

# Rynek Pracy w USA dla Absolwentów Studiów Informatycznych i Pokrewnych z Perspektywy Uniwersytetu Kalifornijskiego

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# Surge in computer science electrifies job market

- Increasing enrollments in computer science
- 99% of computer science PhD students have jobs.
- The field is expected to grow 40% from 2007 to 2012
- U.S. Bureau of Labor Statistics: *"Computer science graduates earn higher than average salaries, employment growth in computer science is expected to be much faster than average and job prospects should be excellent."*



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# Ten fastest-growing jobs in terms of salary

## U.S. Bureau of Labor Statistics 2005-2014

1. Computer systems software engineer -- \$81,140
2. Computer applications software engineer -- \$76,310
3. Biomedical engineer -- \$70,520
4. Physician assistant -- \$69,250
5. Environmental engineer -- \$67,620
6. Computer systems analyst -- \$67,520
7. Database administrator -- \$61,950
8. Physical therapist -- \$61,560
9. Network systems and data communication analyst -- \$61,250
10. Hydrologist -- \$60,880



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# Undergraduates flock to computer science programs

- The total number of undergraduate majors in computer science increased 5.5% in 2008-2009
- Over a two-year period, the number of such students increased to 14%.
- Employers cannot find enough people who are graduating to hire
- Computer science enrollments may have also been helped by the collapse of some major Wall Street firms



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# IT Captures 26 out of 100 Best Jobs in America

“Money” Magazine November 2010

|    |   |
|----|---|
| 1  | Software Architect                          |
| 7  | Database Administrator                      |
| 17 | Information Systems Security Engineer       |
| 18 | Software Engineering / Development Director |
| 20 | Information Technology Manager              |
| 21 | Telecommunications Network Engineer         |
| 24 | Network Operations Project Manager          |
| 26 | Information Technology Business Analyst     |
| 28 | Information Technology Consultant           |
| 30 | Test Software Development Engineer          |
| 31 | Information Technology Network Engineer     |
| 33 | Information Technology Program Manager      |
| 35 | Computer and Information Scientist          |
| 37 | Programmer Analyst                          |
| 38 | Applications Engineer                       |
| 49 | Systems Engineer                            |
| 60 | Information Technology Specialist           |
| 66 | Systems Administrator                       |
| 67 | Web Developer                               |
| 70 | Technical Services Manager                  |
| 77 | Information Technology Systems Manager      |
| 79 | Information Technology Training Specialist  |
| 88 | Technical Writer                            |
| 95 | Information Technology Project Coordinator  |
| 96 | Web Project Manager                         |
| 97 | Geographic Information Systems Analyst      |

# Average Starting Salaries for New College Graduates as of 2009

## U.S. National Association of Colleges and Employers

| Discipline or Major | Average Starting Salary |
|---------------------|-------------------------|
| Computer Science    | \$59,418                |
| Engineering         | \$59,254                |
| Finance             | \$49,940                |
| Economics           | \$49,829                |
| All                 | \$49,307                |
| Accounting          | \$48,993                |
| Business            | \$47,239                |
| Marketing           | \$43,325                |
| Humanities          | \$36,175                |



