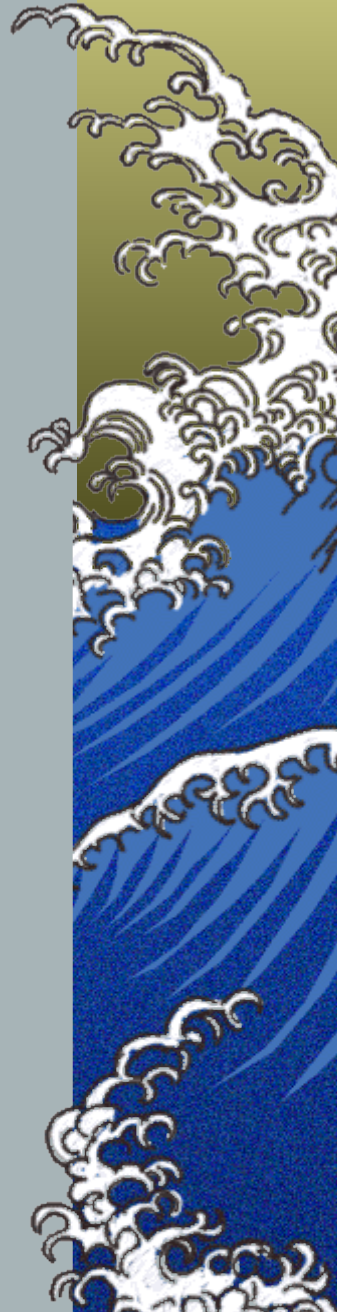


IT Globalization and Its Impact on IT Education

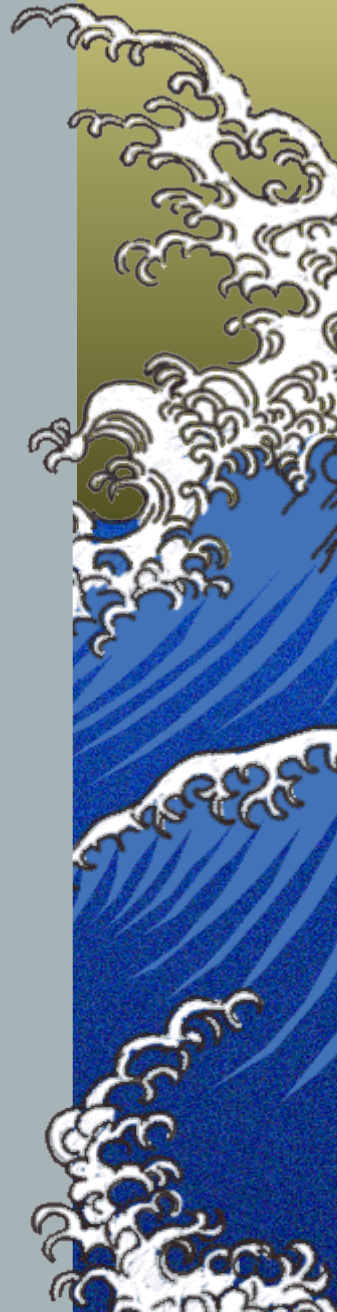
▲ Panelists:

- ▲ Rob Rittenhouse (McMurry Univ)
- ▲ Rika Yoshii (CSUSM)
- ▲ Kazumi Slott (Tokyo Univ)



