1997-98 CRA Taulbee Survey

Ph.D. Enrollment Up for the Third Straight Year

By Dexter Kozen and Jim Morris

This article and the accompanying tables present the results of the 28th annual CRA Taulbee Survey[1] of Ph.D. granting departments of computer science (CS) and computer engineering (CE) in the United States and Canada. This survey is conducted annually by CRA to document trends in student enrollment, employment of graduates, and faculty salaries. Information is gathered during the fall and early winter. Responses received by January 20, 1999 are included in the tables.

The survey results are from Ph.D. granting departments only. One hundred and eighty-six departments were surveyed. Information on degree production (Ph.D., Master's, and Bachelor's) and enrollment (Ph.D.) applies to the previous academic year (1997-98). New students in all categories and total enrollments for Master's and Bachelor's refer to the current academic year (1998-99). Projected production refers to the current academic year as well. Information on faculty salaries and demographics also applies to the current academic year. Faculty salaries are those effective January 1, 1999.[2]

This article presents the most significant results of the survey, with particular attention to those that differ markedly from last year or that appear to indicate long-term trends.

This year 144 departments submitted surveys — 144 responded to the Ph.D. section, 140 to the Master's section, and 138 to the Bachelor's section. All 144 departments provided faculty information. The response rate was 77%, down slightly from last year's rate of 80%; however, the overall number of departments responding this year was higher (144 versus 135). We thank all respondents who completed the questionnaire.

Two new questions were added to the survey this year. One requested the average number of years to receive a Ph.D.(5.014). The second asked for the number of positions left unfilled last year in the following categories: tenure-track (156), researcher (0), post-doc (5), lecturer (9), instructor (8), other (4). We expect to use this additional data in a long-term longitudinal analysis.

Degree Production

(Tables 1–6) A total of 933 Ph.D. degrees were awarded in 1998 by the 144 responding departments. This is up 4.5% from the 893 awarded in 1997, reversing a down-

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Table 1. Ph.D. Production by Ranking

	Ph.D.s Produced	Average per Dept.	Ph.D.s Next Year	Average per Dept.	Passed Qualifier	Average per Dept.
US CS Ranked 1-12	217	18.1	231	19.3	187	15.6
US CS Ranked 13-24	134	11.2	162@	13.5	179	14.9
US CS Ranked 25-36	103	8.6	129	10.8	104	8.7
US CS Other	375*	4.2	468+	5.3	479	5.4
Canadian CS	55	4.6	76	6.3	54	4.5
US CE	49#	7.0	62&	8.9	77	11.0
Total	**933**	**6.5**	**1,128**	**7.8**	**1,080**	**8.2**

