

Have Mainframe Skills, Will Travel

In technology, the hot jobs aren't always in starting an Internet company from scratch or designing the slimmest laptop. In mainframe computing, an almost-forgotten corner of corporate information technology departments, demand is growing for a new generation of professionals who can manage these complex systems.

Computer scientists say mainframes, the machines housed in hulking metal boxes that store and process massive amounts of data for organizations, are unfairly regarded as historical curiosities when they in fact remain vital to corporations. As the Baby Boomers who set up these systems begin retiring, companies are searching in vain for new graduates with mainframe computing skills.

This demand is an opportunity for students in the U.S. who are entering an uncertain economy with a rising unemployment rate.

"What are considered old-line skills are new again," said Fred Hoch, president of the Illinois IT Association.

Looking to Academia

Hoch and others say the technology industry in places like Chicago has growth potential despite worries over outsourcing Latest News about Outsourcing and the threat of nationwide recession. IBM (NYSE: IBM) Latest News about IBM cites data from SkillPROOF, a labor statistics firm, that shows the average number of IT job openings in Illinois rose 57 percent between 2004 and 2007.

National technology trade association AeA recently released a report that counted 209,300 high-tech workers in Illinois as of 2006 -- the eighth largest "cyberstate" in the country. The average salary was US\$77,100, putting Illinois 14th nationwide.

Companies like IBM are seeing a dearth of mainframe-skilled graduates and have reached out to the academic community to fill the gap. About two years ago, a group of companies including IBM and State Farm asked Illinois State University to start teaching mainframe computing.

Valuable Skills

Michael Catron, a member of ISU's inaugural class of mainframe-trained students, said he never heard the term "mainframe" during his undergraduate computer science education. He has an internship at State Farm this summer and said he was surprised at company executives' response to him at a recent meeting.

"They were visibly excited to have an intern work on this stuff," said Catron, 23, who will receive his master's degree in December.

IBM provided ISU with a loaner system for the mainframe program, as well as course materials and faculty training. Assistant Professor Chu Jong said he fields phone calls and e-mails from companies asking whether students are available for internships. Some graduates have gotten six or seven job offers each, ISU professors say.

Freedom From Boredom

Catron said running a mainframe offers more challenging and varied work than other IT jobs he's seen.

"One of my friends programs, and he just edits other people's codes," he said, adding that the Internet doesn't seem as compelling: "Anyone could be a decent Web developer these days."

Mainframe enthusiasts say they play a role in corporate strategy because they find ways to make companies' operations more efficient. Technology professionals should have business know-how, and "those kinds of positions we need to keep locally," said Cindy Reynolds, a vice president overseeing IT at Discover Financial Services in Riverwoods, Ill. She was a participant in a recent IBM-organized seminar on how to foster local technology talent in the business and academic communities.

The computer science department at Northern Illinois University offers an optional emphasis on "enterprise computing," which includes mainframe systems, at the graduate level.

Duh, Indeed

"We've been doing this for over 30 years now, so we hear people are rediscovering the mainframe -- and not to be too sarcastic, but it's sort of 'duh,'" said Robert Rannie, a professor emeritus and self-described "old mainframe type." "We've known about this for years."

One challenge for the technology community is to retain engineering and science graduates from Illinois universities, especially foreign students, Hoch said. The shortfall of technology workers is a national issue and companies want the U.S. government to provide visas to more foreign high-tech workers. Marc Lautenbach, manager of IBM Americas, said at the IBM seminar that the emerging countries of Brazil, Russia, India and China are expected to graduate more engineers than the Group of 7 industrialized nations combined.

Hoch said Illinois' technology sector is unique because it's tailored to serve vertical industries such as manufacturing and financial services.

"There's thriving technology here," Hoch said. "But it's not technology for technology's sake."