

## Special Session

# Rediscovering the Passion, Beauty, Joy, and Awe: Making Computing Fun Again

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## 1. SUMMARY

At the SIGCSE Symposium in 2007, the ACM Education Board organized a well-attended special session exploring the crisis in computing education and its underlying causes [1]. The idea behind the session was to provide a forum at which a larger and more broadly representative subset of the education community could engage in direct dialogue with the members of the ACM Education Board and Education Council, who are charged with developing educational policy for the ACM as a whole. This year, we propose to extend that dialogue to explore concrete strategies for emphasizing the “passion, beauty, joy, and awe” of computing about which Grady Booch spoke so eloquently in his keynote address last year [1]. It is increasingly clear that students today find less joy in the process of creating software than their predecessors did a generation ago. At the same time, these skill have become increasingly important, forcing companies to cast an ever-widening net in their search for people with the necessary skills and training. Continued progress in the computing disciplines—and indeed the economic health of a society that

relies increasingly on computing technology—can continue only if we can encourage an even larger number of students to pursue the many opportunities that careers in computing provide.

## 2. BACKGROUND

Last year, this special session took the existence of a serious enrollment crisis as its starting point. The steady decline in enrollments and the even more precipitous decline of secondary school students in the field leaves little doubt that companies, seeking as they are to hire ever increasing numbers of talented employees, will soon face a serious shortage of people with the necessary skills.

Over the past year, the situation has improved to some extent. Many universities—including the top research universities in the United States—are reporting enrollment increases. While the numbers are far short of their peak in 2000, this encouraging trend offers some hope that the worst of the crisis may be behind us.

At the same time, it is essential to avoid complacency. The truth is that universities were underproducing graduates in these fields even at the height of the Internet boom. Even if we were able to restore enrollments to that level, the computing industry will still be left with a shortfall. Given the importance of computing skills to any national economy, all countries have an incentive to produce more graduates with computing degrees. Countries that engage in centralized economic planning can accomplish this goal through explicit policy; countries that rely on individual choice within the context of the marketplace must be more subtle in their encouragement. Even so, it is essential for all constituencies—schools and universities, industry, and government—to work together toward this goal.

The primary reason for broadening this discussion beyond the traditional academic community is that the underlying causes of the decline in popularity of computing majors are by no means

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restricted to the university. Increasingly, students are turned off to computing long before they graduate from high school, often because they have come to think of computing as little more than word processing and spreadsheets, offering few opportunities for the excitement that has always attracted people to computing. At the same time, students are increasingly disenchanted with the perception they have of work in the field, which they see as isolating, disconnected, unchallenging, and overwhelming. In part, this perception is an image problem. In part, however, this perception reflects the reality of much work in the field. A large proportion of software engineering effort goes into maintenance of code that is often decades old or into projects that are canceled before completion. The phenomenon of summer interns returning to school with horror stories about their experience is certainly discouraging to others who might follow in their footsteps.

In each of these environments—secondary schools, universities, and companies—it is important to make it clear that computing offers intrinsic excitement that is difficult to match in other disciplines. That excitement, however, comes primarily from the intellectual challenge of solving problems and the engineering challenge of building things that work. To the extent that our discipline becomes associated with applications at the secondary school level, the minute details of some programming language at the university level, or the task of maintaining long outdated code in the workplace, that sense of excitement will be harder to achieve. Only by working together can we address the broader dimensions of this interconnected problem.

To this end, the panelists the Education Board proposes to include in this year's special session include people who can speak from the perspective of each of these constituencies. The inclusion of participants whose work has focused primarily on K-12 education and on work in the industry will ensure that we are not merely

talking with each other but instead working to build the bridges necessary to attack this problem in an integrated way.

As was true in last year's special session, we expect each panelist to speak for between five and ten minutes on their own ideas as to how we can help the next generation of students rediscover the "passion, beauty, joy, and awe" that has been so much a part of our own experience of the field. The majority of the time will be devoted to discussion about these issues, which are of fundamental concern to us all.

### 3. AUDIENCE AND EXPECTATIONS

The intended audience for the special session is the broad community of computing educators. After all, almost all of us have been affected in some way by declining student enthusiasm. These issues are of particular importance to high-school teachers who face many of the same problems, usually with fewer resources to address them. By engaging in broad dialogue, we hope that we can identify a set of constructive initiatives for the ACM to undertake.

### 4. REFERENCES

- [1] Andrew McGettrick, Lillian Cassel, Mark Guzdial, and Eric Roberts. The Current Crisis in Computing: What Are the Real Issues? *Proceedings of the Thirty-Eighth SIGCSE Technical Symposium on Computer Science Education*, Houston, TX, March 2007.  
<http://doi.acm.org/10.1145/1227310.1227426>.
- [2] Grady Booch. Read'n, writ'n, 'rithmetic, and cod'n. Keynote address at the Thirty-Eighth SIGCSE Technical Symposium on Computer Science Education, Houston, TX, March 2007.  
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