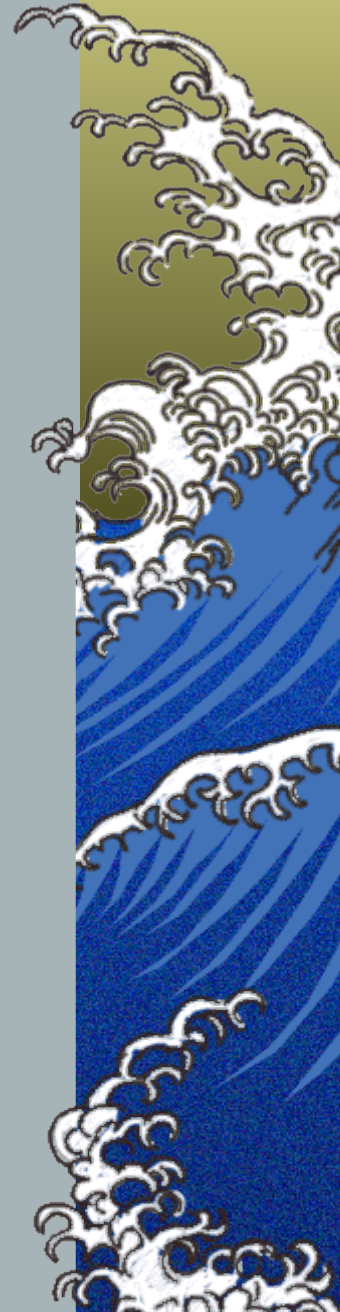
Topics

- ▶ **IT enrollment**
- ▶ **Employment in IT**
- ▶ **National competitive strengths and weaknesses and IT education**



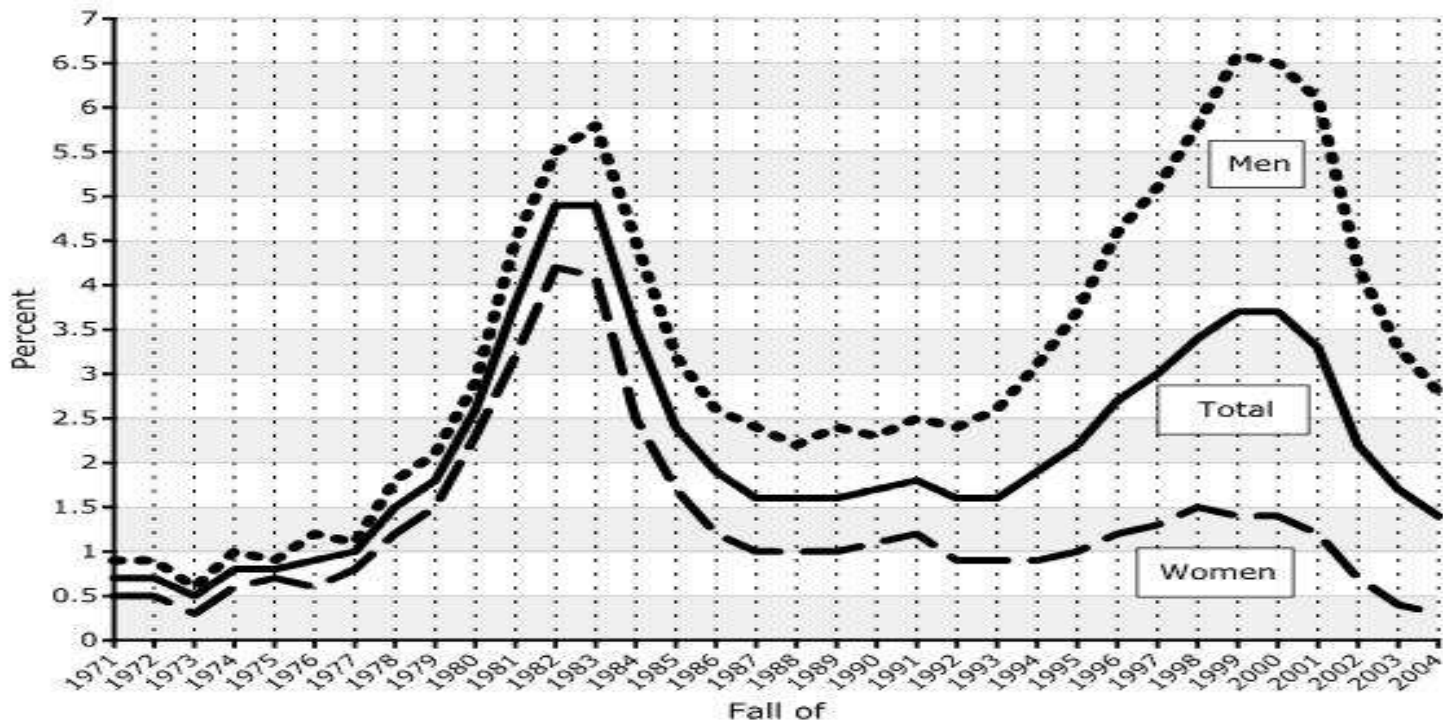
Enrollment in IT related majors

- ▶ Is IT enrollment cyclic? Will there be a new shortage of IT workers?
- ▶ Homeland security and the foreign student
- ▶ How good are our students?
- ▶ What changes should be made in IT curricula to adapt to the new circumstances