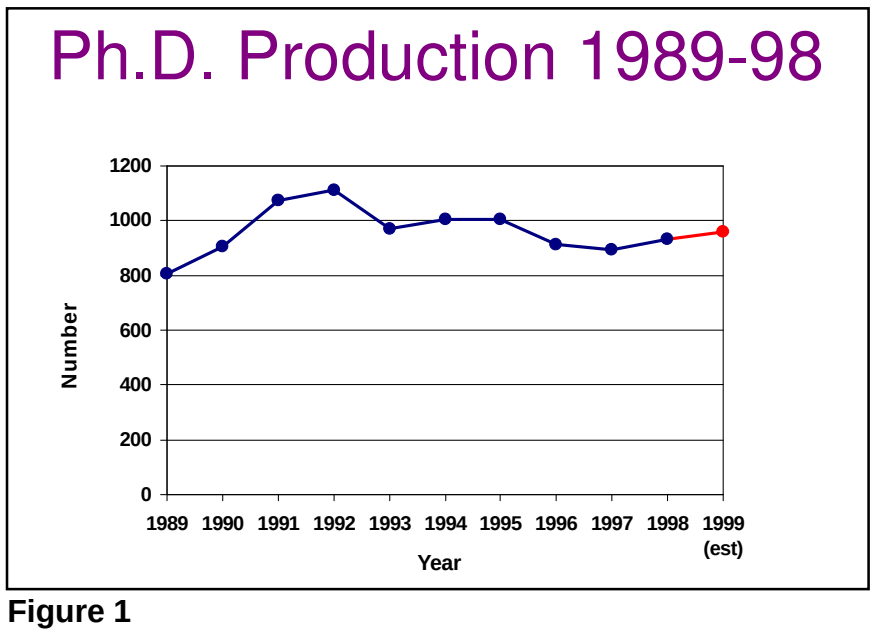

Figure 1

Table 2. Gender of Ph.D. Recipients

	CS		CE		CS & CE	
Male	747	(86%)	55	(83%)	802	(86%)
Female	120	(14%)	11	(17%)	131	(14%)
Total	**867**		**66**		**933**	

Table 3. Ethnicity of Ph.D. Recipients

	CS	CE	CS & CE
Nonresident Alien	339 (39%)	41 (62%)	380 (41%)
African American, Non-Hispanic	10 (1%)	0 (0%)	10 (1%)
Native American or Alaskan Native	5 (1%)	1 (2%)	6 (.5%)
Asian or Pacific Islander	85 (10%)	6 (9%)	91 (10%)
Hispanic	6 (1%)	0 (0%)	6 (.5%)
White, Non-Hispanic	382 (44%)	15 (22%)	397 (43%)
Other/Not Listed	12 (1%)	2 (3%)	14 (1%)
Subtotal	**839**	**65**	**904**
Ethnicity Unknown	28 (3%)	1 (2%)	29 (3%)
Total	**867**	**66**	**933**

Table 4. Employment of New Ph.D. Recipients by Specialty

New Ph.D.s in Ph.D. Granting Depts.	Artificial Intelligence/ Robotics	Hardware/Architecture	Numerical Analysis/ Scientific Computing	Programming Languages/ Compilers	OS/Networks	Software Engineering	Theory/Algorithms	Graphics/ Human Interfaces	Databases/ Information Systems	Other/Unknown	Total
Tenure-Track	34	14	5	8	14	9	21	7	15	13	140
Researcher	17	2	5	3	7	2	3	10	4	6	59
Postdoc	17	4	4	3	3	3	8	5	2	6	55
Instructor	4	1	0	3	3	1	3	1	1	3	20
New Ph.D.s, Other Categories											
Other CS/CE Dept.	7	2	1	5	3	2	1	2	0	4	27
Non-CS/CE Dept.	2	0	0	0	0	0	0	1	1	0	4
Industry	77	38	10	37	63	30	35	34	39	27	390
Government	7	2	4	2	2	2	0	5	3	3	30
Self-Employed	4	0	0	2	3	2	0	3	3	2	19
Employed Abroad	7	4	1	1	6	0	5	3	7	7	41
Unemployed	0	0	0	0	2	0	1	0	0	1	4
Other/Unknown	8	2	1	2	3	1	1	0	2	124	144
Total	**184**	**69**	**31**	**66**	**109**	**52**	**78**	**71**	**77**	**196**	**933**

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Table 5. Gender of Bachelor's and Master's Recipients

	Bachelor's			Master's		
	CS	CE	Total	CS	CE	Total
Male	6,761 (76%)	1,012 (78%)	7,773 (77%)	3,316 (76%)	432 (76%)	3,748 (76%)
Female	1,396 (16%)	172 (13%)	1,568 (15%)	961 (22%)	133 (24%)	1,094 (22%)
Unknown	703 (8%)	117 (9%)	820 (8%)	92 (2%)	0 (0%)	92 (2%)
Total	**8,860**	**1,301**	**10,161**	**4,369**	**565**	**4,934**

