



Computing Research Association *Annual Report*

FY 2013-2014

UNITING INDUSTRY, ACADEMIA AND GOVERNMENT TO
ADVANCE COMPUTING RESEARCH AND CHANGE THE WORLD



CRA

Computing Research
Association

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OUR MISSION

The mission of the Computing Research Association (CRA) is to enhance innovation by joining with industry, government and academia to strengthen research and advanced education in computing. CRA executes this mission by leading the computing research community, informing policymakers and the public, and facilitating the development of strong, diverse talent in the field.

Founded in 1972, CRA's membership includes more than 200 North American organizations active in computing research: academic departments of computer science and computer engineering, laboratories and centers (industry, government, and academia), and affiliated professional societies (AAAI, ACM, CACS/AIC, IEEE Computer Society, SIAM, and USENIX).

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MESSAGE FROM THE BOARD CHAIR

I am delighted to report that 2013-14 was another very successful year for CRA's efforts to strengthen research and advanced education in computing -- we have made substantial progress in our programs while ending the year on a positive financial note.

The following report gives an excellent overview of CRA's initiatives and activities in our three mission areas of **leadership, talent development** and **policy** during FY 2013-14. These initiatives enhance public and policymaker understanding of the importance of computing, make the case for federal investment in research, and mentor and cultivate individuals in each stage of the pipeline so that more computing researchers can reach their full potential. All of our programs are evaluated regularly in order to ensure their efficacy.

But before presenting our external activities, let me briefly describe some internal and administrative activities of 2013-14.

Board of Directors

CRA members elected four new members to its Board of Directors: Nancy Amato, Dan Grossman, Susanne Hambrusch, and Barbara Ryder. They began three-year terms on July 1, 2014. On January 1, 2014, Andrew Sears became a new ACM Representative (joining Mary Fernández), and Ken Barker is the new CACS/AIC Representative. CCC Council Chair Greg Hager is also new to the CRA Board.

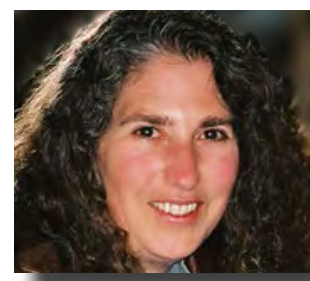


New Board Members with CRA Executive Director Andrew Bernat and Board Chair J Strother Moore. From left to right: Bernat, Hambrusch, Sears, Amato, Moore, Ryder, Grossman, Hager.

CRA Awards

Three individuals were recognized by CRA for outstanding service in FY 2013-2014.

Nancy Amato received the A. Nico Habermann award for her contributions aimed at increasing the number and success of underrepresented groups in the computing research community. She has been an exceptional leader of programs, particularly the CRA-W Distributed Research Experiences for Undergraduates program. Nancy has an impressive breadth of work not only at her home institution (Texas A&M), but also nationally with organizations including CRA-W, CDC, NCWIT, and the Grace Hopper conference.



CRA awarded Vinton G. Cerf the Distinguished Service award for his contributions to the computing research community. Vint Cerf has served on a large number of international committees and advisory committees. As ARPA program manager in the 70's, he helped develop and promote the basic packet technology that enabled the Internet, and throughout his career, he has worked diligently to oversee its development into the great network we have today.



Jean Smith received the Service to CRA Award. The award recognizes her for 15 years of outstanding dedication to CRA as a mainstay in providing service to the community.



CRA Communications

In 2013, CRA updated its mission statement and started the process to develop a more cohesive public identity for CRA itself and its subcommittees. In October 2013, the design firm Sensis was hired to help establish a comprehensive brand identity -- a consistent image for CRA that would carry over to all of the products, activities, and initiatives that CRA sponsors, and apply the new brand identity to the development of a unified website.

Brand Identity Development: Sensis conducted research and analysis and proposed that CRA develop sub-brands for committees that are supported by the reputation and credibility of CRA, the endorsing parent brand. The new brand structure features individual and distinct brands for CRA committees, which are linked to CRA as the endorsing parent brand. The CRA Board approved the use of the new logos at the February 2014 Board meeting, and they were officially unveiled at the 2014 CRA Conference at Snowbird.

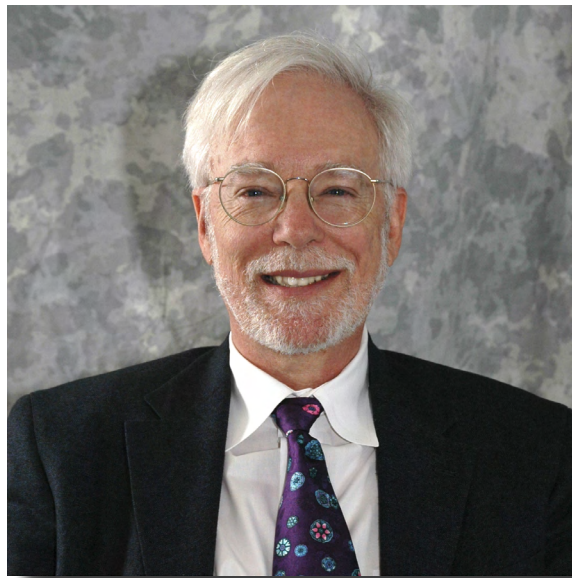
As part of the branding activity, Sensis produced a CRA Style Guide, a written visual identity style guide that outlines the graphics and standards for CRA print and online communications.



Membership Communications: The Membership and Communications Committees discussed strategies to better communicate the value of CRA membership to its various membership types. Additional materials to support membership efforts were developed and will be distributed with membership invoices. New communications materials were also developed to help increase awareness of CRA activities and committees. CRA continues to distribute *Computing Research News* 10 times a year to its membership and more than 7,000 subscribers.

Participation in our programs is open to everyone with interest and dedication. CRA members and volunteers support:

- Visioning future directions of the field
- Ongoing initiatives that help shape public policy relevant to our community
- Building a strong, diverse pipeline of students into the field
- A broad range of programs to support the careers of researchers at all stages of the pipeline.