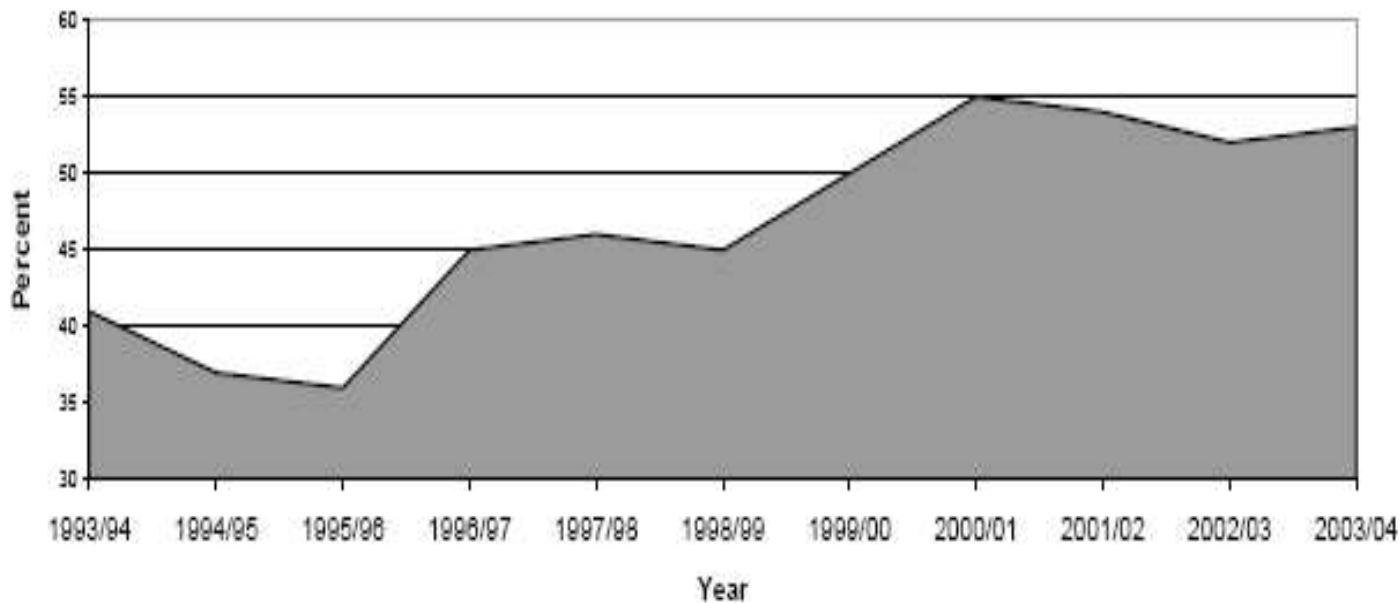
Interest in CS Major

Figure 1. Computer Science Listed as Probable Major Among Incoming Freshmen
Source: HERI at UCLA



