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Is The Image Crisis Over?

When *Communications* relaunched in July 2008, the issue included a “Viewpoint” column by Rick Rashid, entitled “Image Crisis: Inspiring a New Generation of Computer Scientists.”

Has anything changed in that regard in the last 17 months?

Let us first recall what the “image crisis” was. The computing field went through a perfect storm in the early 2000s: the dot-com and telecom crashes, the offshoring scare, and a research-funding crisis. After its glamour phase in the late 1990s, the field seems to have lost its luster. This has resulted in a precipitous drop in North American enrollments in undergraduate computer science programs. The Computing Research Association’s Taulbee Survey traced how U.S. computer-science enrollments started dropping in 2001, reaching 50% of the 2000 level in 2005, and then staying flat through 2007. It seemed that high-school students made a collective decision that computing is not a promising career, and simply voted with their feet.

The enrollment plunge led to the establishment of the Image of Computing Task Force in 2005 as a U.S. response to “lead a national coordination effort to expose a realistic view of opportunities in computing.” In 2008, the U.S. National Science Foundation funded a joint project with the WGBH Educational Foundation and ACM to “research and design a new set of messages that will accurately portray the field of computing.” Then, in March 2009, the 2007–2008 Taulbee Survey came out with data indicating that freshmen CS enrollments grew by almost 10% between 2007 and 2008.

So, is the “image crisis” over?

Taking a longer-term view of CS en-

rollments, one notices that the enrollments drop of the early 2000s came after a huge rise in enrollments in the late 1990s. In fact, CS enrollments have always been cyclical. The latest boom-bust cycle was triggered by the “Internet revolution,” but an earlier boom-bust cycle, in much of the 1980s, was triggered by the “PC revolution.” It is not clear what a “normal” level of CS enrollments would be. Was the “crisis” a real crisis?

There is no doubt that CS enrollments are hugely affected by the economic environment. The most recent rise in enrollments is probably tied to the recent economic crisis. While finance looked like a promising career two years ago, that gleam is clearly tarnished. A career in computing suddenly seems much more promising than a career on Wall Street. The rise in CS enrollments will probably continue to rise for the next few years.

We should not, however, let a good “crisis” go to waste. From it we learned that the image of our field is important and that the image of our field is not necessarily a positive one. Trying to change that image is a noble goal, though I doubt nothing short of a massive marketing campaign, at the probable cost of tens of millions of dollars, can add more color to the prevailing picture.

What we did not seem to learn is that the image of our field may be related to the *reality* of our field. We are woefully ignorant about the reality of computing careers. According to the Bureau of Labor Statistics, there

are close to four million information technology workers in the U.S. that span across several job categories. (Analogous information about the rest of the world is very difficult to obtain.) What we do not know is how computing graduates fit in this picture. We do not know how to measure the career outcome or value of a computing degree. How are CS graduates distributed across various industry sectors? What are their career trajectories? Peter Freeman and William Aspray’s 1999 report *The Supply of Information Technology Workers in the United States*, studied the supply of and demand for IT workers in the U.S. at a macro rather than the individual scale in an effort to better understand these issues. Yet today we still do not know how to determine the quality of computing careers, say in terms of lifetime income, job stability, autonomy and self-direction, promotion opportunity, and the like, compares to other careers, say, in electrical or chemical engineering. Moreover, we clearly do not know how to change the image problem of our field as viewed by women and most minorities.

These, I believe, are huge gaps in our knowledge. I do not see how we can develop messages that will accurately portray the field of computing, if we ourselves do not have an accurate portrait of the field. Before the “image crisis” completely fades away, let us not let it go to waste.

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