CRA’s Computing Community Consortium

Ed Lazowska

Bill & Melinda Gates Chair in Computer Science & Engineering
University of Washington

Chair
Computing Community Consortium

http://cra.org/ccc
The Computing Community Consortium is ...

- A standing committee of CRA
- Funded by NSF under a Cooperative Agreement
- Focused on catalyzing and empowering the computing research community to pursue more audacious research
- Led by a broad-based Council
- Chaired by Ed Lazowska (Ch.) and Susan Graham (V.Ch.)
- Staffed by CRA (Erwin Gianchandani and Andy Bernat)
The CCC Council

- Leadership
  - Ed Lazowska, Chair
  - Susan Graham, Vice Chair
  - Erwin Gianchandani, Director
  - Andy Bernat, CRA

- Terms ending 2014
  - Deborah Crawford
  - Gregory Hager
  - John Mitchell
  - Bob Sproull
  - Josep Torrellas

- Terms ending 2013
  - Randy Bryant
  - Lance Fortnow
  - Hank Korth
  - Eric Horvitz
  - Beth Mynatt
  - Fred Schneider
  - Margo Seltzer

- Terms ending 2012
  - Stephanie Forrest
  - Chris Johnson
  - Anita Jones
  - Frans Kaashoek
  - Ran Libeskind-Hadas
  - Robin Murphy

- Rotated off
  - Bill Feiereisen, 2011
  - Dave Kaeli, 2011
  - John King, 2011
  - Dick Karp, 2010
  - Andrew McCallum, 2010
  - Dave Waltz, 2010
  - Greg Andrews, 2009
  - Peter Lee, 2009
  - Karen Sutherland, 2009
CCC’s activities include ...

- Outreach activities for computing researchers
  - Countless talks
  - Countless articles
- CCC Blog
  - Discussion of research-related topics
- Computing Research Highlight of the Week
- Exposure for research-related press releases
- CCC sessions at FCRC, Snowbird
  - FCRC 2007
    - Christos Papadimitriou, UC Berkeley: *The Algorithmic Lens: How the Computational Perspective is Transforming the Sciences*
    - Bob Colwell, Independent Consultant: *Computer Architecture Futures 2007*
    - Scott Shenker, UC Berkeley: *We Dream of GENI: Exploring Radical Network Designs*
    - Ed Lazowska, University of Washington and Chair, Computing Community Consortium: *Computer Science: Past, Present and Future*
- **Snowbird 2010**
  - Peter Lee, DARPA; Andrew McPherson, Penn->Drexel; Mariah Meyer, Utah->Harvard; Antonina Mitrofanova, NYU->Columbia: *The Computing Innovation Fellows Project*
  - Randal Bryant, CMU; David Culler, UC Berkeley; Illah Nourbakhsh, CMU; Shwetak Patel, University of Washington: *Achieving Sustainable Energy: New Approaches Based on the Tools of Computer Science*
  - Tapan Parikh, UC Berkeley; Lakshmi Subramanian, NYU; Beki Grinter, Georgia Tech: *Computer Science and Global Development: A New High-Impact Research Area*
  - Ed Lazowska, University of Washington and Chair, Computing Community Consortium: *The Computing Community Consortium and You*
CCC’s activities include ...

- Engagement activities for computing researchers
  - Community-initiated activities to define new computing research directions and communicate these to the White House and funding agencies

(More than a dozen, including the future of robotics, educational technology, IT for development, the role of large-scale data analysis in all fields, interactive technologies, ...)

http://cra.org/ccc
Major workshops in areas where research advances in computing are essential to achieving national priorities

- IT and Health Care
- IT and Energy/Sustainability
“Out-of-the-Box Ideas” sessions at major conferences

- PLDI, OSDI, CIDR, more to come
  - Existing “out-of-the-box” conferences (e.g., HotX) have gone mainstream
  - Existing “wild ideas” sessions tend to be turf-marking rather than truly revolutionary ideas
CCC’s activities include ...

- Outreach activities for policymakers
    - 13 presentations; a great set of videos and overview papers for students
  - Landmark Contributions by Students in Computer Science
  - Prepared as part of the DARPA leadership transition

Landmark Contributions by Students in Computer Science

Version 11: September 15, 2009

There are many reasons for research funding agencies (DARPA, NSF, etc.) to invest in the education of students. Producing the next generation of innovators is the most obvious one. In addition, though, there are an impressive number of instances in our field in which undergraduate and graduate students have made truly game-changing contributions in the course of their studies.

The inspiring list below was compiled by the following individuals and their colleagues: Bill Bonvillain (MIT), Susan Graham (Berkeley), Anita Jones (University of Virginia), Ed Lazowska (University of Washington), Pat Lincoln (SRI), Fred Schneider (Cornell), and Victor Zue (MIT).

We solicit your suggestions for additional student contributions of comparable impact—post them on the Computing Community Consortium blog, http://www.ccroot.org/2009/08/28/landmark-contributions-by-students-in-computer-science/, or send them to Ed Lazowska, lazowska@cs.washington.edu.
“White papers” on the many roles of computing research, prepared for the Transition Team, the White House, and various agencies

(Roughly 20, including emergency informatics; broadband; cybersecurity; transportation; energy; synthetic biology; networking; robotics; quality-of-life technology; a series on data analytics in a broad range of fields; quantum computing; cyber-physical systems; ...)

http://cra.org/ccc
CCC’s activities include ...

- Outreach activities for undergraduates
- Undergraduate Research Opportunities - http://cra.org/ccc/uro-zone
CCC’s activities include ...

- The Computing Innovation Fellows project
  - A stimulus-motivated project
  - Has placed more than 100 new graduates with postdoctoral mentors in the past 2 years
  - “Max 2 rule” ensures broad institutional participation

http://cra.org/ccc
CCC’s activities include ...

- Just being there
  - 1/3 of the PCAST NITRD Working Group members, plus one of the two co-chairs, were CCC Council members
SRI assessment - ~800 responses

“How necessary is it to have within the U.S. computing research community an organization designated to perform one or more of the following activities?”

<table>
<thead>
<tr>
<th>Activity</th>
<th>A great deal</th>
<th>A fair amount</th>
<th>A little</th>
<th>Not at all</th>
<th>Can’t say / no opinion / not applicable</th>
<th>No response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bring the community together to discuss, prioritize, and envision future research needs</td>
<td>53</td>
<td>21</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Communicate these priorities and needs to the broader national community</td>
<td>62</td>
<td>14</td>
<td>0</td>
<td>14</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Develop visions and thinking for computing research that will galvanize the public, policymakers, researchers, and/or students</td>
<td>56</td>
<td>20</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Turn the priorities and visions developed within the community into funded research programs and/or instruments</td>
<td>56</td>
<td>23</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Generate excitement within and about computing research that attracts students of both genders and all ethnic groups into computing research careers</td>
<td>52</td>
<td>18</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Serve as a widely accepted catalyst and voice for the computing research community</td>
<td>47</td>
<td>23</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Inculcate values of leadership and service in the computing research community by example, inclusion, and mentoring</td>
<td>38</td>
<td>31</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
Participate!

- The CCC is all of us!
- The CCC is part of CRA!