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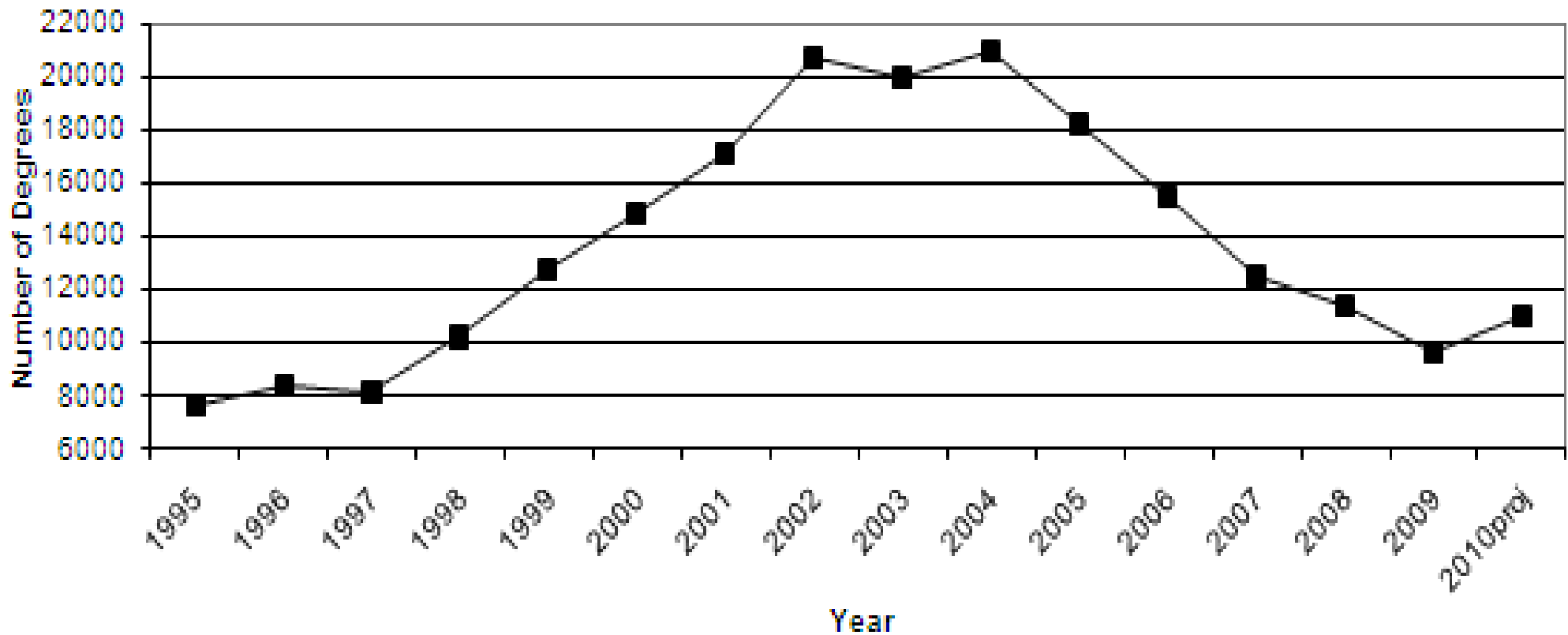
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# Bachelor Degrees in the US 1995-2010

Figure 6. BS Production (CS & CE)



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# Silicon Valley experiencing new hiring boom

- Silicon Valley companies are again competing to hire the best young computer scientists
- The valley produced 1,200 jobs last month, and thousands more openings are expected
- Companies like Facebook and Google are expanding their workforces in 2011



