SPECIAL SECTION

INDUSTRY AND IT

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Guest Editors for this Special Section

Information technology (IT), as defined within the academic computing community in the United States, and in the sense in which we use it in this issue of *ACM Inroads*, concerns itself with the design, implementation and maintenance of the complex of hardware, networks and other communication technologies and applications used to support organizational processes of businesses or other enterprises. It is the newest discipline to emerge as a distinct computing discipline.

Unlike the other computing disciplines, IT did not primarily emerge because of a realization that there were a number of research questions that were not addressed by the existing computing disciplines. Rather, IT emerged because of the perception that existing computing undergraduate programs did not afford graduates the opportunity to acquire the skills and knowledge that employers were looking for in entry level hires. In other words, IT emerged as a separate discipline because of a perceived industry demand for students with skills and knowledge in the area of the design, implementation, and maintenance of IT infrastructures.

The close link between industry demand and the discipline of IT has persisted until this day. Thus, virtually all IT programs offered at US colleges and universities have strong and active industry advisory boards, and many IT faculty members are active in various user groups. It is therefore, appropriate that this special section of *ACM Inroads* focuses on the relationship between industry and academia. It presents different perspectives on how academia and industry can work together to their mutual benefit, but written from the point of view of industry rather than from the point of view of academia. Contributors represent large IT companies such as Microsoft and Oracle, large manufacturing organizations such as Boeing, large service organizations such as Costco and UPS, together with a range of smaller companies and government agencies.

A number of themes have emerged from the various contributions to this special issue. First, perhaps not surprisingly, almost all contributions emphasize the importance of "soft skills" and in particular communication skills, teaming skills, and the need for life-long learning. The computing education community, of course, has recognized the importance of these skills and norms. For example, the ABET accreditation criteria for programs in computing [1] include among the attributes that any program must enable students to attain:

- An ability to function effectively on teams to accomplish a common goal;
- An ability to communicate effectively with a range of audiences; and
- Recognition of the need for and an ability to engage in continuing professional development.

Nevertheless, it is important to reaffirm the importance of these skills from the industry point of view as well.

A second theme that emerges from most of these articles is that industry is not as familiar with the distinction between computer science and information technology as distinct computing disciplines. This distinction appears to be well recognized by the computing education community;

witness the fact that ABET has separate accreditation criteria for programs in computer science and information technology, ACM has promulgated separate model curricula for computer science and information technology, and ACM has two different special interest groups for computer science and information technology. Notwithstanding, it appears to be less well known within industry. Part of the responsibility for this state of affairs lies with the IT education community. While it has made a concerted effort to convince the computing education community of the distinct nature of IT, it has not made a similar outreach effort to industry. Clearly, since it is incumbent on the education community in general to ensure that potential employers fill their entry level positions with graduates who have the appropriate skills and knowledge, and since the knowledge and skills of IT graduates are distinct from those of computer science graduates, this is an issue that the computing education community in general, and the IT education community in particular, needs to address.

Thirdly, companies have developed a number of initiatives to engage with higher education such as service on industry advisory boards, the use of internships, and the creation of educational material for both students and staff. It is clear that industry is eager to engage with higher education, as they clearly see the value such engagement yields in terms of day-one-ready new hires who are not only knowledgeable but also eager to keep up with the rapid development of goods and services that the IT industry must produce.

There are of course many other lessons to be learned from the special section articles that follow, and we urge readers to reflect carefully on their suggestions for curricular improvements. We are excited about the contributions that our industry partners have made and we hope that you, as educators, will take their insights and suggestions into consideration as you develop and refine your IT programs. **Ir**

References

[1] ABET. http://www.abet.org/accreditation-criteria-policies-documents/. Accessed 2013 September 15.

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