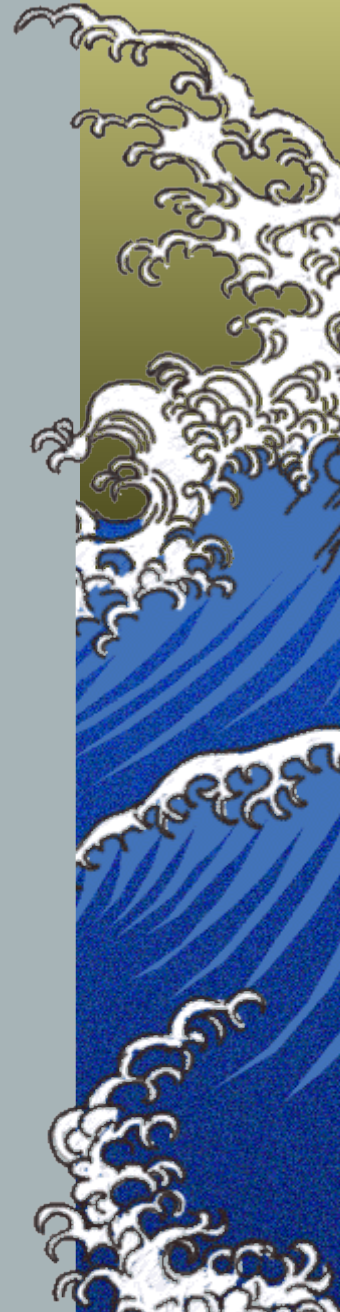
CS and the foreign student

Figure 5. Nonresident Aliens as Fraction of PhD Enrollments



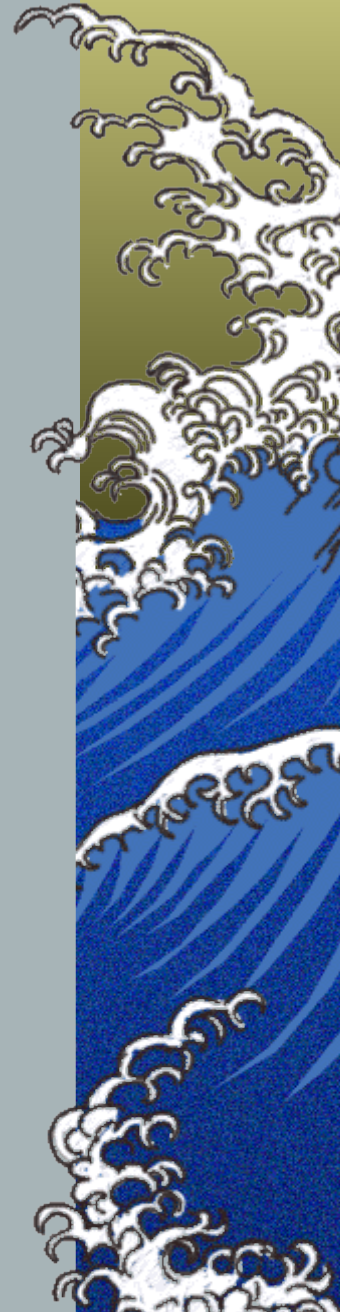
Changes in IT employment:

- ▶ Meltdowns and recessions
- ▶ Globalization of IT employment: who is hiring who, where, and why.
 - ▶ Mobility of IT workforce: H1-B's, L1's
 - ▶ Mobility of IT work: offshoring
 - ▶ What jobs are where?



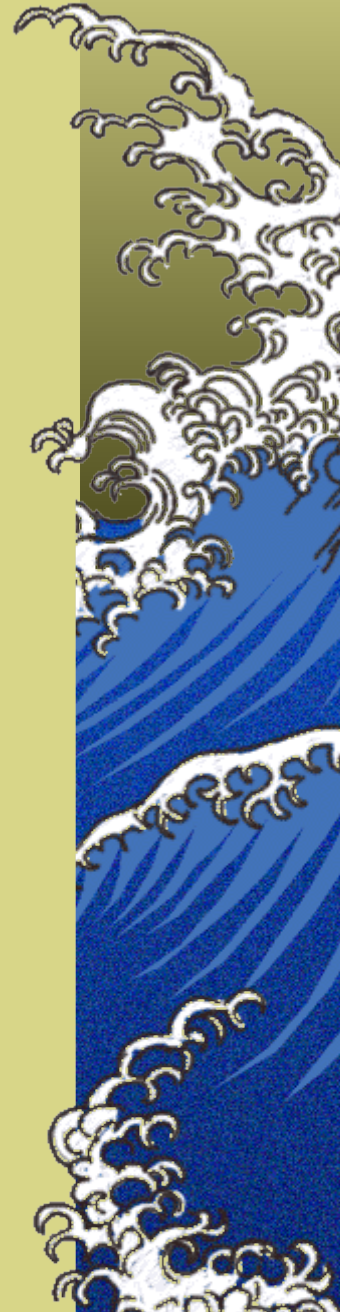
Topics

- ▶ *U.S. finds itself competing for Indian engineers*
K.C. Krishnadas [K.C. Krishnadas](#)
 - ▶ *EE Times (06/29/2000 5:26 PM EDT)*
- ▶ *BANGALORE, India — The United States, which grants more than half its annual allotment of H-1B high-tech visas to Indian engineers, isn't alone in its pursuit of the technical expertise resident. In recent weeks, the list of countries seeking to attract Indian software engineers has grown to more than a dozen, as Germany, Ireland and Italy have launched active recruiting programs.*