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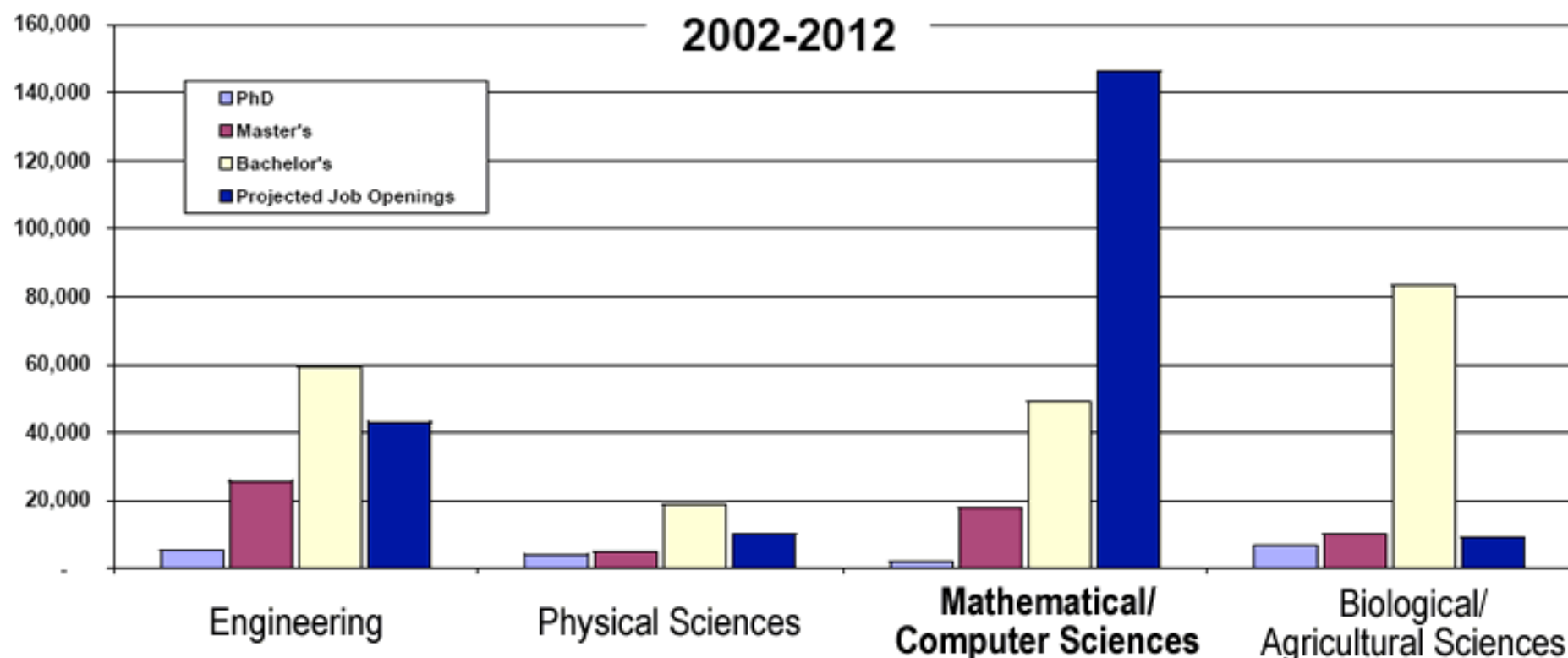
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# Want a job? Get a computer science degree

## Annual Degrees and Job Openings in Broad S&E Fields



SOURCES: Tabulated by National Science Foundation/Division of Science Resources Statistics; Degree data from Department of Education/National Center for Education Statistics: Integrated Postsecondary Education Data System Completions Survey; and NSF/SRS: Survey of Earned Doctorates; Projected Annual Average Job Openings derived from Department of Commerce (Office of Technology Policy) analysis of Bureau of Labor Statistics 2002-2012 projections



