

# Computing Community Consortium

Dr. Erwin Gianchandani  
Director

Northwestern University  
October 6, 2011



<http://cra.org/ccc>



# What is the CCC?

- Established in 2006 through a multi-year cooperative agreement between the National Science Foundation and CRA
- A standing committee of CRA
- Provides a voice for the national computing research community
- Facilitates the development of a bold, multi-themed vision for computing research - and communicates this vision to stakeholders



# A broad-based Council

## Leadership:

- Ed Lazowska, U of Washington (Chair)
- Susan Graham, UC-Berkeley (Vice-Chair)
- Erwin Gianchandani, CRA (Director)

## Terms ending 2014:

- Deborah Crawford, Drexel
- Gregory Hager, Johns Hopkins
- John Mitchell, Stanford
- Bob Sproull (ret.)
- Josep Torrellas, UIUC

## Terms ending 2013:

- Randy Bryant, CMU
- Lance Fortnow, Northwestern
- Eric Horvitz, Microsoft Research
- Hank Korth, Lehigh
- Beth Mynatt, Georgia Tech
- Fred Schneider, Cornell
- Margo Seltzer, Harvard

## Terms ending 2012:

- Stephanie Forrest, U of New Mexico
- Chris Johnson, U of Utah
- Anita Jones, U of Virginia
- Frans Kaashoek, MIT
- Ran Libeskind-Hadas, Harvey Mudd
- Robin Murphy, Texas A&M

## Rotated off:

- Greg Andrews, U of Arizona (ret.) (2009)
- Bill Feiereisen, Intel (2011)
- Dave Kaeli, Northeastern (2011)
- Dick Karp, UC-Berkeley (2010)
- John King, U of Michigan (2011)
- Peter Lee, Microsoft Research (2009)
- Andrew McCallum, U-Mass (2010)
- Karen Sutherland, Augsburg U (2009)
- Dave Waltz, Columbia (2010)

*Meets three times a year, including an annual summer meeting in Washington, DC*

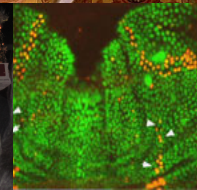
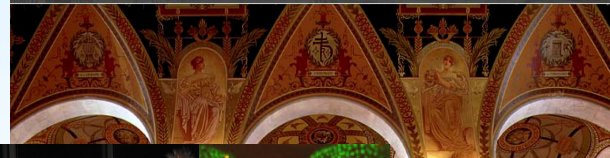


# A multitude of activities

- **Community-initiated visioning:**
  - Workshops that bring researchers together to discuss “out-of-the-box” ideas
  - Challenges & Visions tracks at conferences
- **Outreach to the White House, Federal funding agencies:**
  - Outputs of visioning activities
  - Short reports to inform policy makers
  - Task Forces -- Health IT, Sustainability IT, and Data Analytics



## Computing Research That Changed The World



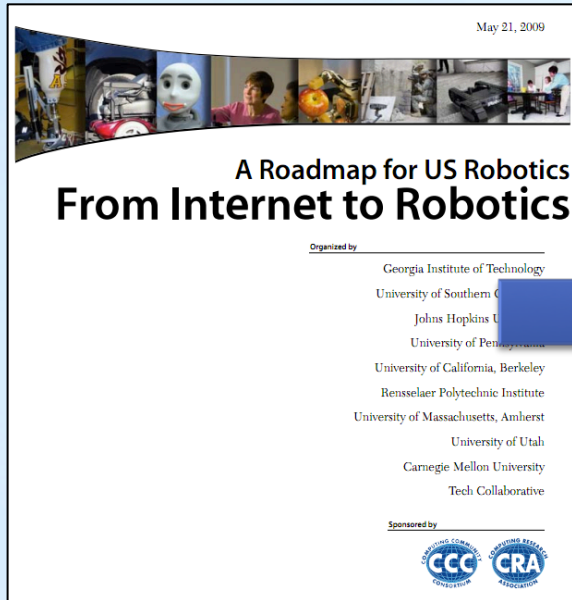
**This Week's Highlight:**  
Fruit Fly Suggests New  
Solution to Computer  
Networking Problem