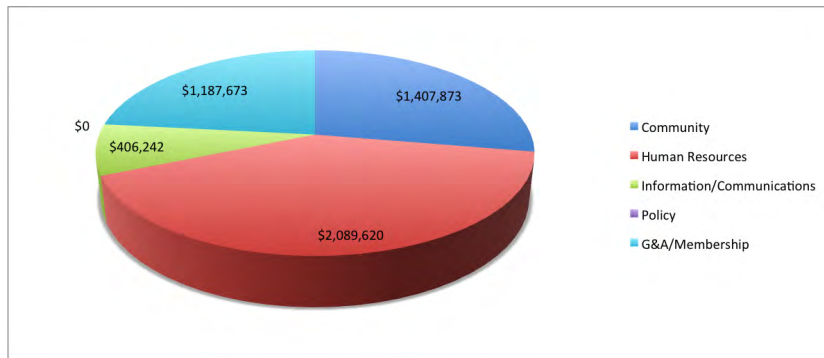
J Strother Moore
CRA Board Chair



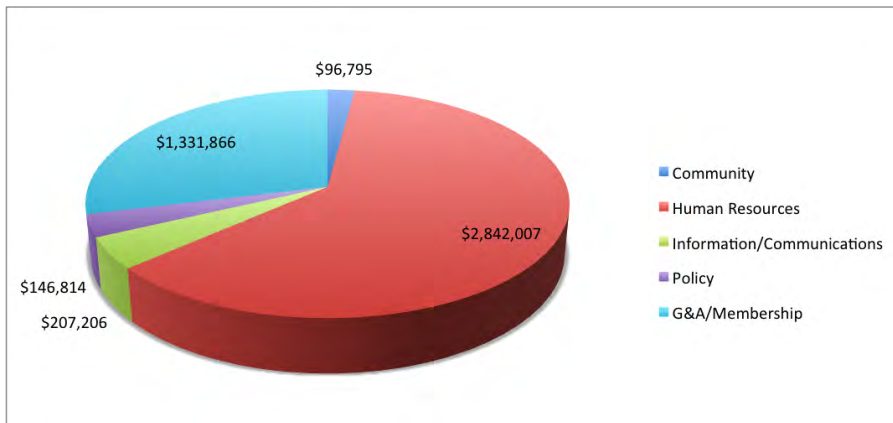
CRA FINANCIAL STATEMENT

JULY 2013-JUNE 2014

INCOME \$5,091,408



EXPENSES \$4,624,688



Notes:

CIFellows subawards totaling \$544,402 in FY14 and \$2,430,688 in FY13 in both Income and Expenses are not included to provide a better comparison.

Statement of Financial Position

| | |
|--|-------------|
| Cash & Accounts Receivable | \$4,191,183 |
| Investments | \$1,829,974 |
| Total Assets | \$6,332,765 |
| Total Liabilities | \$1,601,142 |
| Total Net Assets | \$4,731,623 |
| Total Unrestricted Net Assets | \$4,462,677 |
| Total Temporarily Restricted Net Assets | \$268,946 |

LEADERSHIP

CRA empowers the research community to broaden the scope of computing research and to amplify its impact on society.

Computing Community Consortium (CCC)

The mission of CRA's Computing Community Consortium (CCC) is to catalyze the computing research community and enable the pursuit of innovative, high-impact research. CCC conducts activities that strengthen the research community, articulate compelling research visions, and align those visions with pressing national and global challenges. CCC communicates the importance of those visions to policymakers, government and industry stakeholders, the public, and the research community itself.



CCC

Computing Community
 Consortium
 Catalyst

The CCC began full-scale operations in spring 2007, and as its activities have increased over time, it has seen its annual expenditures ramp up toward \$2 million a year. CCC is now operating on its second award (1136993).

As of July 1, 2013, Susan Graham became the Chair, Greg Hager the Vice Chair, and Ed Lazowska the Chair Emeritus.

During FY 2013-14, CCC conducted several activities in support of its mission. Below is a summary of key activities.

Communication with the Community:

Through the CCC blog, articles in Computing Research News, and the Research Highlight of the Week, CCC informs the community about what is happening with the visions of computing research. The CCC blog posts 2-4 articles weekly, covering newsworthy items that are of interest to the field, announcements from federal agencies, and updates on CCC activities. The blog averages about 300 unique readers per day.

Community Visioning Activities:

The CCC co-sponsored a Workshop on Opportunities in Robotics/Automation/Computer Science in October 2013 with NSF, Robotics-VO, and OSTP. In conjunction with the CISE AC, CCC is leading a steering committee to organize three workshops around Visions 2025. Two workshops have already taken place: Interactions All Around Us (45 participants), and The New Making Renaissance: Programmable Matter and





Things (46 participants). A third workshop is being planned for fall 2015.

The Human Computation Roadmap Summit was held June 18-20, 2014 at the Woodrow Wilson International Center. The workshop had 63 participants and was very well received. Tom Kalil from OSTP participated in a “briefing session” and gave thoughtful comments on how the pitches for human computation could be tightened up.

CCC-sponsored Blue Sky Ideas

Conference Tracks: The CCC Council decided to rename its Conference Tracks initiative because it had been called several different names by various people over time. The new official name is Blue Sky Ideas Conference Tracks.

The CCC sponsored a track at the 13th International Conference on Autonomous Agents and Multiagent Systems (AAMAS). Three winners were selected (from 26 submissions) in January 2014 to receive travel awards for the Symposium in May.

The CCC is sponsoring a track at Foundations of Software Engineering 2014 (FOSE) and AAI-15.

Workshop Reports: From GPS and Virtual Globes to Spatial Computing – 2020: The Next Transformative Technology was

produced as a result of Spatial Computing Workshop.

Multidisciplinary Research for Online Education was produced as a result of the workshop of the same name.

Computing Research in Action:

Three additional CRiA videos have been produced: SmartGeo at the Colorado School of Mines, Ubiquitous Computing Lab at the University of Washington, and one on Integrating Tactical Robots with SWAT teams, featuring former CIFellow Cindy Bethel’s lab at Mississippi State University.

CCC Council Meetings: The Council met three times: July 2013 in Denver, CO, November 2013 in Washington, DC and April 2014 in Washington, DC. In addition, the Council meets bi-weekly via teleconference.

CCC Networking/Outreach:

- Greg Hager presented about the CCC to the CSTB on October 1, 2013.
- Ann Drobnis presented about CRA and CCC at the University of Massachusetts, School of Computer Science 50th Anniversary Community Celebration- Broadening the Impact of Computing.
- Greg Hager and the HealthIT Subcommittee presented about the CCC to NIH on November 7, 2013. As a result of this meeting, the CCC was asked to host a visioning workshop on Aging in Place, which took place in September 2014.
- Shashi Shekhar presented on the Spatial Computing Workshop and Report to NIH on December 12, 2013.
- Mark Hill gave a Distinguished Lecture at NSF on December 18, 2013. The presentation was a combination of the work he spearheaded for CCC

on architecture and his own research.

- Susan Graham, Greg Hager, and Ann Drobnis met with representatives at the Department of Education on January 29, 2014.
- Ann Drobnis presented to the Joint Policy Board for Mathematics in April.
- Greg Hager is working with Phil Bourne, Director of Data Science at NIH, and Eric Horvitz, a Distinguished Scientist at Microsoft Research, on a potential collaboration on data sharing.
- Mark Hill gave a keynote at HPCA, PPOPP, and CGO in February and at the ACM International Conference on Supercomputing (ICS) in June. The content of his talk was very similar to his December Distinguished Lecture at NSF and was a combination of the work he spearheaded for CCC on Architecture and his own research.

CIFellows Update:

- CIF1 (2009): All of the 2009 CIFellows concluded their CIFellowships by the fall of 2012.
- CIF2 (2010): All of the 2010 CIFellows concluded their CIFellowships by the winter of 2014.



- CIF3 (2011): 16 of the 20 2011 CIFellows have completed their CIFellowship by the winter of 2014.

CIF Evaluation: The Center for Evaluating the Research Pipeline (CERP) has conducted an evaluation of the CIFellows project. The overall evaluation included surveys of Fellows and non-Fellows and focus group discussions with former Fellows. The reports can be found on the [CERP webpage](#).