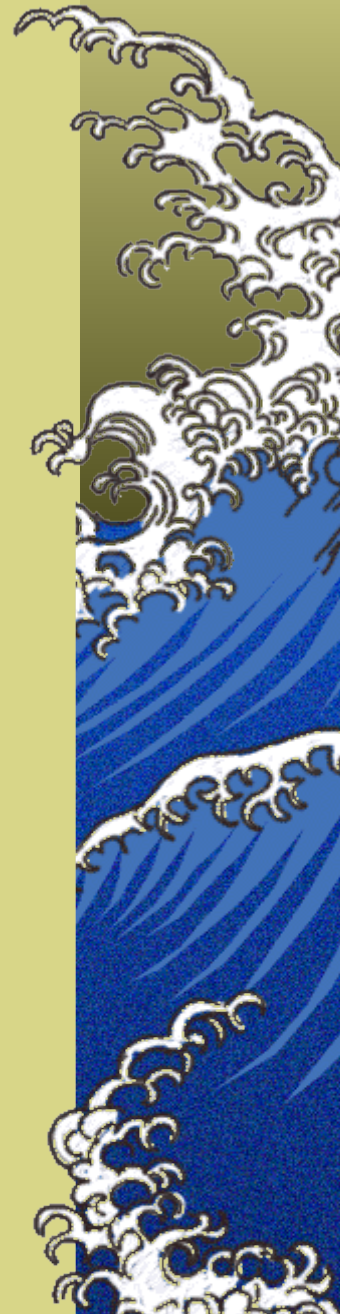
Globalization and Economy in Japan

- ▶ *Reducing Overhead Cost*
- ▶ *Many coders but few qualified software engineers and project managers*
 - ▶ → *Expensive to hire engineers and managers*
 - ▶ *(Japanese and American)*
 - ▶ → *Reduce cost of coders*
 - ▶ *(Foreign employees)*



Choices

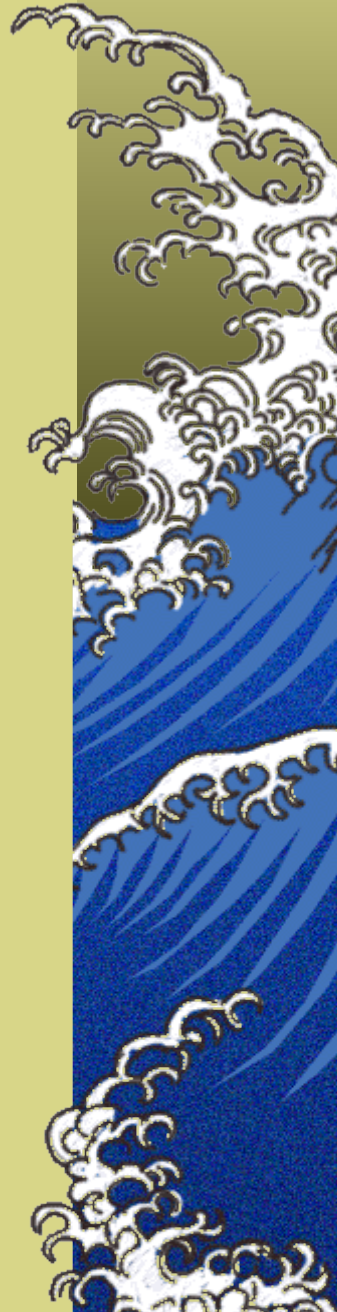
- ▶ *Hire programmers from China*
 - ▶ *New tech schools in Dai Ren*
 - ▶ *Also teach Japanese*
- ▶ *Hire programmers from India*
 - ▶ *10,000 in the next 5 years*
- ▶ *Hire engineers from the U.S.*
- ▶ *Outsourcing*
 - ▶ *Send project managers to China/India*
 - ▶ *Communicate via phone and Internet*



