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# extreme makeover

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**THERE IS A CRY HEARD IN THE LAND** of the computer industry: where are all the engineers-to-be? According to reports, students in the United States and abroad are shunning computer science courses in favor of—well, no one seems to know. Bill Gates complains that there are not enough graduate engineers to fill the halls of Microsoft. Other computer poobahs proclaim that graduate programs are going begging for Ph.D. candidates. Even the Chinese are concerned about the same trend, we are told. Various organizations, including USENIX, have been called upon to provide a solution to the problem. Why is the field not more appealing to young people?

I do no doubt that this dismal news is true. But somehow I am not surprised.

I believe that the general public has very mixed impressions of what the computer industry is all about. To begin with, the computer world has managed to gain a terrible reputation among ordinary people, including students and, more important, their parents. (Reading some of the reports mentioned above, you would think that students make career decisions in a vacuum devoid of any parental pressure.)

Put yourselves in the shoes of the average, non-engineer, naive computer user (most people, in other words). Their image of the people who work in the computer industry is that of folks who produce an appliance that is difficult to use; is still unreliable years after its introduction; becomes obsolete within three to five years; requires frequent updates to its software, at some considerable cost; has instruction manuals that run to hundreds of pages, if they are available at all other than online; is serviced by people who are often just one chapter ahead of you in the aforementioned manual or who are disdainful of your inability to understand how the escape key differs from the enter key; is susceptible to "invasion" by "viruses" and "bugs" from which, once again, you have to pay for protection. (Sounds like some sort of Mafia arrangement: you buy my gizmo or we'll invade your machine.)

And aren't they the same folks who shouted for all to hear that a revolution was at hand, everybody

could start a business in their garage and make a million bucks, and why didn't you invest in their cleverly named new company which, any day now, would produce—uh, we're not sure what to call it right now, but it'll be great! And the whole thing collapsed and those guys walked away with your money and any confidence you might have had that they knew what they were doing.

But, you say, that's not fair, that's not what the industry is like. We're serious engineers doing important, exciting work. Why don't you join us?

Well, for one thing, there's the media image of the typical computer engineer. He (there are so few shes that it's hard to be politically correct here) is a nerd, a geek, a hacker, someone who will "crack" your computer and make it "crash" and "corrupt" your data, "steal" all your private information, and produce endless amounts of "spam." In the average B-movie, he is hirsute, ill-dressed, and typing madly on a keyboard in front of a flickering screen—you can almost smell him. Or else he is the nerdy high school student, with thick glasses and no friends, who giggles as he breaks into the FBI's computers and endangers our safety. Here's a quote from today's *New York Times*, talking about a "computer programmer": "He was straight out of central casting: nerdy-looking, glasses, pocket protector." Just so.

Unfortunately, some of those images ring true. Wander in the halls at technical conferences (something I have often done) and you will see that the media is actually on to something. I don't mean to suggest that all computer people should wear suits, but really, people, it is no longer 1968 and we are not marching down Telegraph Avenue anymore.

In short, do you really think the proverbial mother who wishes her darling daughter would marry a nice doctor, or perhaps an attorney, will wonder if the nice geek from across the street could be induced to take darling Judy out to the movies? Let alone that she will want little Judy to become a geek herself.

The industry needs an extreme makeover, to coin a phrase. If you want people to become like you, you first have to gain their respect. So I humbly suggest that all those who wonder about why young people are not going into this field get together and hire themselves the best public relations company in the country and be prepared to spend a lot of money trying to undo the damage. It probably can be done, but not by wringing your hands and offering a few scholarships to students who would rather be accountants. Not that I have anything against accountants.