Table 6. Ethnicity of Bachelor's and Master's Recipients

	Bachelor's			Master's		
	CS	CE[3]	Total	CS	CE	Total
Nonresident Alien	505 (6%)	94 (7%)	599 (6%)	1,935 (44%)	281 (50%)	2,216 (45%)
African American, Non-Hispanic	204 (2%)	47 (4%)	251 (2%)	46 (1%)	5 (1%)	51 (1%)
Native American or Alaskan Native	37 (--%)	2 (--%)	39 (--%)	13 (--%)	0 (0%)	13 (--%)
Asian or Pacific Islander	1,302 (15%)	174 (13%)	1,476 (15%)	573 (13%)	155 (27%)	728 (15%
Hispanic	233 (2%)	54 (4%)	287 (3%)	38 (1%)	3 (1%)	41 (1%)
White, Non-Hispanic	3,854 (44%)	707 (54%)	4,561 (45%)	1,164 (27%)	96 (17%)	1,260 (26%)
Other/Not Listed	146 (2%)	13 (1%)	159 (2%)	29 (1%)	6 (1%)	35 (--%)
Subtotal	**6,281**	**1,091**	**7,372**	**3,798**	**546**	**4,344**
Ethnicity Unknown	2,579 (29%)	210 (16%)	2,789 (27%)	571 (13%)	19 (3%)	590 (12%)
Total	**8,860**	**1,301**	**10,161**	**4,369**	**565**	**4,934**

Table 7. New Students in Fall 1998

	Bachelor's			Dept. Average	Master's			Dept. Average	Ph.D.			Dept. Average
	CS	CE	Total		CS	CE	Total		New Admit	MS to Ph.D.	Total	
US CS Ranked 1-12	1,518	58	1,576	143.3	459	0	459	41.8	294	34	328	27.3
US CS Ranked 13-24	1,084	356	1,440	120.0	492	6	498	41.5	250	28	278	23.2
US CS Ranked 25-36	1,430	0	1,430	119.2	199	0	199	16.6	221	24	245	20.4
US CS Other	9,868	1,789	11,657	135.5	2,374	136	2,510	31.1	648	101	749	8.4
Canadian CS	1,898	0	1,898	172.6	268	0	268	22.3	69	14	83	6.9
US CE	305	667	972	162	191	98	289	41.3	83	14	97	13.9
Total	**16,103**	**2,870**	**18,973**	**137.5**	**3,983**	**240**	**4,223**	**30.2**	**1,565**	**215**	**1,780**	**12.4**

Table 8. Prior Education of New Ph.D. Students

Bachelor's in CS or CE		Ratio
US CS Ranked 1-12	246 of 328	75%
US CS Ranked 13-24	156 of 278	56%
US CS Ranked 25-36	146 of 245	60%
US CS Other	475 of 749	63%
Canadian CS	65 of 83	78%
US CE	48 of 97	50%
Total	**1,136 of 1,780**	**64%**

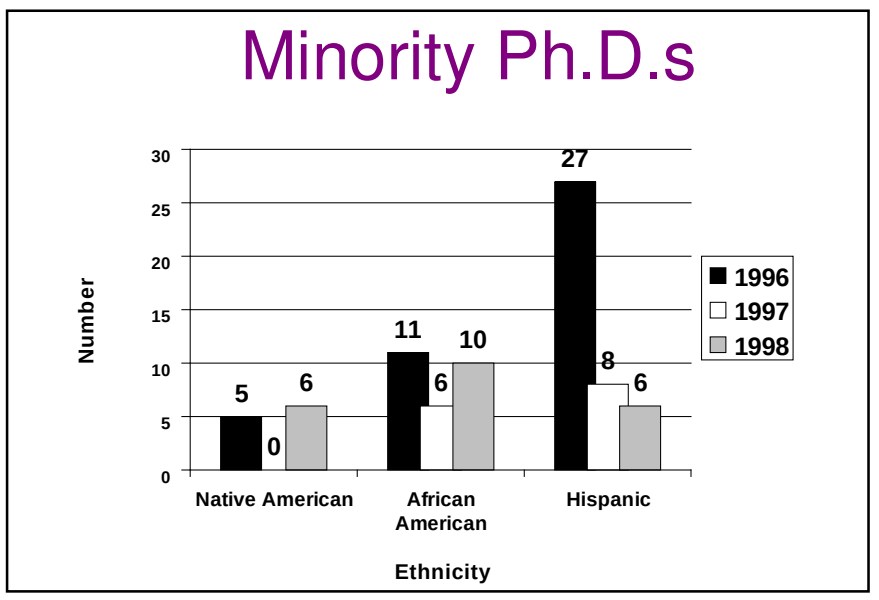

Figure 2

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turn from 915 the previous year, but still short of the record 1,113 in 1992. The prediction from last year's survey that 1,037 Ph.D. degrees would be awarded in 1998 was, as usual, overly optimistic, but this year the discrepancy was only 10% as opposed to 20% last year. Using an optimism factor of 0.85, next year's prediction of 1,128 translates to approximately 959 new Ph.D.s in 1999 (Figure 1).