**LANDMARK CONTRIBUTIONS BY  
STUDENTS IN COMPUTER SCIENCE**

*undergraduate and graduate students that  
have made truly game-changing contributions  
in the course of their studies*

- **Public relations efforts:**
  - Library of Congress symposia
  - Research “Highlight of the Week”
  - CCC Blog [<http://cccblog.org/>]
- **Nurturing the next generation of leaders:**
  - Computing Innovation Fellows Project
  - “Landmark Contributions by Students”
  - Leadership in Science Policy Institute

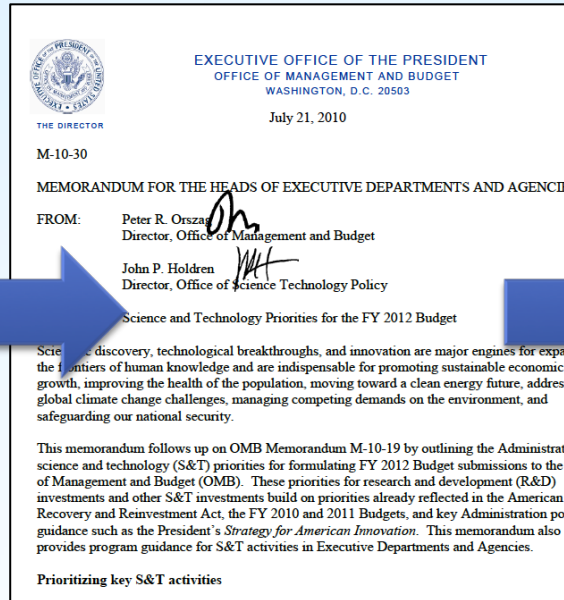
# Example: Robotics visioning



4 meetings during summer 2008

Roadmap published May 2009

*Extensive discussions between visioning leaders & agencies*



OSTP issues directive to all agencies to include robotics in FY 12 budgets

Henrik Chistensen  
Georgia Tech

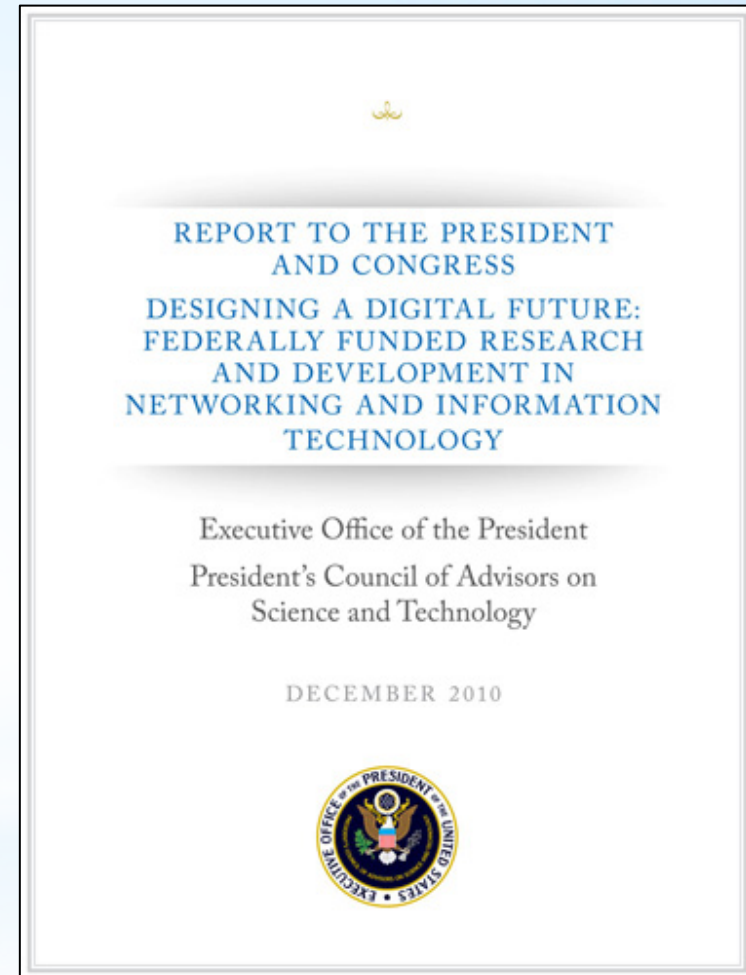


National Robotics Initiative is announced



# Example: PCAST report

- One-third of the PCAST NITRD Working Group members were CCC Council members
- The report drew extensively from CCC white papers
- An excellent roadmap for the field
- The challenge moving forward: translating it into action



# Current areas of emphasis

- Data analytics
  - Series of white papers written for policy makers in summer 2010
  - Ongoing discussions with OSTP and Federal agencies
- Health information technology
  - Workshop held in San Francisco in October 2009
  - NSF/CISE initiative on Smart Health & Wellbeing (SHB) announced in FY 2011
- Education (Learning) Technologies
  - Roadmap produced in summer 2010
  - President's FY 12 budget would establish "ARPA-ED"
- Role of Information Sciences & Engineering in Sustainability
  - Workshop in Washington, DC, on Feb. 3-4, 2011
  - Ongoing discussions with NSF/CISE and DoE Office of Energy Efficiency & Renewable Energy

# A community effort - we need you!

- Propose visioning activities, white papers, Challenges & Visions tracks at research conferences
- Put together short videos for undergraduates
- Contribute to the CCC Blog
- Send us a research highlight for the Highlight of the Week