Problems

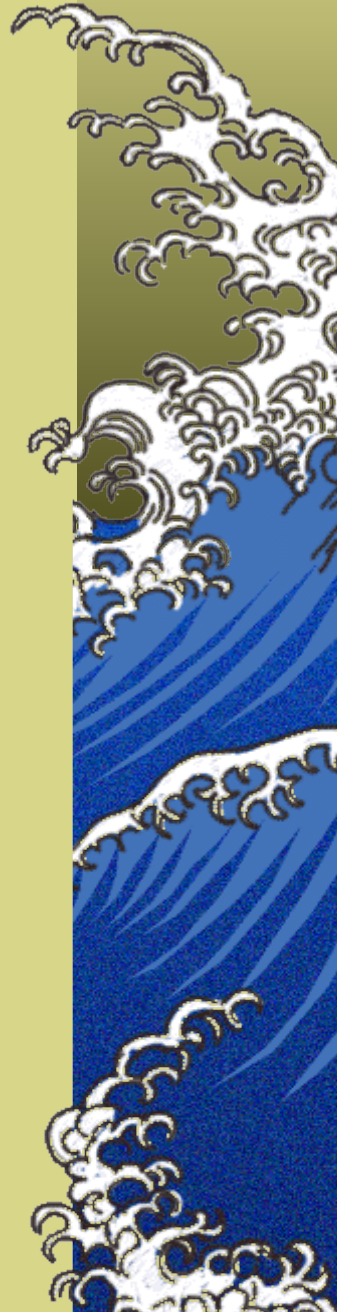
- *Communication Problems*
- *Visa Problems*
- *Outsourcing Support Jobs*
 - *Lack of speed*
 - *Inconvenience*

Leaving to better paid companies



Impact on Education

- ▶ *Need more project managers and experienced software engineers with knowledge of*
 - ▶ *Wireless communications*
 - ▶ *Software reuse*
 - ▶ *Research and development*
 - ▶ *Etc.*



Impact on Education

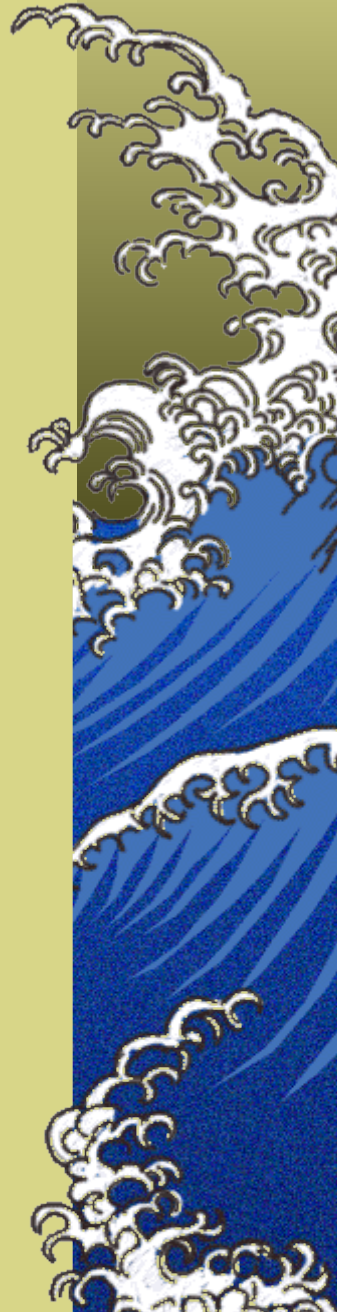
▲ *Foreign employees need better communication skills*

▲ *Language classes*

▲ *Cultural classes*

See

<http://www.geocities.com/itpcpune/main.html>



National Competitiveness

- ▶ Strong research universities
- ▶ Entrepreneurial climate
- ▶ Silent crisis
- ▶ US is expensive: needs to be the best
 - ▶ Weak K-12 education a problem
 - ▶ Reduced funding for research

