CRA's Mission

Strengthen research and education in the computing fields by

- working to influence **policy** that impacts computing research

- encouraging the development of **human resources**

- contributing to the cohesiveness of the professional **community**

- collecting and disseminating **information** about the importance and the state of computing research

CRA World Headquarters

(with a thank you to Jim Foley)

CCC Goals

- Create more audacious thinking
    within the computing research community
- Bring computing research community together
    to discuss, prioritize and envision our future
    research needs and thrusts
- See ideas developed become funded research programs
    and/or instruments
- Communicate these challenges, needs, and thrusts
    to the broader national community
- Increase the excitement within computing research
- Use that excitement to attract students
    who are representative of our diversity into
    computing research careers
    - Example educational activity - GROE

CRA - Education

- The Education of Future Computing Researchers
- CRA-E Committee -

  Andy van Dam, Brown University, chair

  Jim Foley, Georgia Tech

  John Guttag, MIT

  Pat Hanrahan, Stanford

  Chris Johnson, U. of Utah

  Randy Katz, U.C. Berkeley

  Henry Kelly, Federation of American Scientists

  Maria Klawe, Harvey Mudd College

  Peter Lee, CMU

  David Shaw, D. E. Shaw Research

Why a CRA-E?

- Enrollment issues

- Intellectual outsourcing issues

- Stodgy academic departments

- Centrality of computational thinking issues to all fields

What is CRA-E Trying To Do?

... our charter is to make specific recommendations to improve educational programs to better prepare graduates to make innovative contributions to industry, academia, and government.

Our focus is on educational content as well as on pedagogical methods and tools in the educational process. ...

Our goal is to provide substantive guidance to our target audience, i.e., faculty, administration, policy makers, and funding agencies

What Does CRA Bring to the Issue?

- Reputation
- Emphasis on research activities
- Connections to thought leaders
- Connections to research leaders
- Not interested in duplicating other efforts
- Not interested in doing what others can do better

Research Education Dimensions	Sub-committee Areas
Foundations	Is there a set of core/foundational principles/skills that all CS graduates must know?
	Foundation + Tracks model: refactoring content
	Math foundation and tracks
Skills	Is there a set of core/foundational principles/skills that all CS graduates must know?
	Introductory courses and attraction to computational thinking
	Design under constraints, mastery content
Content	Introductory courses and attraction to computational thinking
	Foundation + Tracks model: refactoring content
	Math foundation and tracks
Environment - institutional	Introductory courses and attraction to computational thinking
	Joint majors (different from double majors)
Environment - online	Environments for active learning
Strategies	Attracting best and brightest to grad school
	Environments for active learning

Where Are We?

Not very far (yet)

- Preliminary meeting at Snowbird 2008
- O'Hare Hilton meeting November 2008
- O'Hare Hilton meeting April 2009

Target - New Years Day 2010

- White paper
- Something more active

"... if we stay complacent and stick to our comfortable rut, and are satisfied with 'well, of course, you're going to have cycles in enrollment, and there will be good times again in the future; outsourcing really not happening for the creative jobs', then we will have MUCH more serious problems. We can't be complacent; we have to say 'Yes, there are problems that need to be tackled and not necessarily with purely evolutionary thinking.'"

Committee Chair - Andy van Dam