CIF Workshop: CCC hosted a workshop for all former CIFellows May 22-23, 2014 in San Francisco. Bobby Schnabel and Miriah Meyer were co-chairs, with Mary Czerwinski and Sitaram Asur on the organizing committee. More than 100 attendees gathered to learn from each other and luminaries in the field and to help each other as they're beginning their careers.



Postdoc Best Practices: The CCC received four proposals to the Postdoc Best Practices RFP that was released in September, 2013. The Postdoc BP Selection Committee decided to support three of the four submitted proposals, with some minor modifications. Once the first round of funding is complete, the Council will determine what to do with the additional funds.

Three projects began in April 2014 for three years:

ASCENT: Advancing computer Science Careers through Enhanced Networking and Training

- Columbia, Cornell, CUNY, NYU, Teacher's College

Taking Collective Responsibility for the Postdoc Experience

- University of Washington

A Foundational Model for Postdoctoral Programs in Computer Science & Engineering at Large Universities

- Arizona State University, with University of Arizona and Northern Arizona University



Computing Leadership Summit

CRA hosted the annual Computing Leadership Summit for presidents, executive directors, and other senior leadership of CRA, its six affiliate societies (AAAI, ACM, CACS/AIC, IEEE-Computer Society, SIAM, and USENIX), and NRC's Computer Science and Telecommunications Board. The twentieth Summit was held February 24, 2014, in Washington, DC. Speakers included Cameron Wilson, the COO and VP of Government Affairs for Code.org, giving an update on K-12 computing education; Susan Graham providing insight and an update about her time as a member of PCAST; Greg Hager, Vice Chair of CCC, updating the community about the group's activities; Farnam Jahanian, Director of the Directorate for Computer & Information Science and Engineering (CISE), giving an update on the direction of the National Science Foundation and his directorate; and Ann Gabriel, Publishing Director at Elsevier, providing insights into the future of scientific publishing.

POLICY

CRA is a trusted source of information—formally and informally—for members of Congress and their staff, as well as the White House and the President’s Council of Advisors for Science and Technology.

CRA Government Affairs Committee

Though the largest policy developments of the last year—the October 2013 government shutdown, a resolution on the budgets for FY 2014 and FY 2015, an Fiscal Year (FY) 2014 Omnibus appropriations, the President’s FY 2015 Budget Request, and Congressional action/inaction on the FY15 Budget—were all driven by forces much larger than the CRA Government Affairs Committee (GAC)’s ability to influence, the Committee did play a role, in concert with the rest of the science advocacy community, in helping policymakers with the details. These efforts ultimately helped to successfully urge Congress to place a priority on funding for the investment in research for FY 2014 and do no further harm to research funding in the proposed FY15 appropriation legislation. In the process, CRA, through the guidance of the GAC, carried the message of the importance of the federal investment in research, and computing research in particular, to the Hill and the Administration.



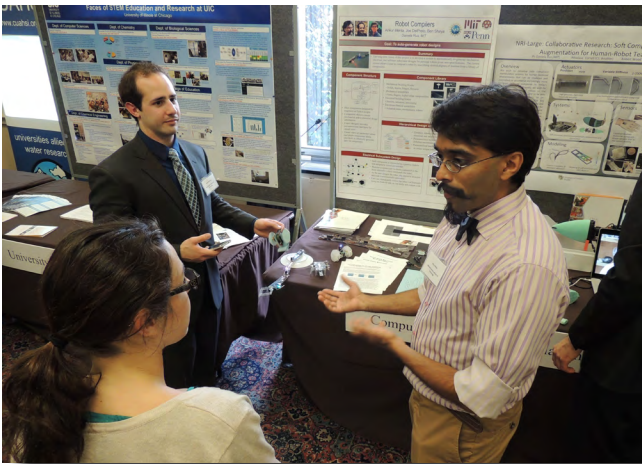
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In September of 2013, 33 representatives from our member institutions made the case for computing research in Congress, as part of our 3rd annual CRA Congressional Fall Fly-in. These volunteers met with their Congressional representatives and staff in a series of meetings in order to show the importance of federal support for computing research and what is happening throughout the country. In addition, six CRA Board Members participated in a smaller fly-in following the 2014 February CRA Board Meeting. Plans for our 4th annual fall fly-in in September 2014 are well underway. These meetings provide an opportunity for representatives of our member institutions to forge connections with those who represent them in DC. The participants described to members of Congress the interesting (and important) work that goes on in their districts and states and, in turn, our participants got a better sense of their representatives in Congress—and have hopefully created a lasting dialogue on both sides.

Along with colleagues in the larger science advocacy community, GAC weighed-in with House and Senate policymakers on multiple pieces of legislation. From the FY14-FY15 Budget deal which temporary settled the budget impasse that caused the October 2013 government shutdown; to the initial pieces of the FY15 Budget, such as the Commerce, Justice, Science Appropriations bill and the FY 2015 Defense Appropriations Act, CRA weighed in with Congress about



the importance of maintaining a priority for the federal investment in research. CRA also provided expertise to policymakers in drafting the America COMPETES Act reauthorization (Senate) and the Frontiers in Innovation, Research, Science and Technology (FIRST) Act (House). While neither piece of legislation became law, several individual pieces of these proposed bills did pass the House of Representatives. Of most importance to the computing community is HR 5031, the STEM Education Act of 2014, which explicitly includes computer science in the definition of STEM education programs at a range of Federal research and education agencies. The bill would ensure that federal science agencies include computer science and related fields in programs designed to increase the participation of U.S. students in STEM disciplines.



In terms of executive branch policy, the GAC engaged in a number of different topics, often as part of a larger coalition of science advocates. As a member of the Coalition for National Security Research (CNSR), a group of universities and science organizations concerned about Department of Defense research, GAC successfully advocated against a proposed move of the Air Force Office of Scientific Research from Virginia to Ohio. The GAC also

provided input to federal policymakers over new Office of Management and Budget (OMB) guidelines for conference travel for federal employees, arguing in part that the guidelines, which restrict travel for employees at Federal research labs to scientific conferences, hurt the nation's science enterprise by preventing those charged with overseeing it from meeting with those performing the work.

In support of CRA's mission to develop the next generation of leaders in the computing community, the GAC, in partnership with CRA's CCC, has begun planning for the next Leadership in Science Policy Institute (LiSPI) workshop—our 1.5-day, intensive education into the “how's and why's” of science policy development for mid-career computing faculty—scheduled for April 27-28, 2015. CRA also continues to participate in efforts to highlight interesting work in the field supported by the National Science Foundation by sending researchers up to the Capitol as part of the Coalition for National Science Funding's Capitol Hill Science Exposition in May 2014. CRA was represented by graduate students and post-graduates from MIT who highlighted their NSF-funded work in robotics.

The GAC has also reinstated the CRA Washington Update, sending policy updates and other relevant news to members of our Computing Research Advocacy Network (CRAN). GAC staff also produced an analysis of computing research in the President's FY 2015 Budget Request for the AAAS Guide to R&D in the President's Budget book. And the GAC continued to maintain the CRA Policy Blog (cra.org/govaffairs/blog/)--a resource for science policy news, advocacy and analysis for the computing community.

