Best time ever for women to study computer science... so how do we get them to do it?

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It’s the best time ever for women to study computer science. Job opportunities for CS majors are booming. Almost every major IT company wants to recruit more women and is honing its practices and culture to make its work-environment “female-friendly”. The numbers of female CS faculty have been steadily increasing so there are many more opportunities to be taught by or do research with a female professor. Information technology is revolutionizing every aspect of society so students can combine computer science with almost any other discipline and have a significant advantage over the students who only study that other discipline. Computer science makes a great undergraduate major for those interested in medicine, law, or business school. So why do so few women choose to major in CS and what can we do about it?

Fortunately some of the answers to both these questions are known. By the beginning of high school girls show less interest in taking CS courses than boys, and believe they will do less well in CS courses than boys. Girls don’t perceive CS jobs as involving working with people. They think CS courses and jobs are all about programming and that programming is boring. CS majors are often seen as only being interested in computers and young women don’t see themselves fitting into that culture. The dot-com crash and the rise of off-shoring of some IT jobs to India and China led most parents and teachers to believe that there are no more IT jobs available in the US or Europe. Those of us already in computing careers know these perceptions are false ... but what can we do about it?

It would be great if we could make computer science a required course in all high schools and have it taught by teachers who understand the wide variety of concepts and opportunities in computer science. However neither is likely to happen soon. Attractive job opportunities for computer science
graduates over the last two decades have resulted in very few of them becoming high school teachers. In addition, since few university programs list computer science as an entrance requirement, primarily because high school computer science courses vary so much in quality and the AP computer science course is essentially a programming course, high schools have been reducing the numbers of, or completely cancelling, computer science courses.

It would be great if we could convince the entertainment media to show computer scientists with interesting lives and working on fascinating and important projects across a broad range of areas. I dream of J.K. Rowling writing a book about Hermione Grainger becoming the first witch to combine computer science and magic to help the muggle world. I dream of Oprah doing a show on rags to riches stories about women becoming computer scientists. None of these are likely to happen soon either. It’s not that there aren’t great stories and projects. There are many. The problem is that the media industry doesn’t believe it, and doesn’t believe such shows would attract audiences.

For the moment the best opportunity to recruit women into computer science seems to be at the undergraduate level. Institutions that have offered courses or programs that combine computer science with other areas such as biology, media, or business have seen significant increases in female students. Given the lower enrolments by both males and females in CS classes over the last few years, both CS faculty members and their deans have an incentive to try new approaches to recruit more students. Indeed, the reduced enrolments combined with the growth in CS faculty that occurred in the late nineties may be enough to persuade many deans to include a sentence of the form “the Dean recommends that all students take at least one computer science course because of the importance of information technology in almost all disciplines” in the handbook for incoming students. I did this while Dean of Science at the University of British Columbia and was surprised at its positive impact on female science students. It turns out that females are more likely than males to read the handbook and to follow advice from a Dean.

Despite the difficulties in changing high schools and the media we shouldn’t give up on these either. Whether in industry, academia or government, every time you have a chance to speak to high school students, teachers, principals, or parents you should take the opportunity to describe the amazing opportunities in computer science. Any time you are asked to talk to a reporter about anything, make sure to include a story about someone doing something wonderful in computer science.