Table 4 shows areas of specialization versus types of first appointments for last year's Ph.D. recipients. The breakdown is quite similar to last year with no discernable new patterns.

As predicted, the explosive growth in undergraduate enrollments over the past two years has begun to translate into a significant increase in the number of new Bachelor's degrees awarded. There were 10,161 awarded in 1998 by the 138 responding departments, up 26% from the 8,063 awarded by the 129 responding departments in 1997. The number of Master's degrees, which was essentially flat between 1995 and 1996 with 130 departments reporting, rose about 4.3% in 1997 with 131 departments reporting, and rose again about 11.1% in 1998 with 140 departments reporting.

The ethnicity statistics for bachelor's and Master's degree recipients remained relatively static. Although the absolute numbers of Bachelor's, Master's, and Ph.D. degrees awarded were significantly higher than last year, the percentage awarded to women in all three categories remained constant.

Last year we noted an alarming drop in the number of Ph.D. degrees awarded to Native Americans (from 5 in 1996 to 0 in 1997), African Americans (from 11 in 1996 to 6 in 1997), and Hispanics (from 27 in 1996 to 8 in 1997). This year these trends were reversed in the first two categories, but not in the last: there were only 6 Ph.D. degrees awarded to Hispanics in 1998 (Figure 2).

Student Enrollment

(Tables 7-14) New enrollment in Ph.D. programs is up significantly this year: 1,780 in Fall 1998, up 23.6% from 1,440 in Fall 1997. This is the third straight year of increase, indicating a sustained trend. These numbers bode well for a long-term increase in Ph.D. production. Total enrollment in Ph.D. programs is 7,119, up 4.86% from 6,789 last year. New enrollment in Master's degree programs shows a similar gain from 3,410 in 1997 to 4,223 in 1998, an increase of 23.8%.

The recent precipitous rise in undergraduate enrollments appears to have leveled off, at least for the moment (Figure 3). After doubling in the two years between 1995 and 1997, new undergraduate enrollments in CS and CE are off 4.2% this year.

The percentage of women enrolled in Ph.D. programs has shown a gradual but steady increase over the past three years: 16.2% in 1996, 17.0% in 1997, 18.8% in 1998. There were no significant changes in the ethnicity of Ph.D. students.

Faculty Demographics

In 1998, about 10.8% of professors were women, up slightly from 10.2% in 1997. Although this is not

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Table 9. Bachelor's Degree Program Total Enrollment

	CS	CE	Total
US CS Ranked 1-12	6,114	175	6,289 (9%)
US CS Ranked 13-24	4,636	1,659	6,295 (9%)
US CS Ranked 25-36	4,981	0	4,981 (8%)
US CS Other	33,400	6,045	39,445 (59%)
Canadian CS	7,805	0	7,805 (12%)
US CE	816	1,223	2,039 (3%)
Total	**57,752**	**9,102**	**66,854**

Table 10. Master's Degree Program Total Enrollment

	CS	CE	Total
US CS Ranked 1-12	1,016	0	1,016 (8%)
US CS Ranked 13-24	923	11	934 (8%)
US CS Ranked 25-36	495	0	495 (4%)
US CS Other	7,524	636	8,160 (67%)
Canadian CS	842	0	842 (7%)
US CE	415	328	743 (6%)
Total	**11,215**	**975**	**12,190**

Table 11. Gender of Ph.D. Program Total Enrollment

	CS	CE	CS & CE
Male	5,287 (81%)	477 (82%)	5,764 (81%)
Female	1,247 (19%)	93 (16%)	1,340 (19%)
Unknown	6 (--%)	9 (2%)	15 (--%)
Total	**6,540**	**579**	**7,119**