TALENT DEVELOPMENT

CRA cultivates talented computing researchers at every stage of their careers. CRA's programs help undergraduate students, graduate students, postdocs, early career, and mid-career professionals develop valuable skills that prepare them to achieve success throughout their research careers. CRA analyzes the health of the computing research talent pool and evaluates the effectiveness of intervention programs intended to grow this pool by surveying, comparing, and analyzing computer science departments and individuals.

CRA Committee on the Status of Women in Computing Research (CRA-W)

CRA-W continues to thrive as an energetic programmatic committee of CRA focused on increasing the number and success of women in computing research. A major goal of CRA's Broadening Participation in Computing (BPC) grant from NSF has been to increase coordination on several projects between CRA-W and the Coalition to Diversify Computing (CDC).



CRA-W
 Computing Research
 Association
 Women

Workshops

Discipline-Specific Workshops: Funded by a grant from NSF, CRA-W and CDC are collaborating to provide discipline-specific mentoring workshops in various subfields of computing. The goal is to increase participation of members of underrepresented groups within a specific research area by providing career mentoring advice and discipline specific overviews of past accomplishments and future research directions. Examples of workshops supported this period include: 1) Broadening Participation in Data Mining, in August; 2) Symposium on Operating Systems Diversity,

in November; 3) Broadening Participation in Visualization, in February; and 4) Fostering Diversity in Design Automation, in May.

Grad Cohort: This program brings together women graduate students in their first, second, or third year of graduate school for a two-day workshop on graduate school survival, career planning, and networking. The speakers and panelists are graduate students and senior women in academia and industry. The program continues to thrive with generous support from Microsoft Research, CRA, ACM SIG Special Project Fund, ACM SIGPLAN, ACM SISOFT, Google, a private foundation, Yahoo!, Two Sigma, Walmart, Facebook, and IBM Research. In 2014, 38 departments provided support which enabled 82 additional students to attend, which brought the total number of participants to 304.



Early Career Mentoring Workshops

(CMW): There are three types of CMW tracks: education (E), research (R), and government/industry labs (L).

The CRA-W mentoring workshop for women at primarily teaching institutions, Early CMW-E, will be co-located with SIGCSE 2015, in Kansas City, MO, on March 4, 2015. Participants will include late graduate students and beginning Assistant Professors.

Early CMW R/L tracks are currently being planned for June 2015 and will be held in conjunction with FCRC 2015 in Portland, OR.

Mid-Career Mentoring Workshops (Mid-CMW) (formerly the Cohort of Associate Professors Project): The goal of this program is to increase the percentage of Computer Science and Engineering women faculty members and researchers who reach the top of their respective career tracks— faculty members by being promoted to full professor; and researchers in industrial or governmental labs by being promoted to the top of their institution’s technical ladder or by entering research management. The workshop also aims to build a cohort of senior women in academia and industry who can provide each other with an

information network and mutual support. Mid-CMW is funded through an NSF grant.

Mid-CMW E/R/L tracks are currently being planned for June 2015 and will be held in conjunction with FCRC 2015 in Portland, OR.

Distinguished Lecture Series: The Distinguished Lecture Series sends faculty and lab researchers to campuses to encourage women and minorities to attend graduate school. The visits include a technical talk as well as a variety of “recruiting” events- lunches with underrepresented undergraduates, panel discussions about graduate school, meetings with faculty interested in recruiting and retention, and meetings with female and minority graduate students. The program focuses on arranging events at institutions that do not have a large number of research, women, or minority faculty, and has an increasing emphasis on H,istorically Black Colleges and Universities (HBCUs) and Minority Serving Institutions (MSIs). Funded by a grant from the NSF, eight events were held between July 2013 and June 2014.

Mentoring Programs

Distributed Research Experience for Undergraduates (DREU): The DREU program pairs each accepted

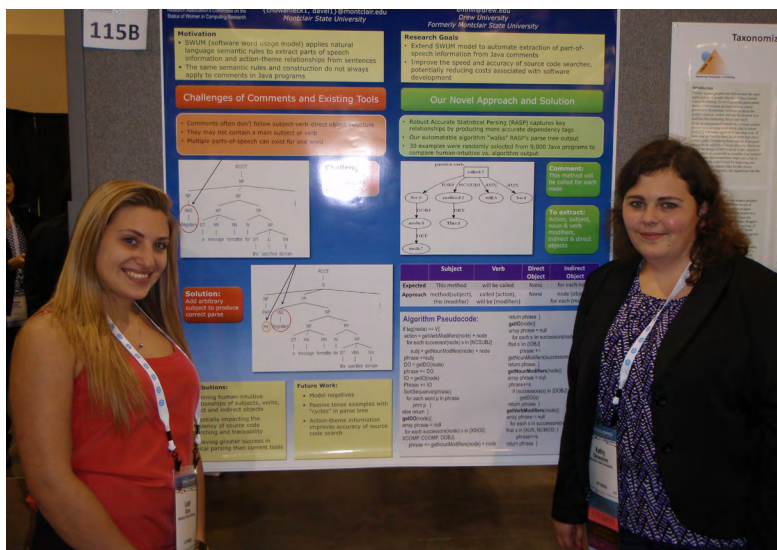


undergraduate student with a research faculty member to pursue an in-depth summer research project at the faculty member's institution. Since 2008, CRA-W and CDC have partnered to expand this program to include underrepresented minorities, as well as women. This program is funded by a grant from the NSF, as well as support from the Henry Luce Foundation and a private foundation.

For summer 2014, DREU co-chairs reviewed 170 applications, and then selected and successfully matched 66 DREU students with 35 faculty mentors. Mentors also apply and are selected based on their research and mentoring credentials. The demographics of the 66 students involved in summer 2014 are: 47 women (22 White, 11 Asian, 4 Hispanic, 10 African-American) and 19 men (10 African-American, 5 Hispanic, 3 White, 1 Asian). Of the 5 Access Computing students, there are 4 men (3 White, 1 Hispanic) and 1 woman (1 White). The 66 students include 17 students that participated through the iAAMCS program, specifically 8 women (8 African-American) and 9 men (9 African-American). All but four students are US citizens or permanent residents. Of the 35 mentors, 19 provided full or partial funding for their students.

Mentors fully fund the Access Computing and iAAMCS DREU students. Further details on DREU can be found on the CRA-W DREU website: <http://www.cra-w.org/dreu>.

Students participating in DREU Summer 2014 attend the following institutions: Auburn University, Bard College, Barnard College, Berea College, Boston University, Brandeis University, Brooklyn College, Brown University, Clark University, Colorado School of Mines, Columbia University, Columbus State University, Cornell College, Duke University, Indiana University, Johnson C. Smith University, Kean University, Mills College, Mississippi State University, Morehouse College, Oklahoma Christian College, Pomona College, Rochester Institute of Technology, RPI, Smith College, Southern University at Shreveport, Southern Wesleyan University, Spelman College, St. Catherine University, Texas A&M University, Universidad del Turabo, University of Alabama, University of Houston Downtown, University of Illinois at Chicago, University of Maryland College Park, University of Massachusetts Amherst, University of Michigan Dearborn, University of Minnesota Morris, University of New Mexico, University of North Carolina Chapel Hill, University of





Richmond, University of Texas at Arlington, Vassar College, Washington and Lee University, Washington State University, Western Oregon University, Westmont College, Wheaton College, Winston Salem State University, and Winthrop University.