The screenshot shows the homepage of the Computing Community Consortium Blog. The main article is titled "Toward an Open mHealth Ecosystem" and is dated April 26th, 2011, by Erwin Gianchandani. The article text describes a special contribution by Deborah Estrin and Ida Sim, discussing the potential of mHealth and the challenges of interoperability. It mentions a group of 45 experts who met to discuss an open mHealth ecosystem. The article includes two small portrait photos of the authors. The right sidebar contains subscription options, a latest tweet, and a list of recent posts.

Get involved today:  
[erwin@cra.org](mailto:erwin@cra.org) or 202-266-2936  
<http://cra.org/ccc> or <http://cccblog.org/>



<http://cra.org/ccc>







# Computing Research Association

Arizona State University - CSE  
Auburn University - CSSE  
Ball State University - CS  
Boston College - CS  
Boston University - CS  
Bowdoin College - CS  
Bowling Green State University - CS  
Bradley University - CS  
Brandeis University - CS  
Brigham Young University - CS  
Brown University - CS  
Bryn Mawr College - MCS  
Bucknell University - CS  
California Institute of Technology - CS  
California Polytechnic State University - CS  
California State University, Chico - CS  
Carnegie Mellon University - CS  
Case Western Reserve University - EECS  
City University of New York, Graduate Center - CS  
Clemson University - CS  
Colgate University - CS  
College of William & Mary - CS  
Colorado School of Mines - MCS  
Colorado State University - CS  
Columbia University - CS  
Cornell University - CS  
Cornell University - ECE  
Dalhousie University - CS  
Dartmouth College - CS  
DePaul University - CS  
Drexel University - CS  
Drexel University - IST  
Duke University - CS  
Emory University - MCS  
Florida Atlantic University - CSE  
Florida Institute of Technology - CS  
Florida International University - CS  
Florida State University - CS  
Florida State University - IS  
George Mason University - CS  
George Washington University - CS  
Georgia Institute of Technology - CSE  
Georgia Southern University - IT  
Georgia State University - CIS  
Georgia State University - CS  
Grinnell College - MCS  
Harvard University - CS  
Harvey Mudd College - CS  
Hofstra University - CS  
Illinois Institute of Technology - CS  
Illinois State University - ACS  
Indiana University - CS  
Indiana University - I  
Iowa State University - CS  
Iowa State University - ECE

