PANEL

Computer Science Education in AEARU Member Universities

Chair
Yahiko Kambayashi (Kyoto University)

Members

**China:** Zhang Shiyong (Fudan University)
Zhou Lizhu (Tinghua University, Beijing)
Li Xiaoming (Peking University)
Zhiyong Peng (Wuhan University)

**Hong Kong, China:** Fred Lochovsky (Hong Kong University of Science and Technology)

**Taiwan, China:** Ming-Syan Chen (National Taiwan University)

**Japan:** Jie Li (University of Tsukuba)
Masayuki Murata (Osaka University)
Hiroshi Imai (University of Tokyo)

**Korea:** Jong Kim (Pohang University of Science and Technology)

**Singapore:** Tok Wang Ling (National University of Singapore)

Since the computer industry in Asia is getting very important, in this panel we made
discussions on the current status of Computer Science education in these areas. Besides
member universities, we also got participants from Wuhan University, China and University
of Singapore, Singapore. Some statistics are shown here.

Current Status of US Universities

The current situations of major US universities are as follows:

<table>
<thead>
<tr>
<th>University</th>
<th>Total Grad Students</th>
<th>CS %</th>
<th>EE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT</td>
<td>2568</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Stanford University</td>
<td>3069</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td><em>University of California, Berkeley</em></td>
<td>1511</td>
<td>33 in total</td>
<td></td>
</tr>
<tr>
<td>University of Michigan-Ann Arbor</td>
<td>2143</td>
<td>9</td>
<td>18</td>
</tr>
</tbody>
</table>

* shows that the undergraduate courses passed the requirements of CSAB (Computer Science Accreditation Board, now a part of ABET, Accreditation Board for Engineering Education). These data are taken from the US News and World Report Web site.
<table>
<thead>
<tr>
<th>University</th>
<th>Undergraduate</th>
<th>Master</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia Institute of Technology</td>
<td>2739</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>University of Illinois-Urbana-Champaign</td>
<td>2130</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>California Institute of Technology</td>
<td>453</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>Carnegie Mellon University (PA)</td>
<td>1150</td>
<td>47</td>
<td>23</td>
</tr>
<tr>
<td>Cornell University (NY)</td>
<td>1039</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>*University of Texas-Austin</td>
<td>1882</td>
<td>15</td>
<td>18</td>
</tr>
</tbody>
</table>

Except for CMU, the percentage of CS graduate students is usually between 10% and 20%.

**Current Status of Universities in China**

**Tinghua University, Beijing** (China)
- Organizations: State Key Lab of AI, Institute of HPC, Institute of Software, State CAD Center, Institute of Network, Institute of Multimedia & HCI
- Undergraduate: 693
- Graduate: Master 473; PhD 283

**Peking University** (China)
- Undergraduate: 480
- Graduate: Master 270 (90 per year); PhD 90 (30 per year)

**Fudan University** (China)
- Organization: Two departments
  - Computer Science Dept., Computer and Information Technology Dept.
- Undergraduate: 800+
- Graduate: Total of Master and PhD over 380, Post Doctorate. over 10.
  - The following new organization will accept more students
  - Software School (to be set up in PuDong)?
  - Network School (Computer Science Major 400+)

**University of Science and Technology of China** (China)
- Undergraduate: 700
- Graduate: 360

**Wuhan University** (China)
- Organization
  1. Department of Computer Science
  2. Department of Computer Applied Technology
  3. Department of Computer Engineering
  4. Department of Computer and Information Technology
  5. State Key Laboratory of Software Engineering
  6. State Engineering Research Center of Multimedia Software
  7. State Education Ministry Research Laboratory of Multimedia Software
  8. Computing Center
  9. IBM Technology Center
  - Undergraduate: 2400
  - Graduate: Master 594, PhD 99
The following new organization is planned.

International software school.

Hong Kong University of Science and Technology, HKUST (Hong Kong)

Hong Kong has about 7 million people and 7 universities.
Undergraduate: 450 per year 3 year course
Graduate: 380+ (Master and PhD).

Taiwan University (Taiwan)
Organization: Integration of EE and CS.
Undergraduate: 433 (80+50 per year)
(from 2003, 50 additional students will be permitted for undergraduate course)
Graduate: Master 191 (80 per year), PhD 88 (25 per year)

Current Status of Universities in Japan

The University of Tokyo (Japan)
Undergraduate
Department of Information Science has 28 per year.
Department of Mathematical Engineering and Information Physics, 56 per year.
Three EE departments, 117 per year.
There are also Department of Electrical Engineering and Department of Electronics Engineering in Graduate School of Engineering.
Departments of Mechanical Engineering, Engineering Synthesis, and Mechano-Informatics consist of 126 per year (among them, 41 undergraduate students take computer-oriented mechanical engineering).
Graduate—These number show the numbers of students admitted per year.
Department of Computer Science—M (34); D (15)
Department of Mathematical Informatics—M (32); D (11)
Department of Information Physics and Computing—M (32); D (11)
Department of Information and Communication Engineering—M (37); D (16)
Department of Mechano-Informatics—M (32); D (11)

Osaka University (Japan)
Dept. of Computer Science, Faculty/Graduate School of Engineering Science
Undergraduate: 70 per year.
Graduate: Master 50 per year, PhD 10 per year.
The organization will be modified from April 2002.

Kyoto University (Japan)
Undergraduate: 90 for each year
(50 for CS and 40 for Applied Mathematics and Physics)
Graduate School consists of 6 departments.
The number shows the capacity for each year.
Department of Intelligence Science and Technology—M (28); D (13)
Department of Social Informatics—M (27); D (13)
Department of Applied Analysis and Complex Dynamical Systems—M (24); D (10)
Department of Applied Mathematics and Physics—M (21); D (9)
Department of System Sciences—M (30); D (13)
Department of Communications and Computer Engineering—M (35); D (16)

University of Tsukuba (Japan)
Organization: Institute of information Science Electronics
Center of Physics Computing (COE Program)
Undergraduate: 426 (College of Information Sciences)
+College of Social Engineering +College of Engineering Systems
Graduate: 175 (Master and PhD students in the field of computer sciences)
+Graduate School of Engineering
Graduate School of Sciences and Engineering
Graduate School of System Information Engineering (COE Program)
Information Sciences

Tokyo Institute of Technology (Japan)
Undergraduate: 426 (College of Information Sciences)
Graduate: 175 (Master and PhD students in the field of computer sciences)

Current status of a University in Korea

Pohang University of Science and Technology, POSTEC (Korea)
Undergraduate 300 per year
Graduate 400 per year
Related departments
Dept. of Computer Science and Engineering
Undergraduate: 35 per year
Graduate: Master 80 per year, PhD 50 per year
Information and Communication Graduate School 65

Current status of Universities in Singapore

National University of Singapore (Singapore)
Organization—School of Computing
Dept. of Computer Science
Dept. of Information Systems
15 research institutes
Undergraduate: 800 to 900 per year, 40% foreign students
Graduate: 250 per year, 80% foreign students

Nanyang Technological University (Singapore)
Organization—School of Computer Engineering
Software Systems Division
Computer Systems Division
Undergraduate: 500 per year 4 year program