The DREU Summer 2014 host institutions include: Arizona State University, Auburn University, Clemson University, Carnegie Mellon University, Columbia University, DePaul University, George Mason University, Georgia Tech, Indiana University, Kansas State University, Massachusetts Institute of Technology, North Carolina State University, Northwestern University, Oregon State University, Pennsylvania State University, Rochester Institute of Technology, Texas A&M University, University of Alabama, University of California Berkeley, University of California San Diego, University of Colorado, University of Florida, University of Maryland Baltimore County, University of Massachusetts Amherst, University of Michigan, University of Minnesota, University of Notre Dame, University of Southern California, University of Texas at Dallas, University of Washington, and Virginia Tech.

Collaborative Research Experiences

for Undergraduates (CREU): CREU also continues to be a highly visible program. It provides research mentoring for small teams of students at the students' home institution during the academic year. Teams are composed of students from underrepresented groups in computing and with the selection committee composed of CRA-W and CDC members.

For the 2013-14 year, CREU received 25 proposals (up from 19 the previous year) and selected 14 for funding. In all, 29 students received financial support from CREU, though several projects involved additional students. Of the 29 students, 23 were women (20 White, 1 African-American, 1 Hispanic, 1 Native Islander) and 6 were men (4 African-American, 2 Hispanic). Two students self-identify as having a disability.

Other CRA-W Projects

Workshops at Grace Hopper: CRA-W hosted another successful set of Career Mentoring workshops on the afternoon of Oct 2nd at Grace Hopper 2013 in Minneapolis. Designed to be a "bite-sized" version of our two-day Career Mentoring workshops, three tracks were offered: CRA-W Graduate, CRA-W Early Career, and CRA-W Mid-Career. In addition, six tables were staffed in the new Undergraduate Student Opportunity Lab, and CRA-W ran a Birds of the Feather session called "Designing a Senior Faculty Track for GHC: Let's Brainstorm" to help us gather information for future programs. The CRA-W Graduate sessions were consistently the most popular (with more than 100 students in each session), while the Early-Career session "Finding Your Dream Job" remains the most popular (with more than 170 attendees).

The 2013 workshops had two big changes: First, the addition of a Mid-Career Academic Track with three topics: Funding, Career Success After Tenure, and Effective Leadership & Creating Change. Four terrific senior women from the CRA-W board spoke in this track: Nancy Amato, Tracy Camp, Kathryn McKinley, and Lori Pollock. All sessions had more than 50 people in them and much of the time was spent in small group discussion. While we were delighted by the response, we identified ways we can make the sessions even more effective, such as adding some time for individual counseling sessions, advertising to mid-career women earlier, and having more resources about funding opportunities for those at medium to small schools.

Second, the Anita Borg Institute introduced a new session for undergraduates on Wednesday afternoon called “Student Opportunity Lab.” The lab consisted of one large conference room with about 40 tables, each with different topics and 1-2 mentors. Short 15-minute sessions allowed students to have interactive discussions with mentors at many different tables. By request, we hosted six CRA-W tables in the Student Opportunity Lab to cover three topics: Undergraduate Research Opportunities, What really happens in Graduate School?, and Applying to Graduate School. These tables replaced the undergraduate track we have run at past Grace Hopper conferences.

Communications: The Communications Committee prepared the Summer/Fall 2013 and Winter/Spring 2014 CRA-W Newsletters. The Newsletters included a brief summary of activities (including all hosted workshops, talks, etc.). They also featured interviews with Margaret Martonosi and Carla Brodley, an interview with DREU and Grad Cohort alum Suzanne Matthews, an interview with DREU, Grad Cohort, and Career Mentoring Alum Tabitha Peck, an article on CREU and CERP, and an article on the 2014 Tapia Celebration of Diversity

in Computing Conference. The newsletters were distributed in email, on the web, at the 2013 Grace Hopper Celebration, 2014 Tapia Celebration of Diversity in Computing Conference, and at the 2014 Grad Cohort Workshop.

Over the past year, Patty Lopez (Intel) has expanded our presence on social media by posting events, photos, awards, and opportunities to CRA-W’s Facebook page and Twitter. She has shared CRA-W events with other Facebook groups such as Latinas in Computing, Women of Color in Computing, Hispanics in Computing, CAHSI, and Tapia Celebration of Diversity in Computing to expand CRA-W’s online presence and target audience. She is also active on Twitter, and uses hashtag #cra-w to post CRA-W related activities. The Facebook group alone has grown to more than 550 members.

Wikipedia Project: This project, headed by Susan Rodger (Duke), recently developed several Wikipedia pages with most of them on notable female computer scientists including Margaret Martonosi, Susan J. Eggers, Lori A. Clarke, Mary Jean Harrold, Barbara G. Ryder, Nell Dale, and one biomedical engineer, Lori Setton. Pages were also written for three male ACM Fellows: Eric Roberts, Leon J. Osterweil, and Thomas E. Anderson.

Website: CRA-W continues to update and maintain the current CRA-W website while the new website is being finished. Search engine results continue to be refined by limiting access to old, outdated information.

Fundraising: CRA-W was awarded a grant by the NSF ADVANCE PAID program to support and adapt the faculty mentoring workshops--namely, the Career Mentoring

and CAPP Workshops--and to fund evaluation efforts for faculty mentoring through CERP. This grant has a budget of \$548,929 for two Early CMW and two Mid-CMW workshops between September 2013 and August 2017.

In March 2014, CRA-W submitted an REU Supplement for \$48,000 in support of the DREU program. The request was approved and enabled us to support six additional DREU students for summer 2014.

Travel Grant Program: Since inception in 2007, this program has received 59 applications and funded 50. It has sent women to a variety of conferences including Grace Hopper, ICDE, SIGMOD, OSDI, NIPS, CSCW, and IEEE MICRO. The program is funded by a private foundation.

Pipeline Column: Between July 2013 and June 2014, 12 articles were solicited, edited, and submitted for publishing in Computing Research News.