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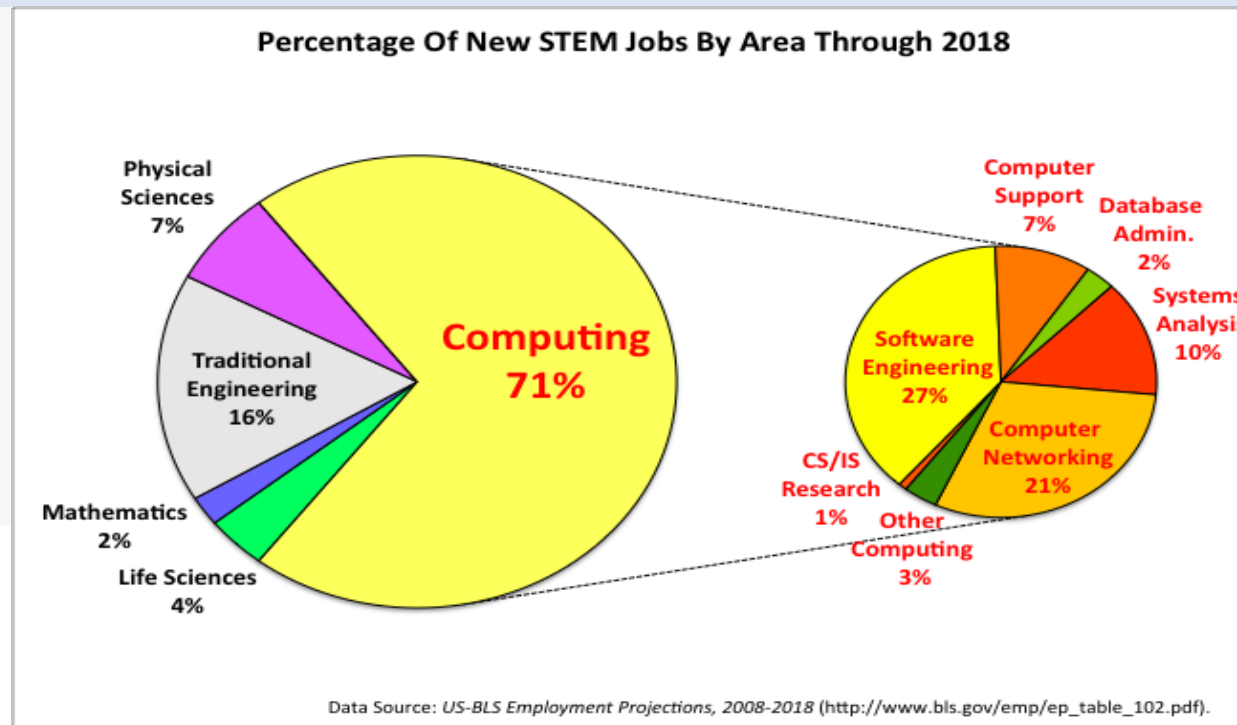
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# Computer Science Job Market Dwarfs other STEM Fields

- Computer science will be the fastest growing U.S. job market in science, technology, engineering, and math (STEM)
- Over 70% of new U.S. science and engineering jobs will be in computer science



# Information Technology Jobs vs. Outsourcing

American Association for Computing Machinery (ACM) Report

- Demand for technology workers in the United States continues to grow in spite of job outsourcing
- 2 - 3% of IT jobs will be lost to lower-wage countries
- IT sector's overall growth should outpace that loss
- Strong demand in software architecture, product design, project management and IT consulting
- Size of IT employment market in the U.S. is higher than it was at the height of the dot.com boom
- Lower wage scales in India and China are not pushing down pay for U.S. IT workers



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# Big Advantages of Graduate Degrees

- ❑ Students with a Master Degree typically earn \$15-17K more annually than those with a Bachelor Degree
- ❑ Students with a PhD Degree typically earn \$18-20K more annually than those with a Master Degree
- ❑ Both are among the highest starting salaries in their respective categories



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# California Schools Among the Best in CS

|            |  |
|------------|--|
| #1         | Massachusetts Institute of Technology        |
| #1         | Stanford University                          |
| <b>#1</b>  | <b>University of California--Berkeley</b>    |
| #5         | Cornell University                           |
| #5         | University of Illinois--Urbana-Champaign     |
| #7         | University of Washington                     |
| #8         | Princeton University                         |
| #8         | University of Texas--Austin                  |
| #10        | Georgia Institute of Technology              |
| <b>#11</b> | <b>California Institute of Technology</b>    |
| #11        | University of Wisconsin--Madison             |
| #13        | University of Michigan--Ann Arbor            |
| <b>#14</b> | <b>University of California--Los Angeles</b> |
| <b>#14</b> | <b>University of California--San Diego</b>   |
| #14        | University of Maryland--College Park         |
| #17        | Columbia University                          |
| #17        | Harvard University                           |
| #17        | University of Pennsylvania                   |
| #20        | Brown University                             |
| #20        | Purdue University--West Lafayette            |
| #20        | Rice University                              |
| #20        | University of Massachusetts--Amherst         |
| #20        | University of North Carolina--Chapel Hill    |
| <b>#20</b> | <b>University of Southern California</b>     |

- According to the U.S. News and World Report, 5 California universities are ranked among the 20 nations' best computer science departments