Table 12. - Ethnicity of Ph.D. Program Total Enrollment

	CS	CE	CS & CE
Nonresident Alien	2,811 (43%)	291 (50%)	3,102 (45%)
African American, Non-Hispanic	134 (2%)	5 (1%)	139 (2%)
Native American or Alaskan Native	13 (--%)	1 (--%)	14 (--%)
Asian or Pacific Islander	592 (9%)	60 (10%)	652 (9%)
Hispanic	103 (2%)	12 (2%)	115 (1%)
White, Non-Hispanic	2,380 (36%)	130 (23%)	2,510 (35%)
Other/Not Listed	109 (2%)	50 (9%)	159 (2%)
Subtotal	**6,142**	**549**	**6,691**
Ethnicity Unknown	398 (6%)	30 (5%)	428 (6%)
Total	**6,540**	**579**	**7,119**

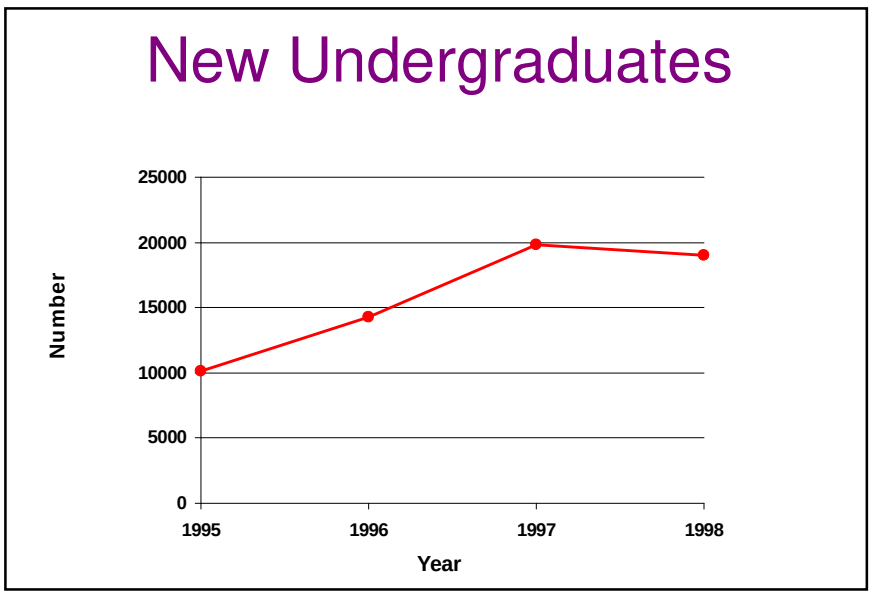

Figure 3

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much of a change, women have shown significant gains in seniority. For men, the percentage of tenure-track faculty who were associate or full professors was 79.9% in 1996, 82.2% in 1997, and 81.0% in 1998, essentially a steady state. Women, on the other hand, went from 58.0% in 1996 to 61.6% in 1997 to 69.1% in 1998.

Faculty Salaries

Average salaries at U.S. institutions rose 3.7-4.8% with the smallest increase at the full professor level and the largest at the associate professor level (Table 30). This is slightly higher than last year. Canadian salaries posted more modest 3.9% and 2.2% increases at the assistant and associate professor levels, respectively, and actually dropped 0.6% at the full professor level (Table 32). Salaries for U.S. institutions are 9-month salaries and are reported in U.S. dollars; those for Canadian institutions are 12-month salaries and are reported in Canadian dollars.

The salary figures in the first column of Table 25, which appear to be inverted, are correct. This phenomenon was also observed last year.

The overall mean salaries reported in the center column in Tables 24-32 are unweighted means, calculated by averaging the mean salaries as reported by each department. They are not weighted by the number of CS & CE faculty at each institution.