- Expanding the Pipeline: CERP/Data Buddies, J. Stout, Computing Research News (CRN), 25(7): 8-10, August 2013.
- Expanding the Pipeline: Collaborative Research Experience for Undergraduates: the CREU program still going strong at 15, A. Danyluk, Computing Research News (CRN), 25(8): 10-11, September 2013.
- Expanding the Pipeline: The 2013 Grace Hopper Celebration of Women in Computing Conference, S. Gururaj, Computing Research News (CRN), 25(8): 7-9, September 2013.
- Expanding the Pipeline: CRA-W Career Mentoring Workshop held at SIGCSE 2013, S. Rodger, and S. Castañeda, Computing Research News (CRN), 25(9): 5-6, October 2013.
- Expanding the Pipeline: A Path Between: Mentoring the Next Generation of Computing Professionals, M. Fernández, Computing Research News (CRN), 25(9): 7-9, October 2013.
- Expanding the Pipeline: CODE.ORG Pursues Action on Getting Computer Science into Schools, H. Partovi, Computing Research News (CRN), 25(10): 4-6, November 2013.
- Expanding the Pipeline: SC13 Supercomputing Conference, G. Lamble, and M. Leung, Computing Research News (CRN), 26(1): 9-11, January 2014.
- Expanding the Pipeline: National Women in Cybersecurity (WiCyS) Conference, A. Siraj, Computing Research News (CRN), 26(2): 7-9, February, 2014.
- Expanding the Pipeline: 2014 Tapia Celebration of Diversity in Computing Conference Breaks Attendance Records, M. Pérez-Quiñones, J. Burge, and N. Amato, Computing Research News (CRN), 26(3): 5-7, March, 2014.
- Expanding the Pipeline: 1st CRA-W/CDC Broadening Participation in Visualization (BPViz) Workshop, V. Byrd, Computing Research News (CRN), 26(4): 7-9, April, 2014.
- Expanding the Pipeline: The NCWIT Scorecard: A Report on the Status of Women in Information Technology, W. Dubow, Computing Research News (CRN), 26(5): 4-6, May, 2014.
- Expanding the Pipeline: CRA-W Grad Cohort: Equipping the Next Generation of Computing Research PhDs for Success, K. S. McKinley, Computing Research News (CRN), 26(6): 5-7, June, 2014.

Mailing Lists: CRA-W provides a collection of mailing lists designed to cover all the stages of the research pipeline. The lists are monitored by CRA-W and hosted by ABI.

Education Committee (CRA-E)

The Education Committee of the CRA (CRA-E) supports CRA's mission to strengthen research and advanced education in computing. CRA-E is focused on developing practices and materials that help departments to attract, educate, and retain talented and diverse researchers.



CRA-E
Computing Research Association
Education

With this in mind, CRA-E has embarked on the following projects:

- A new website called **Conquer** (conquer.cra.org) was designed and developed for undergraduate students interested in computer science research and graduate school and for faculty advisers and research mentors wishing to engage undergraduates in research and encourage them to pursue graduate studies. This site is cosponsored by the CCC, CRA-W, NCWIT, and CDC.



- A grant from the NSF entitled "Workshops to Engage Junior Faculty in Undergraduate Research" (October 2013-November 2015, R. Libeskind-Hadas PI, Nancy Amato and Andrew Bernat co-PI's, \$36,118) will support the development and implementation of 4-6 workshops at major research conferences. These short workshops (1.5-2 hours) will be designed for research-active junior faculty, as well as senior graduate students and postdocs, and provide best practices and resources for engaging undergraduates in research.

CRA-E surveyed faculty to determine their interests in such workshops and their priorities on what should be covered.

- Additional research on the baccalaureate origins of domestic Ph.D. students in computer science was conducted. CRA-E's first study, published in Computing Research News (CRN) in January 2013, used publicly available datasets (e.g., NSF Webcaspar data) to develop a "big picture" of the baccalaureate origins of domestic students. CRA-E's second study, based on more than 7,000 recent graduate application records from a diverse representative set of 14 participating graduate programs, was presented at the 2014 CRA Conference at Snowbird session "Recruiting Domestic Students to Ph.D. Programs: From Data to Recommendations."

CRA-E continues to work on new projects and activities that support CRA's talent development efforts.

2014 CRA Outstanding Undergraduate Researcher Awards

CRA recognizes undergraduate students for their outstanding research potential each year with the Outstanding Undergraduate Researcher Awards. CRA-E manages this award. This year, the female awardee was Pratiksha Thaker, a senior at MIT, and the male awardee was Daniel Stubbs, a senior at University of Massachusetts-Amherst. The female runner-up was Allison Pearce and the male runner-up was Kui Tang. CRA also acknowledged several exceptional students as finalists and a number received honorable mentions.

CRA gratefully acknowledges the support of Microsoft Research and Mitsubishi Electric Research Labs (MERL) who sponsor the Outstanding Undergraduate Researcher Award program in alternate years. Mitsubishi Electric Research Labs is the sponsor of the 2014 awards.

Surveys

CRA conducted the 43rd annual Taulbee Survey of Ph.D.-granting CS, CE, and Information departments. The survey documents trends in student enrollment, degree production, employment of graduates, and faculty salaries in Ph.D.-granting departments of computer science (CS), computer engineering (CE), and information (I) in the United States and Canada. This year's results showed an increase of more than 20 percent in undergraduate enrollment, and a record high in doctoral production (1,991 compared to 1,929 the previous year). The overall response rate was 67 percent; the rate for U.S. CS departments was higher at 77 percent. A vendor, Peerfocus, was selected for new Taulbee survey data entry and reporting software; the system was beta tested in June and is on track for use in fall 2014. The new system will provide better security, better data validation, better analytics, and a new peer group reporting feature.



Survey Committee Chair Stu Zweben and CRA staff member Betsy Bizot were awarded a grant from the Sloan Foundation to perform an in-depth analysis of data from Taulbee and other sources focusing on women's participation in academic computing programs over the past two decades.

2014 CRA Career Mentoring Workshop

The 2014 CRA Career Mentoring Workshop was held February 24-25 in Washington, DC. The workshop provides career advice and mentoring activities for post docs, assistant professors, and individuals just starting as industrial researchers in computer science. In addition to panel sessions, the workshop was interspersed with opportunities to network with senior researchers and representatives from government agencies. This year's event featured a new session held at the National Science Foundation (NSF). After the first day, participants used their new knowledge to refine one-pagers on their research and later visited NSF to discuss their one-pagers with Program Directors from the Computer and Information Science and Engineering Directorate at NSF.

Center for Evaluating the Research Pipeline (CERP)

During the past year, the CRA's Center for Evaluating the Research Pipeline (CERP) has made great strides toward establishing itself as a sustainable and reputable research and evaluation center. What follows are committee accomplishments between July 1, 2013–June 30, 2014.



CERP

Computing Research
 Association
 Evaluation

Growing support for national data collection. CERP continues to build its national network of "Data Buddies" computing departments who distribute CERP surveys to students. As of June 30, 2014, 59 computing departments were working with CERP (a 37% increase from last year).

Sought after as an evaluation resource.

CERP was recruited by two entities unaffiliated with the CRA and by one affiliate of the CRA to be included in two proposals to the NSF for evaluation.

