Friday, December 16, 2022 (all times Eastern)

11:05 AM Welcome, introductions, review of agenda, and approval of minutes

Dr. Rob Rutenbar, Co-Chair of the CISE Advisory Committee (AC), welcomed the attendees. The CISE AC members introduced themselves and their institutions. Minutes from the last AC meeting were approved.

11:12 AM NSF and CISE update and Discussion

Dr. Martonosi, Assistant Director for CISE, began by reviewing several CISE impact stories. CISE supported work that resulted in a popular language learning app, a program to learn coding through music, among others, as well as efforts NSF made to support Artificial Intelligence (AI) through the so-called AI winter. Strategic plans and partnerships in which NSF is involved were also reviewed. Dr. Martonosi provided an overview of the CISE directorate, its main divisions and current leadership, and recent numbers on the CISE budget, awards made, and researchers and institutions supported.

Three overarching technical themes for CISE and CISE's activities were also discussed. In the first theme, "CISE in A Post-Moore's Law World," she provided information about several programs, which included the Future of Semiconductors' first solicitation from this year, the Principles and Practice of Scalable Systems solicitation (due in January 2023), and the new Design for Environmental Sustainability in Computing program. "Transcendence of Artificial Intelligence" was the second theme. Dr. Martonosi discussed the new ExpandAI program, which focuses on engaging researchers in Minority Serving Institutions (MSIs) in AI efforts. For the final theme, "Designing Beneficial Sociotechnical Systems" she discussed the purpose of, and broad community involvement in, the Civic Innovation Challenge.

Dr. Martonosi provided information on CISE programs and areas on which CISE is focusing. She reviewed the new CISE Large Projects solicitation, which is designed to fill the gap between Core Medium and Expeditions projects, with the goal of funding ideas that are greater than the sum of their respective parts. She also discussed CISE's efforts to increase the number of distinct institutions that it funds, and factors influencing the variation in the numbers of highly rated proposals that cannot be funded because of budgetary constraints, over time. She underscored the need for funding agencies to ensure broad access to infrastructure, and highlighted CISE efforts in research infrastructure programs. She also provided information on the CSGrad4US Fellowship Program, which aims to enhance the number and diversity of US citizens and permanent resident graduate students in computing.

12:26 PM Break

1:16 PM Future of Cybersecurity Research

Dr. Jeremy Epstein, NSF Program Director, gave a presentation about the Secure and Trustworthy Cyberspace (SaTC) program. The presentation began by Dr. Epstein giving an overview of the history of the program, and providing statistics about the awards made. He underscored the broad interdisciplinary focus of the program, including its interagency partnerships and international collaborations. Dr. Epstein reviewed the advancements that have been made in this area since the beginning of the program, as well as how the program has changed to address new threats as they have emerged. Following the presentation, there was a question-and-answer session.

2:03 PM Computing for the Environment

Dr. Magdalena Balazinska, Co-Chair of the CISE AC, provided a review of the AC's Computing for the Environment report. She noted that the motivation behind the report was to determine how the CISE community can help address environmental challenges. The first thrust of the report focused on multidisciplinary community building, while the second identified five-to-ten-year targets to focus on. Thrust three concerned creating resources to facilitate research, and the final thrust focused on building partnerships.

The report was ratified. Roch Guerin and Klara Nahrstedt will co-lead efforts to recruit further experts in this area, and Gabriela Cruz-Thompson and Amy McGovern will also be involved. Panelists also contributed ideas about further next steps.

2:38 PM Prep for the Visit by the NSF Director and Chief Operating Officer (COO)

The committee decided to discuss five areas during this session: the CISE strategy for computing research, opportunities between CISE and the new Technology, Innovation, and Partnerships (TIP) directorate, building research capacity at institutions around the country, geographic inclusion, the future of the reward system, and encouraging faculty to remain in academia.

3:10 PM Break

3:29 PM Meeting with the NSF Director and COO

The CISE AC met with Dr. Sethuraman Panchanathan, NSF Director, and Dr. Karen Marrongelle, Chief Operating Officer of NSF.

The CISE AC began with Dr. Panchanathan making opening remarks. He noted that a recent focus for NSF has been to better communicate NSF's impact to the public and Congress.

CISE AC members then asked Dr. Panchanathan and Dr. Marrongelle five questions. (1) The first question was regarding what CISE's strategy for computing research should be in the context of disciplinary and interdisciplinary efforts. Drs. Panchanathan and Marrongelle noted that the core is very important, but that interdisciplinary work challenges and strengthens the core, such that both forms of inquiry mutually strengthen each other. (2) The second question focused on what opportunities Drs. Panchanathan and Marrongelle think will arise between CISE and TIP. They noted that TIP can accelerate the partnerships with industry that CISE primes. (3) The AC next asked how the NSF programs to build

research capacity are working, and what steps are needed to move forward. Drs. Panchanathan and Marrongelle noted that there are several challenges, including that various universities can provide different levels of support to their researchers. They highlighted the GRANTED program as a way that the NSF is working to help institutions build capacity. (4) The AC also asked the NSF Director and COO about how to change the reward system for promotion and tenure within academia, including ways to reward faculty for broader collaborations. Dr. Panchanathan and Dr. Marrongelle emphasized the need for institutions to make changes to their promotion policies. They emphasized the need for stronger geographic inclusion in collaborations and requested ideas on how NSF can help. (5) The AC's last question focused on how to encourage faculty to stay within academia to maintain the health of the academic research activities, in light of the incentives for senior faculty to join industry. Drs. Panchanathan and Marrongelle noted the need to create a fusion between academia and industry so that faculty do not have to choose one or the other, but stated as well that this requires partnership and innovation. Dr. Panchanathan stated that he and Dr. Martonosi would discuss ways to move forward in this area.

4:00 PM Discussion Among AC Members Following Meeting with NSF Director and COO

The CISE AC voiced positive reactions to the meeting with the NSF Director and COO. They discussed the information provided by the NSF Director and COO, including their remarks about strengthening the CISE core, opportunities for CISE and TIP to leverage each other, and possible ways to improve faculty retention in academia. They agreed on the importance of thinking more about these areas in the next 12 months.

4:16 PM Computing Research Infrastructure

Dr. Martonosi introduced the team lead of the CISE Research Infrastructure Working Group, Dr. Deepankar Medhi. Information was provided about NSF and CISE Infrastructure programs. The CISE AC discussed the benefits of comprehensive infrastructure, and the challenges that make it difficult to achieve this. Included among these challenges are the high cost of some resources, scarcity of experts, and lack of recognition/reward for building high-quality infrastructure.

5:00 PM Departing Members' Reflections

The departing member, Dr. Rob Rutenbar, Co-Chair, CISE AC, remarked that the many years of service he has contributed have been a privilege.

5:05 PM Closing Remarks

5:08 PM Adjourn