Rankings

For tables that group computer science departments by rank, the rankings are based on information collected in the 1995 assessment of research and doctorate programs in

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Table 13. Bachelor's Degree Candidates for 1998-99

	CS	CE	Total
US CS Ranked 1-12	1,484 (16%)	53 (4%)	1,537 (14%)
US CS Ranked 13-24	1,029 (11%)	366 (25%)	1,395 (13%)
US CS Ranked 25-36	904 (9%)	0 (0%)	904 (8%)
US CS Other	4,470 (47%)	856 (58%)	5,326 (48%)
Canadian CS	1,300 (14%)	0 (0%)	1,300 (12%)
US CE	310 (3%)	192 (13%)	502 (5%)
Total	**9,497**	**1,467**	**10,964**

Table 14. Master's Degree Candidates for 1998-99

	CS	CE	Total
US CS Ranked 1-12	579 (13%)	0 (0%)	579 (12%)
US CS Ranked 13-24	483 (11%)	5 (1%)	488 (10%)
US CS Ranked 25-36	323 (8%)	0 (0%)	323 (7%)
US CS Other	2,587 (60%)	283 (54%)	2,870 (59%)
Canadian CS	223 (5%)	0 (0%)	223 (5%)
US CE	118 (3%)	234 (45%)	352 (7%)
Total	**4,313**	**522**	**4,835**

Table 15. Anticipated Faculty Growth by Position

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Five-Year Increase
Tenure-Track	2,693	2,977	3,027	3,151	3,250	3,349	620 (23%)
Researcher	347	363	392	418	434	447	98 (28%)
Postdoc	245	265	292	314	330	346	101 (41%)
Instructor	248	246	265	275	280	288	40 (16%)
Lecturer	299	305	299	307	316	320	21 (7%)
Other/Not Listed	115	116	117	118	131	122	7 (6%)
Total	**3,947**	**4,272**	**4,352**	**4,543**	**4,702**	**4,834**	**887 (23%)**

Table 16. Anticipated Faculty Growth by Ranking

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Five-Year Increase
US CS Ranked 1-12	599	642	682	712	727	740	141 (24%)
US CS Ranked 13-24	513	549	542	568	583	598	85 (17%)
US CS Ranked 25-36	358	395	426	444	465	485	89 (25%)
US CS Other	1,960	2,118	2,164	2,248	2,320	2,383	423 (22%)
Canadian CS	383	418	418	446	472	490	107 (28%)
US CE	134	150	160	165	174	176	42 (31%)
Total	**3,947**	**4,272**	**4,352**	**4,543**	**4,702**	**4,834**	**887 (23%)**

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Table 17. Gender of Newly Hired Faculty

	Tenure-Track	Researcher	Postdoc	Instructor	Lecturer	Other	Total
Male	164	36	64	44	57	32	397
Female	24	8	13	12	12	7	76
Unknown	--	--	--	1	--	--	1
Total	**188**	**44**	**77**	**57**	**69**	**39**	**474**

Table 18. Ethnicity of Newly Hired Faculty

	Tenure-Track	Researcher	Postdoc	Instructor	Lecturer	Other	Total
Nonresident Alien	26	4	30	0	6	13	79
African American, Non-Hispanic	2	0	0	2	1	1	6
Native American or Alaskan Native	0	1	0	0	0	1	2
Asian or Pacific Islander	34	3	9	7	8	4	65
Hispanic	4	5	1	1	1	1	13
White, Non-Hispanic	116	29	36	47	52	18	298
Other/Not Listed	2	0	0	0	1	0	3
Subtotal	**184**	**42**	**76**	**57**	**69**	**38**	**466**
Did Not Indicate	4	2	1	0	0	1	8
Total	**188**	**44**	**77**	**57**	**69**	**39**	**474**

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the United States conducted by the National Research Council.

The top 12 schools in this ranking are Stanford University, the Massachusetts Institute of Technology, the University of California at Berkeley, Carnegie Mellon University, Cornell University, Princeton University, the University of Texas at Austin, the University of Illinois at Urbana-Champaign, the University of Washington, the University of Wisconsin at Madison, Harvard University, and the California Institute of Technology.