Awarded funds for CERP. The following proposals were funded, providing funding for CERP:

- ADVANCE-PAID grant #1310792, Mentoring Women Faculty in Computer Science And Engineering, \$25,000/year for four years, PI: T. Camp
- NSF BP #1339335, CSE Early Research Scholars Program, \$10,000/year for three years, PI: C. Alvarado
- NSF BPC-A # 1202156: Institute for African-American Mentoring in Computing Sciences (iAAMCS), \$25,000/year for three years, PI: J. Gilbert.
- NSF CCF1345291: Workshops to Engage Junior Faculty in Undergraduate Research. \$3,000, PI: R. Libeskind-Hadas

Evaluation Reports: Available from <http://cra.org/cerp/evaluation-reports>

- Cundiff, J. L., & Stout, J. G. (2013, August). CRA-W/CDC Alliance Research Experiences for Undergraduates: Comparative Evaluation Report, 2011-2013.
- Cundiff, J. L., & Stout, J. G. (2013, August). Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers University: Comparative Evaluation Report of 2009-2012 Participants.
- Stout, J. G. & Cundiff, J. L. (2014, February). CRA-W Grad Cohort: Comparative Evaluation Report of 2011-2012 Participants.
- Cundiff, J. L., Wright, H., & Stout, J. G. (2014, April). Computing Community Consortium's Computing Innovation

Fellowship Program: 2014 Comparative Evaluation Report.

- Cundiff, J. L., Stout, J. G., & Wright, H. (2014, May). CRA-W Grad Cohort 2014: Pretest/Posttest Evaluation Report.
- Stout, J. G. and Wright, H. (2014, August). Comparing Industry versus Academic Environments to Develop Best Practices for Computing Postdocs.

Presentations:

- Stout, J. S. (2013, September). Understanding the critical role of belonging in women's STEM pursuits. Conversation with Faculty and Administrators: Using Research to Inform Policies in Science Education Symposium, Washington, D.C.
- Stout, J. S. & Bizot, E. (2013, October). Compared to What? Comparison Data for Evaluating Postsecondary Science, Technology, Engineering, and Mathematics (STEM) Interventions. In E. Bizot (Chair), Comparison Data as a Shared Community Resource. Symposium presented at the annual meeting of the American Evaluation Association, Washington D.C.
- Bizot, E. B. & Perez-Quinones, M. (2014, May). Discipline-Specific Workshops: Building Connections With the Research Community. A workshop at the 6th conference on Understanding Interventions that Broaden Participation in Research Careers, Baltimore, MD.
- Cundiff, J. L., & Stout, J. G. (2014, June). Evaluating programs aimed at broadening participation in computing. In E. Thomas & J. Cundiff (Chairs), From advocacy to action: Strategies for practicing diversity and inclusion. Symposium presented at the biennial conference of the Society for the Psychological Study of Social Issues, Portland, OR.

Empirical papers using CERP national survey data:

- Cintron, L. G. & Cohoon, J. M. (in preparation). Relationships among students' work/family attitudes, computing further education and career intentions.
- Stout, J. G. & Wright, H. M. (under review). The Critical Role of Belonging Among Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Students in Computing Career Tracks, *Journal of Homosexuality*.
- Lewis, K., Stout, J. G., Cohen, G. L., Miyake, A., Kost-Smith, L. E., Pollock, S. J. Finkelstein, N. F. & Ito, T. A. (in preparation). Fitting in to Move Forward: Using a Belonging Framework to Understand Gender Disparities in Persistence in the Physical Sciences, Technology, Engineering and Mathematics (pSTEM).
- Nyame-Mensah, A. (in preparation). Research Engagement: Linking Minority Students' Persistence Intentions to Self-Efficacy and Knowledge.

Funding:

Director Stout submitted two proposals to the NSF to fund CERP:

- Research proposal to the National Science Foundation: Promoting a Diverse Computing Workforce: Using National Survey Data to Understand Persistence Across Undergraduate Student Groups, NSF, PI: J. Stout, \$783,975 for three years.
- Supplement to BPC-A 1246649, National Science Foundation: REU Group Evaluation, \$30,000, PI: T. Camp

Staffing update:

Jessica Cundiff, past Research Analyst for CERP, was replaced by Heather Wright.

Sustainability plan:

During the period of July 1, 2013–June 30, 2014, CERP staff was nearly 100% supported by NSF BPC-A 1246649 to the CRA, with small amounts of support from evaluation projects for the Computing Community Consortium (CCC). The goal of the funding through the BPC-A has been to establish CERP as a functional, sustainable research and evaluation center; this funding will taper off during the final two years of the grant (grant end date: September 30, 2017). Future funding will come primarily from large research grants that utilize Data Buddies data to understand how best to shape education and mentorship practices in order to promote greater diversity in the field of computing. Evaluation projects will fund a smaller portion of CERP, and will optimally be large in scale and multi-site in order to amass sufficient data to conduct analyses on student outcomes and understand the impact of various interventions in the research pipeline.

Coalition to Diversify Computing (CDC)

The CDC was founded in 1996 as a joint organization of the ACM, CRA, and IEEE-CS. Today, the



leadership of CDC and CRA-W continue to streamline and merge their mentoring projects during the year, across growing constituencies. In 2014, CDC's major effort was the Richard Tapia Celebration of Diversity in Computing Conference, the premier conference for those interesting in supporting a more diversity computing community. Other CDC activities included:

Distributed Research Experiences for Undergraduates (DREU); Collaborative Research Experiences for Undergraduates (CREU); CDC/CRA-W Discipline Specific Workshops; CDC/CRAW Distinguished Lecture Series; IEEE-CS Distinguished Visitor Program Liaison; and more localized programs, including funding students for conference attendance; Addressing the Shrinking Pipeline; Data Buddies Visualization; and DiPASS (Diversity in Privacy and Security Seminar).

22-23 in Snowbird, UT after the CRA Conference at Snowbird. The last meeting was in February 2013 in conjunction with the iConference at Fort Worth, Texas.

The agenda included topics that are of special concern to the schools and colleges, which typically have a campuswide responsibility for developing disciplinary and interdisciplinary programs related to computing and information. Each discussion topic is introduced by one of the deans to foster open discussion on the critical issues and practices that have led to success.

The next meeting of the CRA Deans group is scheduled for March 2015 in a joint meeting with iSchool deans at the iConference 2015 at the University of California at Irvine.

CRA Deans

The CRA Deans group planned a joint meeting with the iSchool deans on July



2013-2014 MEMBERS

ACADEMIC DEPARTMENTS

The following departments held membership in CRA for all or, in a few cases, part of the period from July 1, 2013 to June 30, 2014.

