CRA-I Steering Committee (formed in Nov 2020)

Lorrie Cranor, CMU
Fatma Ozcan, Google
Chris Ramming, VMware
Vivek Sarkar, Georgia Tech (Co-Chair)
Divesh Srivastava, AT&T
Gil Vandentop, Intel
YY Zhou, UCSD
Ben Zorn, Microsoft (Co-Chair)
Outline

- Update on CRA-I
- Breakout groups
- Wrap-up
## Context: CRA Strategic Initiatives

### CRA Strategic Initiatives Implementation Ownership Recommendation

February 18, 2021

Indicates board or committee member

<table>
<thead>
<tr>
<th>Initiatives (Phase 1)</th>
<th>Action Planning Participants</th>
<th>Suggested Implementation Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1a. In collaboration with the computing research community, define tenets and practices for socially responsible computing</td>
<td>Ann Schwartz Drobnis Peter Harsha Ran Libeskind-Hadas Ellen Zegura</td>
<td>New Board Programmatic or Ad Hoc Committee</td>
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<tr>
<td>A2a. Engage the board in defining criteria for selection of activities to pursue</td>
<td>James Allan Andy Bernat Erik Russell Ellen Zegura</td>
<td>Executive Committee</td>
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<tr>
<td>A2b. Develop governance and decision-making framework and cycle for selection of activities</td>
<td>Nancy Amato Khari Douglas Peter Harsha Brian Mosley Erik Russell Heather Wright Helen Wright Shar Steed</td>
<td>Staff, also see TIG recommendation as part of Governance report</td>
</tr>
<tr>
<td>B1b. Broaden involvement of computing researchers from member organizations, beyond the member contacts</td>
<td>Alex Aiken Peter Harsha Stephanie Forrest Ellen Zegura</td>
<td>Government Affairs Committee</td>
</tr>
<tr>
<td>B2a. Proactively influence government policy and procedures that affect the computing research community, in addition to responding to emerging issues</td>
<td>Khari Douglas Peter Harsha Brian Mosley Erik Russell Shar Steed Heather Wright</td>
<td>Staff</td>
</tr>
</tbody>
</table>

### D1a. Meaningfully engage companies that conduct computing research

- Ben Zorn
- Vivek Sarkar
- Lorrie Cranor
- Fatma Ozcan
- Chris Ramming
- Divesh Srivastava
- Gil Vandentop
- YY Zhou

Indicates CRA-1 Committee

### E2a. Enhance awareness of computing research opportunities to a broader student population

- Erik Russell
- Andrea Danyluk
- Sandhya Dwarkada
- Susanne Hambrusch
- Lori Pollock

Indicates CRA-WP or CRA-E

### E2b. Utilize best practices to create guidance for ensuring a supportive community for diverse students in computing research

- Erik Russell
- Burcin Tamer
- Ellen Zegura

Indicates CRA-WP

### E3a. Expand CRA programming to enhance preparation experiences for computing research students

- Susanne Hambrusch
- Lori Pollock
- Erik Russell

Indicates CRA-E

### F1a. Institutionalize systemic, continuous, and targeted communications

- Khari Douglas
- Peter Harsha
- Brian Mosley
- Erik Russell
- Shar Steed
- Heather Wright
- Helen Wright

Indicates Staff

### Notes

- Indicates staff
Mission and Vision Statements

• CRA Mission Statement: CRA’s mission is to enhance innovation by joining with industry, government and academia to strengthen research and advanced education in computing.

• CRA-I Mission Statement (draft): CRA-I’s mission is to create a computing research ecosystem that focuses on opportunities with industry to leverage the potential synergies among industry, government, and academia for mutual benefit and improved societal outcomes.

• CRA-I Vision: CRA-I is the one-stop portal for industry to engage with the computing research community across academia, government, and other companies.
Background: Industry/Academia Ad Hoc Committee Report

(Presented in July 2020 Board Meeting)

https://cra.org/cra-committee-on-industry-academia-interactions-releases-report/

Vivek Sarkar (Chair), Nancy Amato, Susan Davidson, David Ebert, Mark Hill, Charles Isbell, Shwetak Patel, Chris Ramming, Divesh Srivastava, Eric de Sturler, Marvin Theimer, Ben Zorn
Executive Summary (details in report)

• Survey sent to 221 computing department chairs (special thanks to Betsy!)
  • 105 responses --- indicates strong interest by CRA member organizations
  • Over 60% also said that they were open to engaging further on this topic
• Significant industry engagement is under way between faculty and industry, with an increasing trend
• Mix of positive and negative aspects of industry/academia engagements, with the positives outweighing the negatives
• Wealth of information from survey can help guide future CRA activities related to industry-academia engagements
• Overall: clear opportunity for CRA to add value to member institutions and industry partners by facilitating and strengthening their interactions
Types of industry organizations involved in faculty engagements

- Large tech companies
- Tech startups
- Non-tech companies with tech needs
- Other

Percentage of Respondents
CRA-I’s Initial Contact List (to be extended)

- Initial source: CCC, Georgia Tech
- Additional sources: Company names provided in Industry/Academia survey
- Wide range of companies need for a “catalog” of options to engage with universities
- CRA-I can also help direct companies to other CRA committees and activities, as appropriate
CRA-I Need Finding Process

- Initial set of interviews with the following people, representing a range of expertise across industry, academia, and government:
  - Ron Brachman, Karina Edmonds, Peter Harsha, Kim Hazelwood, Mark Hill, Jim Kurose, Margaret Martonosi, Raghu Ramakrishnan, Vijay Saraswat, Alfred Spector, Jaime Teevan, Marvin Theimer, Manuela Veloso
  - Many of our interviewees observed that there is a unique opportunity for CRA-I to fill a long-standing need with its bridging role.