The departments ranked 13-24 are Brown University, Yale University, the University of California at Los Angeles, the University of Maryland at College Park, New York University, the University of Massachusetts at Amherst, Rice University, the University of Southern California, the University of Michigan, the University of California at San Diego, Columbia University, and the University of Pennsylvania. [3]

The departments ranked 25-36 are the University of Chicago, Purdue University, Rutgers–the State University of New Jersey, Duke University, the University of North Carolina at Chapel Hill, the University of Rochester, the State University of New York at Stony Brook, the Georgia Institute of Technology, the University of Arizona, the University of California at Irvine, the University of Virginia, and Indiana University.

Acknowledgments

Stacy Cholewinski and Jean Smith assisted with the data collection. Stacy also handled the data tabulation and Jean helped follow up with the institutions. We thank them for their assistance. ▮

Table 19. Gender of Professors

	Assistant	Associate	Full
Male	467 (84%)	861 (88%)	1,125 (92%)
Female	92 (16%)	114 (12%)	92 (8%)
Total	**559**	**975**	**1,217**

Table 20. Ethnicity of Professors

	Assistant[3]	Associate	Full[3]
Nonresident Alien	72 (13%)	4 (--%)	2 (--%)
African American, Non-Hispanic	8 (1%)	5 (--%)	2 (--%)
Native American or Alaskan Native	1 (--%)	6 (1%)	5 (--%)
Asian or Pacific Islander	108 (19%)	228 (24%)	186 (15%)
Hispanic	12 (2%)	11 (1%)	16 (1%)
White, Non-Hispanic	337 (60%)	690 (71%)	969 (80%)
Other/Not Listed	14 (3%)	8 (1%)	13 (1%)
Subtotal	**552**	**952**	**1,193**
Ethnicity Unknown	7 (1%)	23 (2%)	24 (2%)
Total	**559**	**975**	**1,217**

Table 21. Gender of Other Faculty

	Lecturer	Instructor
Male	317 (78%)	187 (73%)
Female	88 (22%)	70 (27%)
Unknown	3 (--%)	0 (0%)
Total	**408**	**257**

Table 22. Ethnicity of Other Faculty

	Lecturer	Instructor
Nonresident Alien	11 (3%)	3 (1%)
African American, Non-Hispanic	4 (1%)	5 (2%)
Native American or Alaskan Native	9 (2%)	0 (0%)
Asian or Pacific Islander	37 (9%)	22 (9%)
Hispanic	4 (1%)	1 (--%)
White, Non-Hispanic	335 (82%)	206 (80%)
Other/Not Listed	0 (0%)	0 (0%)
Subtotal	**400**	**237**
Ethnicity Unknown	8 (2%)	20 (8%)
Total	**408**	**257**

Table 23. Faculty Losses

	Total
Died	2
Retired	42
Took Academic Position Elsewhere	90
Took Nonacademic Position	52
Remained, Changed to Part Time	5
Other	9
Unknown	5
Total	**205**

Footnotes

In Table 1, the "Ph.D.s Produced" column shows the number of CS and CE degrees produced throughout the rankings.

* Includes 35 CE degrees granted by these CS departments
@ Includes 1 CE degree granted by these Canadian departments
\# Includes 18 CS degrees granted by these CE departments
\+ Includes 62 CE degrees granted by these CS departments
& Includes 20 CS degrees granted by these CE departments

[1] The title of the survey honors the late Orrin E. Taulbee of the University of Pittsburgh, who conducted these surveys for the Computer Science Board from 1970 until 1984.

[2] In some instances, departments only answered selective questions within a table or a section. Therefore, for individual fields within tables the response rate may vary $\pm$ 3.

[3] Indicates that the percentage only totals 99.

[4] Although the University of Pennsylvania and the University of Chicago were tied in the National Research Council rankings, CRA made the arbitrary decision to place Pennsylvania in the second tier of schools.

All tables with rankings: Statistics sometimes are given according to departmental rank. Schools are ranked only if they offer a CS degree and according to the quality of their CS program as determined by reputation. Those that only offer CE degrees are not ranked, and statistics are given on a separate line, apart from the rankings.

All ethnicity tables: Ethnic breakdowns are drawn from guidelines set forth by the U.S. Department of Education.