Johns Hopkins University - CS  
Johns Hopkins University - SI  
Juniata College - IT & CS  
Kansas State University - CIS  
Kent State University - CS  
Lafayette College - CS  
Lehigh University - CSE  
Long Island University - ICS  
Louisiana State University - CS  
Loyola University, Chicago - CS  
Massachusetts Institute of Technology - EECS  
Miami University - CS  
McMaster University - CE&S  
Michigan State University - CSE  
Michigan Technological University - CS  
Mississippi State University - CS  
Montana State University - CS  
Montclair State University - CS  
National University of Singapore - CS/IS  
Naval Postgraduate School - CS  
New Jersey Institute of Technology - CCS  
New Mexico State University - CS  
New York University - CS  
North Carolina State University - CS  
Northeastern University - CIS  
Northwestern University - ECE  
Nova Southeastern University - CS  
Oakland University - CSE  
Ohio State University - CSE  
Ohio State University - EECS  
Oklahoma State University - CS  
Old Dominion University - CS  
Oregon Health & Science University - CSE  
Oregon State University - EECS  
Pace University - CSIS  
Pennsylvania State University - CSE  
Pennsylvania State University - IST  
Polytechnic University - CIS  
Pomona College - MCS  
Portland State University - CS  
Princeton University - CS  
Purdue University - CS  
Purdue University - ECE  
Rensselaer Polytechnic Institute - CS  
Rice University - CS  
Rochester Institute of Technology - CS  
Roosevelt University - CS&T  
Rutgers University, Busch Campus - CS  
Saint Louis University - MCS  
Santa Clara University - CE  
Simon Fraser University - CS  
Singapore Management University - IS  
Southern Illinois University, Carbondale - CS  
Southern Methodist University - CSE  
Southern Polytechnic State University - CSE

Stanford University - CS  
State University of New York, Albany - CS  
State University of New York, Binghamton - CS  
State University of New York, Stony Brook - CS  
Stevens Institute of Technology - CS  
Swarthmore College - CS  
Syracuse University - IS  
Temple University - CIS  
Texas A&M University - CS  
Texas State University - CS  
Toyota Technological Institute at Chicago - CS  
Tufts University - CS  
Tulane University - EECS  
Union College - CS  
University at Buffalo - CSE  
University at Buffalo - IS  
University of Alabama, Birmingham - CIS  
University of Alabama, Tuscaloosa - CS  
University of Alberta - CS  
University of Arizona - CS  
University of Arkansas - CSE  
University of Arkansas at Little Rock - I  
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 Florida - CS  
University of Chicago - CS  
University of Cincinnati - ECECS  
University of Colorado, Boulder - CS  
University of Delaware - CIS  
University of Denver - CS  
University of Florida - CISE  
University of Georgia - CS  
University of Hawaii - ICS  
University of Houston - CS  
University of Houston - ECE  
University of Idaho - CS  
University of Illinois, Chicago - CS  
University of Illinois, Urbana Champaign - CS  
University of Illinois, Urbana Champaign - ECE  
University of Iowa - CS  
University of Kansas - EECS  
University of Kentucky - CS  
University of Louisiana at Lafayette - CACS  
University of Louisville - CECS  
University of Maine - CS  
University of Maryland - CS

