeting. The working group discussed how NSF resources may be best distributed to improve future data cyberinfrastructure. The ACCI also reviewed a summary of the OAC Committee of Visitors report and their recommendations.

10:25 AM Dr. Pontelli opened the floor for suggestions of topics to discuss with NSF Leadership.

The AC discussed how to spread lessons learned for BPC implementations. Many institutions may not have the resources to scale promising initiatives. The AC also discussed the overall sustainability of the academic enterprise, with many faculty leaving for industry. And the AC

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discussed ways NSF could facilitate impact of research in the absence of immediate uptake by the commercial marketplace.

10:44 AM Break

11:00 AM Meeting with the NSF Director and Chief Operating Officer

The Director reflected on the positive budget outcome for NSF and the success of NSF outreach activities such as the Congressional AI Institutes showcase. The Director noted the robust international partnerships in CISE areas. The Director noted that computing activities are supported across CISE directorates, including the new TIP directorate. The Director also noted the opportunity to leverage external partnerships to enhance the impact of NSF activities. The Director also discussed with the AC the opportunity for partnerships to contribute to the sustainability of academic enterprise. And the Director reflected on this as the last AC meeting with CISE AD Dr. Martonosi and commended her service.

11:30 AM Discussion following meeting with the NSF Director and Chief Operating Officer

The AC continued discussion on the importance of funding foundational research and receiving enough support to continue cross-agency collaborations while prioritizing CISE foundational research. It was noted that growth in the CISE budget has historically lagged growth in the NSF budget overall. The AC also expressed an interest in following up with NSF leadership on the items discussed during this meeting.

12:01 PM Departing members' reflections

Departing member Dr. Padma Rahavan reflected on new programs like mid-scale research infrastructure and ways to create additional resources, from research equipment to a national AI research resource. She reflected on the need for more foundational research in areas such as AI. She also reflected on the opportunity to connect with groups outside the government to communicate about CISE activities and identify the impacts of CISE.

12:09 PM During final comments the members reflected on the meaningful discussion in this meeting and expressed appreciation of the format.

12:10 PM Meeting Adjourned