

Fostering Responsible Computing Research Report

Recommendations for Computing Research Institutions: Actionable Steps

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Computing technology today has a global reach that would have been unfathomable a few decades ago. While this has created unprecedented benefits for society, it can also create unintended social and ethical impacts on billions of people. Recognizing this, the National Academies (NASEM), through its Computer Science and Telecommunications Board (CSTB), commissioned a consensus study entitled [Responsible Computing Research: Ethics and Governance of Computing Research and its Applications](#).

The report¹ makes a number of recommendations, drawing on a series of public meetings and the expertise of the study committee, which included researchers from computer science and engineering, information science, social sciences, philosophy, and law. It highlights the need for computing researchers in academia, industry, and government not only to consider the ethical and societal impacts of their work, but also to determine practical ways to address those impacts. This includes identifying benefits, harms, and limitations; balancing the associated tradeoffs; engaging a full range of stakeholders and creating a detailed plan to consider their interests; and following best practices for systems design, deployment, oversight, and monitoring. These issues need to be factored in from the start of every research project, rather than being considered only at the last minute or added on *post facto*. Importantly, the report emphasizes that while carrying out responsible computing research does not require computing people to become experts in ethics, it *will* require those researchers to acquire fundamental knowledge of, and appreciation for, responsible computing methods and approaches—e.g., by establishing partnerships with experts in the humanities and social sciences. Finally, the report emphasizes that these are major changes whose success will require ongoing support from institutions and funding agencies, as well as significant attention to, and investment in, education of the next generation of computing researchers.

Following its release, the report was presented at a number of venues, including the CRA Conference at Snowbird, the University of Toronto Schwartz Reisman Institute, and the University of British Columbia Computer Science Department. Some ideas that came out of the community discussions that followed these presentations include:

- Creating incentives to support responsible computing research and help ensure alignment with the report's recommendations: e.g., encouraging sabbaticals that build expertise in the social

¹ [Fostering Responsible Computing Research: Foundations and Practices](#)

sciences among computing researchers, providing supplemental funding to existing grants to support assessment and improvement of responsible computing in the funded research, creating centers that foster collaborations among computing researchers and social scientists regarding the challenges of responsible computing research, and developing incentives for industry to partner with academic researchers on these issues.

- Holding subfield-specific workshops to build community around responsible computing, while assisting researchers in identifying benefits and harms that are specific to their subfield, bringing in speakers with ethics or social-science expertise, creating corpora of activities and syllabi, or providing training in public engagement.
- Designing “capture the flag” competitions for ethical and societal impact testing across different computing research subfields, akin to those now conducted for cybersecurity.

Fostering an ecosystem of responsible computing will not be straightforward or easy; rather, it is a seismic shift in current practice of the field of computing research that will require a coordinated, collaborative effort between researchers, sponsors, teachers, and research institutions. The Computing Research Association (CRA) is uniquely positioned to facilitate this kind of effort. Through its recent community-wide strategic planning activity, for example, the CRA has made responsible computing a top priority and formed a new working group that will make recommendations to the CRA Board on areas where computing research is well-positioned to make lasting positive impacts and facilitate progress in those areas. To that end, CRA’s Socially Responsible Computing Working Group² will:

- Review existing research ethics procedures to determine what is already available and identify opportunities and needs for additional resources,
- Develop and publish best practices for calls for papers and manuscript review, as they pertain to ethical considerations, and
- Explore opportunities for the computing community to engage with challenges related to Earth’s climate, sustainability, and the environment.

There is no one-size-fits all approach to responsible computing, but taking even one of the steps outlined in the report—or following through on any suggestion that comes up in conversations catalyzed by that document—can help amplify the positive impacts of computing while limiting the negative ones. Throughout this process, it will be critical for the computing research community to keep in mind the important principles identified in the report throughout all stages of any computing research initiative: engaging in interdisciplinary collaborations, considering all stakeholders who could be impacted by the research, and consistently checking to make sure that ethical values and societal impact are considered.

² [CRA's Socially Responsible Computing Working Group](#)