Report on the Future of Computing Education Summit

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SUMMARY  
Computing education is facing fierce challenges today. Our  
undergraduate enrollments are below what is needed to supply the  
needs of the marketplace in trained computing professionals. The  
enrollment we have (at least in the United States, and in most of  
the Western world) is mostly male and lacks ethnic diversity.  
How do we face these challenges?

In many other domain-specific education fields, the professional  
organizations of those domains lead the charge to address  
challenges. Organizations like the National Council of Teachers  
of Mathematics (NCTM) and American Society for Engineering  
Education (ASEE) serve to gather attention on challenges in their  
fields. These organizations work at improving K-12 education, at  
improving teacher professional development, and at supporting  
(and sometimes reforming) post-secondary education.

With that model in mind, the Association for Computing  
Machinery (ACM) Education Board was funded by the National  
Science Foundation program in CISE Pathways to Revitalized  
Undergraduate Computing Education (CPATH) to organize a  
summit of professional organizations in computing. The summit  
was held June 25-26, 2009, in Washington, DC. The goals of the  
summit were:

- To develop a consensus view of the challenges facing  
  Computing Education.
- To agree on a shared set of strategies for addressing  
  these challenges.
- To establish plans for a coordinated effort for  
  implementing these strategies.

1. PROFESSIONAL ORGANIZATIONS  
Fourteen professional computing organizations submitted position  
papers that described their view of the challenges, how they were  
addressing these challenges, and an initial set of strategies and  
plans for coordinated effort.

- ACM Education Board
- ACM SIGCSE
- ACM SIGITE
- American Society for Engineering Education (ASEE)
- Association for Information Systems (AIS)
- Coalition to Diversify Computing (CDC)
- CompTIA
- Computing Research Association (CRA)
2. PROCESS AND OUTCOMES

The representatives from these organizations met in a series of three breakout sessions on the first day of the meeting. In the first round, we identified the Challenges based on the position papers. In the second round, we identified potential Strategies for addressing those challenges. In the third round, we identified Actions that the organizations alone or collectively could take to implement these strategies.

On the second day, the proposed Action Items were listed, and representative of organizations signed up as “owners” of that item (i.e., committed to making it happen) or as “participants” on that item (i.e., expressed an interest in being part of making it happen).

The final action items that gained owners included:

- To establish a new entity to speak for computing education, e.g., to work with Congress on “The Computing Education Act of 2012.”
- To develop a white paper identifying the top five research questions whose answers would most advance computing education.
- To develop a better way to archive and identify findings on computing education resources and research.
- To identify audiences and messages for public relations work to improve the impact and perception of computing education.
- To develop mini-grants for teachers that will trigger local press coverage of computing education in their community.
- To develop a study by a representative group of industries of what they need and want in computing student preparation.

3. PANEL

At this panel, Mark Guzdial will be the moderator. He was the PI on the grant from the NSF funding this effort.

- While at NSF, Joseph Urban, with Harriet Taylor, approached the ACM Education Board with the idea for the summit. He will present the reason for the summit.
- Heikki Topi, a co-PI on the NSF grant, will present the planning process and how the summit was organized.
- Lucy Sanders, CEO of NCWIT and a participant at the summit, will describe her experience at the summit and the action items that her organization agreed to “own.”
- Jane Prey, a co-PI on the NSF grant, will present the follow-on plans and activity.

4. ACKNOWLEDGMENTS

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