University of Maryland, Baltimore Co - CSEE  
University of Maryland, Baltimore Co - IS  
University of Massachusetts, Amherst - CS  
University of Massachusetts, Boston - CS  
University of Michigan - EECS  
University of Michigan - I  
University of Michigan, Dearborn - CIS  
University of Minnesota - CSE  
University of Minnesota, Duluth - CS  
University of Nebraska - CIS  
University of Missouri, Columbia - CS  
University of Missouri, Rolla - CS  
University of Montana - CS  
University of Montreal - CS  
University of Nebraska at Omaha - CS/IST  
University of Nebraska, Lincoln - CSE  
University of Nevada, Las Vegas - CS  
University of Nevada, Reno - CSE  
University of New Brunswick - CS  
University of New Hampshire - CS  
University of New Mexico - CS  
University of New Mexico - ECE  
University of North Carolina at Chapel Hill - CS  
University of North Carolina at Chapel Hill - SILS  
University of North Carolina, Charlotte - IT  
University of North Dakota - CS  
University of North Texas - CS  
University of Notre Dame - CSE  
University of Oklahoma - CS  
University of Oregon - CIS  
University of Pennsylvania - CIS  
University of Pittsburgh - CS  
University of Pittsburgh - IS  
University of Puget Sound - MCS  
University of Rochester - CS  
University of South Alabama - CIS  
University of South Carolina - CSE  
University of South Florida - CSE  
University of Southern California - CS  
University of Southern California - EES  
University of Tennessee, Knoxville - CS  
University of Texas, Arlington - CSE  
University of Texas, Austin - CS  
University of Texas, Dallas - CS  
University of Texas, El Paso - CS  
University of Toronto - CS  
University of Tulsa - MCS  
University of Utah - CS  
University of Virginia - CS  
University of Washington - CSE  
University of Washington - I  
University of Washington, Bothell - CS  
University of Washington, Tacoma - CSS  
University of Waterloo - CS  
University of Wisconsin, Madison - CS

University of Wisconsin, Milwaukee - EECS  
University of Wyoming - CS  
Utah State University - CS  
Vanderbilt University - EECS  
Virginia Commonwealth University - CS  
Virginia Tech - CS  
Wake Forest University - CS  
Washington State University - EECS  
Washington University in St. Louis - CS  
Wayne State University - CS  
West Virginia University - CSEE  
Western Michigan University - CS  
Williams College - CS  
Worcester Polytechnic Institute - CS  
Wright State University - CSE  
Yale University - CS  
York University - CS

Sun Microsystems (Sponsoring Member)  
Microsoft Corporation (Sustaining Member)  
IBM Research (Supporting Member)

Accenture Technology Labs  
Argonne National Laboratory  
Avaya  
CA Labs  
Computer Science Research Institute,  
Sandia National Labs  
Fraunhofer Center for  
Experimental Software Engineering  
Fujitsu Laboratories of America  
Google  
Hewlett-Packard Company  
IDA Center for Computing Sciences  
Intel Corporation  
Lawrence Berkeley National Laboratory  
Los Alamos National Laboratory  
Lucent Technologies, Bell Labs  
McAfee Research  
Mitsubishi Electric Research Labs  
National Center for Atmospheric Research  
NCSA  
NEC Laboratories America  
NTT DoCoMo USA Labs  
Pacific Northwest National Laboratory  
Panasonic Information &  
Networking Technologies Lab  
Ricoh Innovations  
San Diego Supercomputer Center  
SAP Labs  
SRI International  
Telcordia Technologies



<http://cra.org/ccc>





# Mission and activities

- Strengthen research and education in the computing fields
  - Working to influence **policy** that impacts computing research
  - Encouraging the development of **human resources**
- Contributing to the cohesiveness of the professional **community**

Gov't. Affairs



- Collect and disseminate **information** about the importance and state of computing research

**Table 1. PhD Production by Type of Department and Rank**

Department, Rank	PhDs Produced	Avg. per Dept.	PhDs Next Year	Avg. per Dept.
US CS 1-12	258	26.2	288	26.2
US CS 13-24	215	20.1	241	20.1
US CS 25-36	179	17.1	205	17.1
US CS Other	87	8.4	962	8.4
<b>US CS Total</b>	<b>1,501</b>	<b>10.0</b>	<b>1,696</b>	<b>11.3</b>

Taulbee Survey