- University of California at Berkeley is ranked as the best public university in Computer Science

|     |  |
|-----|--|
| #1  | <b>University of California--Berkeley</b>    |
| #2  | University of Illinois--Urbana-Champaign     |
| #3  | University of Texas--Austin                  |
| #4  | Georgia Institute of Technology              |
| #5  | University of Wisconsin--Madison             |
| #6  | University of Michigan--Ann Arbor            |
| #7  | <b>University of California--Los Angeles</b> |
| #7  | <b>University of California--San Diego</b>   |
| #9  | University of Maryland--College Park         |
| #10 | University of North Carolina--Chapel Hill    |



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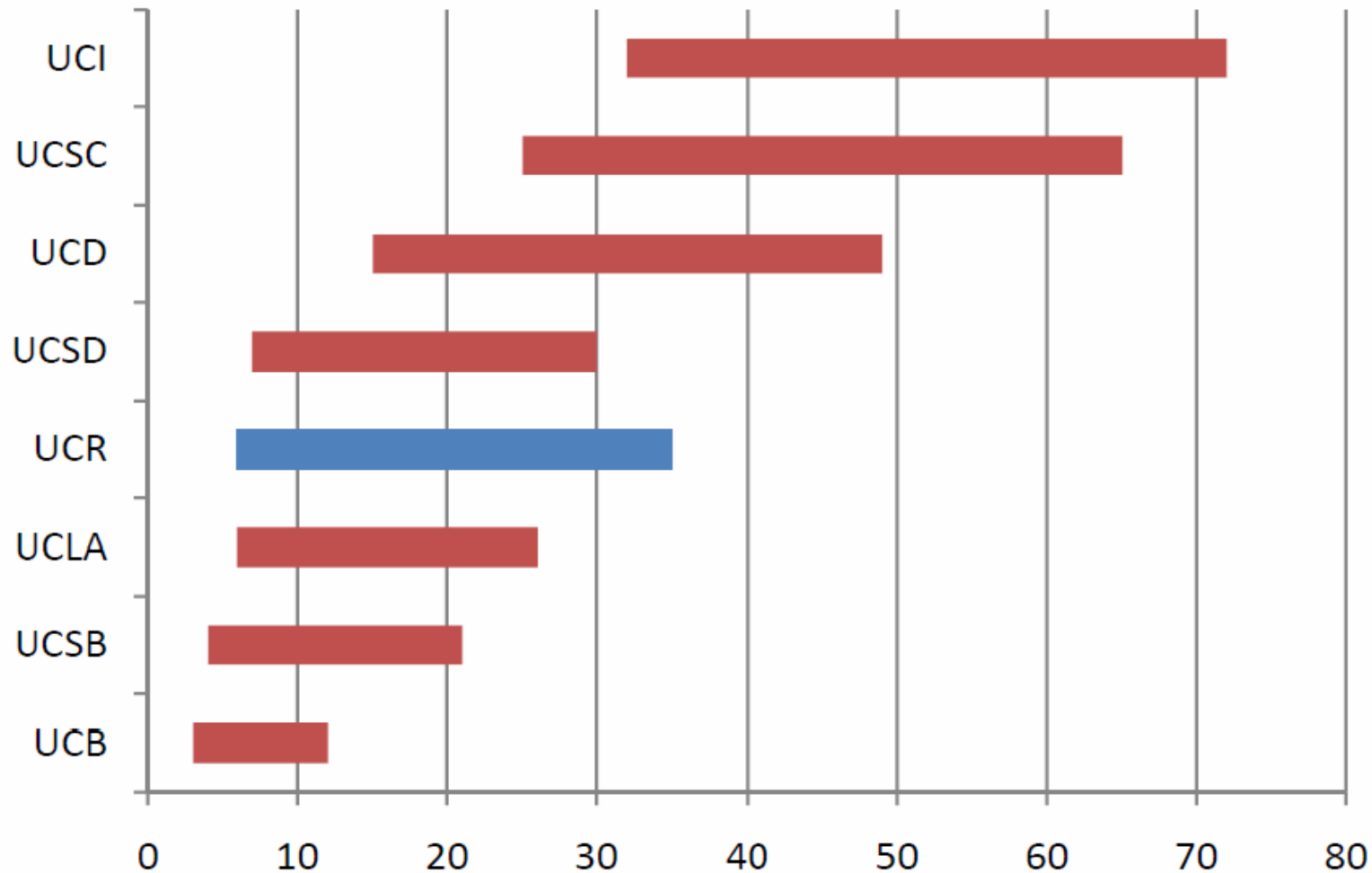