- Pilot survey created to gain broader insight on CRA-I opportunities from industry partners:
  - Results to be collected, analyzed and shared in July 2021 Board meeting
  - Next slide has sample output from 12 responses
Q10 - In which of the following do you see value in what CRA-I could provide to your company? Select all that apply. (Sample output from 12 responses)
Interview Questions

We asked how CRA-I can support the following interactions:
- Industry-Industry (I-I)
- Industry-Academia (I-A)

Top level questions:
- What **role** can CRA-I play in providing value?
- What **topic areas** are of particular interest and/or most challenging?
- What **approaches to collaboration** between the entities above should we consider?
CRA-I Observations and Synthesis from Interviews (1)

CRA-I’s Role

- Bring together industry partners & CRA for **shared understanding of issues**
  - Including identifying partners and creating social connections

- Help connect industry/academia/government in **seeding partnerships**

- Create a **shared understanding of best practices** working with academia and other industry researchers
  - Help make creating a corporate computing research culture easy and effective (e.g., a term suggested was “Research in a Box”)

**Emerging topics/challenges mentioned:**
Explainable AI, ethical AI, social responsibility, cloud
CRA-I Observations and Synthesis from Interviews (2)

Collaboration ideas

- Create **mingling opportunities and information sharing** that connect companies and influencers who inform computing research

- Provide a central place for industry to develop a **shared perspective** on important social implications of tech, including community standards (e.g., privacy, fairness, etc.)
  - How? Writing white papers, hosting workshops, etc.

- Provide guidance and support effective **data sharing**
- Programs that help **faculty and industry researchers exchange** places
Opportunities for Collaboration with other parts of CRA

CCC
- Example: quantum readiness study
  - A first-time experiment in having industry input on CCC study topics
  - Resulted in one of the recent quadrennial papers
  - Company participants valued the experience and commented on how they could not imagine another neutral forum where the conversations would have been so forthright

CRA-WP
- CRA-I can introduce partners to opportunities with CRA-WP
- CRA-I can learn from CRA-WP experience with companies

CRA Government Affairs
- CRA-I partners can contribute to possible GA events
- GA can benefit from CRA-I input on new government initiatives
Outline

• Update on CRA-I

• **Breakout groups**

• Wrap-up
Break Out Group Discussions (11:45am hard stop)

1. **Connection between CRA-I and the rest of CRA**: We focus on what Board members have to say about how the CRA-I can effectively interact with other CRA committees (like CRA-WP, CERP, CCC, CRA Government Affairs, Awards, etc.)

2. **Opportunities and Pain Points in Industry-Academia Interactions in CS departments** - The goal is to collect input from board members on questions that CRA-I could focus on with respect to developing best practices (“design patterns”) on issues related to faculty, student, intellectual property, funding, etc.

3. **Best practices on using cloud computing as research infrastructure** - increasingly research is being conducted using cloud computing infrastructure. This discussion focuses on sharing best practices to leverage cloud infrastructure to accelerate the research process.

4. **Data sharing practices** - Data is critical for innovation in a data-driven society. What kinds of data can be shared that is of value? How do we share data while keeping rights to it (similar to patenting algorithms)?

5. **Social justice** – Brainstorm about how to involve industry partners with other CRA efforts on this topic. Consider questions such as: How can we leverage technology to close the injustice gaps? What role does industry and academia have to ensure equality of opportunity?

6. **Responsible social media** – Consider bringing partners to the table to consider questions such as: What are the technical obstacles to ensuring social media is not harmful? What roles do industry, academia and the government have in ensuring responsible social media? How do we ensure individuals’ rights of freedom of speech is not violated while preventing fake news?

7. **Seeding new I/A/G alliances**: Example: changing the nature of the semiconductor roadmap - For decades, the semiconductor industry has fueled Moore’s “law” with public private partnerships driven by the SRC. To maintain national leadership, the traditional semiconductor industry needs more research engagement from design and systems companies.
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CRA-Industry Goals for 2021

- Initiate activities that require lower partner investment initially
  - **Target:** initiate “Computing Research Industry Pulse” round tables on topics of greatest interest to industry, possibly in partnership with other CRA committees

- Initiate 1-2 task forces focusing on particular opportunities for industry/academic/government partnerships
  - **Target:** convene in-person meetings around these areas in Spring/Summer 2022

- **Engage** with companies as potential partners
  - Expand communications, outreach efforts beyond interviews
  - **Target:** populate web site, author “value” white papers by end-2021
  - **Target:** recruit initial set of member companies by February 2022
  - **Target:** coordinate activities with partners around Snowbird and other CRA meetings
Proposed Membership/Participants (from draft charter in 2020 report)

- The CRA-I *steering committee* serves to catalyze and track project-based activities that fulfill CRA-I’s vision and mission.

- A CRA-I *advisory board* will be established, to which each member company will be allowed to nominate up to one board representative. The board is the voice of its constituent members to surface issues and help drive CRA opportunities at the intersection of industry, academia, and government.

- Project teams. At the discretion of the steering committee, project teams will be established to execute on CRA-I projects, and can draw on a wider community of participants. Each project team must include at least two CRA-I board members.
Summary

• CRA-I has been launched – thanks for your support!
• Our approach is start small in 2021 and build a constituency with concrete activities
• We plan to start identifying potential champions, members and partners by end-2021
• Stars are lining up for CRA-I: industry needs, CCC activities, CRA Strategic Planning, NSF focus on technology transfer, ...
• Our ask for you --- let us know how you would like to participate in CRA-I to help achieve our vision
  • We will also build on input from today’s breakout groups