All faculty tables: The survey makes no distinction between faculty specializing in CS versus CE programs. We tried to minimize inclusion of any faculty in electrical engineering.

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Table 24. Nine-Month Salaries,122 Responses of 145 US CS Departments

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all salaries	Minimum	Mean	Maximum
Assistant	498	$29,150	$57,497	$70,900	$60,417	$45,000	$63,642	$83,600
Associate	806	$40,758	$63,328	$90,000	$69,851	$54,535	$77,184	$109,260
Full	999	$43,300	$76,033	$110,00	$93,189	$59,747	$118,467	$223,569

Table 25. Nine-Month Salaries, 12 Responses of 12 US CS Departments Ranked 1-12

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	72	$60,000	$63,059	$70,000	$66,425	$63,860	$70,487	$78,100
Associate	89	$49,050	$71,158	$90,000	$77,997	$77,009	$84,674	$91,400
Full	201	$43,300	$80,493	$110,000	$106,352	$126,400	$146,358	$170,000

Table 26. Nine-Month Salaries, 12 Responses of 12 US CS Departments Ranked 13-24

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	58	$33,000	$60,594	$69,700	$65,021	$63,000	$68,830	$81,000
Associate	75	57,349	$67,707	$75,850	$75,697	$73,300	$84,475	$98,300
Full	153	$64,672	$78,375	$97,200	$104,073	$125,500	$148,611	$223,569

Table 27. Nine-Month Salaries, 12 Responses of 12 US CS Departments Ranked 25-36

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	58	$56,250	$60,146	$68,000	$63,206	$59,614	$66,844	$75,000
Associate	74	$58,472	$67,761	$79,000	$72,878	$64,793	$78,303	$92,100
Full	134	$67,574	$77,013	$90,000	$96,879	$92,619	$128,768	$180,000

Table 28. Nine-Month Salaries, 86 Responses of 109 US CS Departments Ranked Higher than 36 or Unranked

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	310	$29,150	$55,910	$70,900	$58,529	$45,000	$61,495	$83,600
Associate	568	$40,758	$61,149	$83,500	$67,607	$54,535	$75,066	$109,260
Full	511	$48,978	$74,935	$104,300	$89,273	$59,747	$108,824	$185,234

Table 29. Nine-Month Salaries, 7 Responses of 19 US CE Departments

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	19	$50,908	$58,059	$66,199	$59,635	$53,263	$60,999	$70,000
Associate	37	$59,700	$64,852	$76,669	$68,472	$62,800	$74,280	$81,296
Full	43	$63,000	$75,967	$84,921	$87,929	$78,686	$107,189	$138,000

Table 30. Nine-Month Salaries, 129 Responses of 168 US CS and CE Departments

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	517	$29,150	$57,528	$70,900	$60,373	$45,000	$63,493	$83,600
Associate	843	$40,758	$63,412	$90,000	$69,775	$54,535	$77,024	$109,260
Full	1,042	$43,300	$76,030	$110,000	$92,901	$59,747	$117,853	$223,569

Table 31. Nine-Month Salaries for New Ph.D's, Responding US CS and CE Departments

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Tenure-Track	78	$50,000	$60,054	$74,000	$60,320	$50,000	$60,707	$75,000
Researcher	10	$40,000	$51,651	$70,000	$54,311	$40,000	$56,257	$70,000
Postdoc	15	$25,000	$39,090	$60,000	$39,772	$30,000	$40,454	$60,000
Other	7	$41,000	$51,328	$61,500	$52,528	$45,000	$53,728	$61,500

Table 32. Twelve-Month Salaries, 12 Responses of 18 Canadian CS Departments (Canadian Dollars)

		Reported Salary Minimum				Reported Salary Maximum		
Faculty Rank	# Faculty	Minimum	Mean	Maximum	Average of all Salaries	Minimum	Mean	Maximum
Assistant	35	$40,000	$57,288	$75,215	$59,217	$40,000	$62,030	$85,000
Associate	188	$46,350	$64,697	$82,175	$71,990	$46,350	$83,060	$126,703
Full	134	$58,520	$75,767	$95,474	$90,823	$58,520	$111,357	$162,075