- University of California is the largest and the most prestigious public university system in the U.S.
- More than 220,000 students
- More than 170,000 faculty and staff
- More than 1.5 million alumni
- Includes:
  - ❑ [Ten University Campuses](#)
  - ❑ [Best National Laboratories](#)
  - ❑ [Prestigious Medical Centers](#)
  - ❑ [Many Other Locations](#)



# University of California CS Departments Rankings

## Computer Science (S-Based)



UCR Ranking: 6 - 35 out of 126 programs (top 5% - 28%)



# Graduate Admissions are Very Competitive

- Typically only 10-20% applicants are admitted
- Typical deadline is around middle of December
- In selected cases, there exists a possibility of partial financial support
- Top students may be offered an opportunity to work as Teaching Assistants which covers their tuition and provides additional income



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# Typical Application Checklist

- Online Application
- Official Transcripts
- Three Letters of Recommendation
- GRE Score Report (Graduate Record Examinations )
- TOEFL Score Report (Test of English as a Foreign Language)
- Resume/CV
- Visit individual departments' websites for specific details which vary between different schools, for example, <http://www-cse.ucsd.edu/graduate-education/admissions/application-checklist.html>



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# Summary

- Computer science job market in the US is rapidly growing and is offering some of the highest starting salaries for graduating students
- Many companies, large and small, are looking for talented and well-educated students and visit campuses to present their job offers and interview prospective candidates
- University of California System offers some of the highest ranking undergraduate and graduate programs and hires a large number of non-resident aliens



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# Ethnicity of Master Degree Recipients

**Table 10b. Ethnicity of Master's Recipients**

|                                      | CS           |       | CE         |       | I            |       | Total        |       |
|--------------------------------------|--------------|-------|------------|-------|--------------|-------|--------------|-------|
| Nonresident Alien                    | 3,858        | 62.2% | 508        | 62.8% | 275          | 19.7% | 4,641        | 55.2% |
| American Indian or Alaska Native     | 15           | 0.2%  | 6          | 0.7%  | 6            | 0.4%  | 27           | 0.3%  |
| Asian                                | 550          | 8.9%  | 105        | 13.0% | 151          | 10.8% | 806          | 9.6%  |
| Black or African-American            | 96           | 1.5%  | 15         | 1.9%  | 86           | 6.2%  | 197          | 2.3%  |
| Native Hawaiian or Pacific Islander  | 24           | 0.4%  | 2          | 0.2%  | 5            | 0.4%  | 31           | 0.4%  |
| White                                | 1,561        | 25.2% | 150        | 18.5% | 796          | 57.0% | 2,507        | 29.8% |
| Multiracial, not Hispanic            | 2            | 0.0%  | 4          | 0.5%  | 10           | 0.7%  | 16           | 0.2%  |
| Resident Hispanic, any race          | 97           | 1.6%  | 19         | 2.3%  | 68           | 4.9%  | 184          | 2.2%  |
| <b>Total have Ethnicity Data for</b> | <b>6,203</b> |       | <b>809</b> |       | <b>1,397</b> |       | <b>8,409</b> |       |
| Resident, race/ethnicity unknown     | 280          |       | 83         |       | 168          |       | 531          |       |
| Residency unknown                    | 408          |       | 31         |       | 104          |       | 543          |       |
| <b>Total</b>                         | <b>6,891</b> |       | <b>923</b> |       | <b>1,669</b> |       | <b>9,483</b> |       |



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