-A-

Amherst College (CS)
 Arizona State University (CSE)
 Auburn University (CSSE)

-B-

Binghamton University, SUNY (CS)
 Boston College (CS)
 Boston University (CS)
 Bowling Green State University (CS)
 Bradley University (CS)
 Brandeis University (CS)
 Brown University (CS)
 Bryn Mawr College (MCS)
 Bucknell University (CS)

-C-

Carnegie Mellon University (CS)
 Case Western Reserve University (EECS)
 Clemson University (CS)
 Colgate University (CS)
 College of Charleston (CS)
 College of William & Mary (CS)
 Colorado School of Mines (EECS)
 Colorado State University (CS)
 Columbia University (CS)
 Cornell University (CS)

-D-

Dartmouth College (CS)
 DePaul University (CDM)
 Drexel University (CS)
 Duke University (CS)

-E-

Emory University (MCS)

-F-

Florida Institute of Technology (CS)
 Florida International University (CS)
 Florida State University (CS)

-G-

George Mason University (CS)
 George Washington University (CS)
 Georgetown University (CS)
 Georgia Institute of Technology (CS)
 Georgia Institute of Technology (CSE)
 Georgia Institute of Technology (IC)
 Georgia Southern University (IT)
 Georgia State University (CS)
 Grinnell College (MCS)

-H-

Harvard University (CS)
 Harvey Mudd College (CS)
 Hobart and William Smith Colleges (MCS)

-I-

Illinois Institute of Technology (CS)
 Indiana University (IC)
 Iowa State University (CS)

-J-

Johns Hopkins University (CS)
 Johns Hopkins University (SI)
 Juniata College (IT & CS)

-K-

Kansas State University (CIS)
 Kean University (CS)
 Kent State University (CS)

-L-

Lafayette College (CS)
 Lehigh University (CSE)
 Loyola University, Chicago (CS)

-M-

Marquette University (CS)
 Massachusetts Institute of Technology (EECS)
 Miami University (CS)
 Michigan State University (CSE)
 Michigan Technological University (CS)
 Mississippi State University (CSE)
 Montana State University (CS)
 Montclair State University (CS)
 Mount Holyoke College (CS)

-N-

Naval Postgraduate School (CS)
 New Jersey Institute of Technology (CCS)
 New Mexico State University (CS)
 New York University (CS)
 North Carolina State University (CS)
 North Dakota State University (CSOR)
 Northeastern University (CIS)
 Northwestern University (EECS)
 Nova Southeastern University (CS)

-O-

Oakland University (CSE)
 Ohio State University (CSE)
 Ohio University (EECS)
 Oklahoma State University (CS)
 Old Dominion University (CS)
 Oregon State University (EECS)

-P-

Pace University (CSIS)
 Pennsylvania State University (CSE)
 Pennsylvania State University (IST)
 Polytechnic University (CIS)
 Pomona College (CS)
 Portland State University (CS)
 Princeton University (CS)
 Purdue University (C&IT)
 Purdue University (CS)

-R-

Regis University (CIS)
 Rensselaer Polytechnic Institute (CS)
 Rice University (CS)
 Rochester Institute of Technology (CS)
 Rutgers University, Busch Campus (CS)

-S-

Saint Louis University (MCS)
 Santa Clara University (CSE)
 Simon Fraser University (CS)
 Southern Methodist University (CSE)
 Stanford University (CS)
 Stevens Institute of Technology (CS)
 Stony Brook University, SUNY (CS)
 Swarthmore College (CS)

-T-

Texas A&M University (CSE)
 Texas A&M University, Corpus Christi (CS)
 Texas State University (CS)
 Toyota Technological Institute at Chicago (CS)
 Tufts University (CS)

-U-

Union College (CS)
 University at Albany, SUNY (CI)
 University at Buffalo, SUNY (CSE)
 University of Alabama, Birmingham (CIS)
 University of Alabama, Tuscaloosa (CS)
 University of Alberta (CS)
 University of Arizona (CS)
 University of Arkansas (CSCE)
 University of British Columbia (CS)
 University of Calgary (CS)
 University of California, Berkeley (EECS)
 University of California, Berkeley (IMS)
 University of California, Davis (CS)
 University of California, Irvine (ICS)
 University of California, Los Angeles (CS)
 University of California, Riverside (CSE)
 University of California, San Diego (CSE)
 University of California, Santa Barbara (CS)
 University of California, Santa Cruz (CE)
 University of California, Santa Cruz (CS)
 University of Central Arkansas (CS)

| | |
|--|---|
| University of Central Florida (EECS) | University of Oklahoma (CS) |
| University of Chicago (CS) | University of Oregon (CIS) |
| University of Colorado, Boulder (CS) | University of Pennsylvania (CIS) |
| University of Delaware (CIS) | University of Pittsburgh (CS) |
| University of Florida (CISE) | University of Pittsburgh (IS) |
| University of Georgia (CS) | University of Puget Sound (MCS) |
| University of Hawaii (ICS) | University of Rochester (CS) |
| University of Houston (CS) | University of South Alabama (C) |
| University of Idaho (CS) | University of South Carolina (CSE) |
| University of Illinois, Chicago (CS) | University of South Florida (CSE) |
| University of Illinois, Urbana-Champaign (CS) | University of Southern California (CS) |
| University of Illinois, Urbana-Champaign (ECE) | University of Southern California (EES) |
| University of Illinois, Urbana-Champaign (LIS) | University of Texas, Austin (CS) |
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| University of Kentucky (CS) | University of Texas, El Paso (CS) |
| University of Maine (CS) | University of Toronto (CS) |
| University of Maryland (CS) | University of Utah (CS) |
| University of Maryland, Baltimore County (CSEE) | University of Virginia (CS) |
| University of Maryland, Baltimore County (IS) | University of Washington (CSE) |
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| University of Massachusetts, Boston (CS) | University of Washington, Tacoma (CSS) |
| University of Massachusetts, Lowell (CS) | University of Waterloo (CS) |
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| University of Michigan (I) | University of Wisconsin, Milwaukee (EECS) |
| University of Michigan, Dearborn (CIS) | University of Wyoming (CS) |
| University of Minnesota (CSE) | |
| University of Mississippi (CIS) | -V- |
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| University of Nevada, Las Vegas (CS) | -W- |
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| University of New Hampshire (CS) | Washington State University (EECS) |
| University of New Mexico (CS) | Washington University in St. Louis (CSE) |
| University of New Mexico (ECE) | Wayne State University (CS) |
| University of North Carolina at Chapel Hill (CS) | Western Michigan University (CS) |
| University of North Carolina at Chapel Hill (SILS) | Williams College (CS) |
| University of North Carolina, Charlotte (IT) | Worcester Polytechnic Institute (CS) |
| University of North Dakota (CS) | Wright State University (CSE) |
| University of North Texas (CS) | |
| University of Notre Dame (CSE) | -Y- |
| | Yale University (CS) |
| | York University (CSE) |

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IEEE Computer Society
Society for Industrial and Applied Mathematics
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Yiyang Shen, a 2014 Tisdale Fellow, also appears in the above. photo.



COMMITTEES AND JOINT ACTIVITIES

CRA relies on the volunteers that serve on its committees, as well as its professional staff, to carry out its programs. CRA also participates in joint activities with other organizations.

CRA Committees

CRA Joint Activities

Awards

Center for Evaluating the Research Pipeline

Committee on the Status of Women in Computing Research

Communications

Computing Community Consortium

Conference at Snowbird Organizing Committee

Deans Group

Education

Elections

Executive

Finance

Government Affairs

Membership

Surveys



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A. Nico Habermann Award

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Bobby Schnabel (Indiana University)

Distinguished Service Award

Lance Fortnow (Georgia Institute of Technology) **Chair**
Margaret Martonosi (Princeton University)
Peter Lee (Microsoft Research)

Outstanding Undergraduate Researcher Award

This award is managed by the CRA Education Committee. The 2014 selection committee includes:

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H.V. Jagadish (University of Michigan)
Chris Johnson (University of Utah)
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Eric Grimson (MIT) **Chair**

Deans Group

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