Top 25 Universities for Computer Science Majors

Overview

Traditional college rankings rely heavily on factors like the average SAT scores and GPAs of entering students, reputation among peer institutions, and even post-graduation earnings. By leveraging a sophisticated heat diffusion model to correlate employers with universities, Gild has produced a list of schools that produce truly top-notch engineers.

The Rankings

1. Stanford University
2. University of California—Berkeley
3. Carnegie Mellon University
4. University of Washington
5. Massachusetts Institute of Technology
6. University of Illinois at Urbana-Champaign
7. Georgia Institute of Technology
8. University of Texas—Austin
9. University of Waterloo
10. University of Mumbai
11. University of Southern California
12. University of California—Los Angeles
13. Cornell University
14. University of Michigan—Ann Arbor
15. University of California—San Diego
16. Purdue University
17. University of Phoenix
18. Rochester Institute of Technology
19. Tsinghua University
20. Jawaharlal Nehru Tech University
21. San Jose State University
22. Northeastern University
23. University of Maryland—College Park
24. Brigham Young University
25. University of California—Irvine

The Methodology
The Gild Science team designated Google, Facebook, and Microsoft as a “seed group” that would serve as the basis for the rest of the heat diffusion model analysis. At the same time, detailed profiles of over 400,000 engineers were gathered, with at least 2 companies associated with each profile.

The seed group was first used to generate a bipartite graph mapping the relationship between employers and developers. Of the 400,000 developers with detailed profiles, those who had worked at a seed group company were identified, making it possible to identify the other companies that developers from the seed group had worked for. From the expanded list of employers, other developers at those companies were identified. The process repeated until the heat diffusion model correlated all companies and their respective employees, ending with a ranking of over 3,000 companies.

The list of 3,000 ranked firms was then used as the basis for a second bipartite graph, which correlated companies to the alma maters of their engineering teams. Applying the heat diffusion model once again, a back-and-forth analysis generated a ranked list of 2,400 schools.

Implications
The results call into question traditional thinking not only about where employers should look for top engineers, but also which schools students interested in computer science should consider.

"The applications of this heat diffusion model are endless and show how data and science can overthrow preconceived ideas around schools, companies, and who's got talent," said Dr. Vivienne Ming, Gild’s Chief Scientist.

While some universities on Gild’s list regularly appear in other college rankings, there are a number of institutions normally excluded from such lists. Of U.S. institutions, the University of Phoenix, Rochester Institute of Technology, San Jose State University, Northeastern University, Brigham Young University and University of California—Irvine don’t appear in the top 25 of *U.S. News and World Report*’s popular Best Computer Science Programs list. And only one of those, San Jose State University, appears on *Network World*’s Top 20 CS Programs list, which is based on schools whose students go on to earn the highest salaries.

Rather than compete for graduates from the same small pool of candidates, these results suggest that employers could save themselves time and money by shifting their gaze.

Students considering CS programs could also save significant amounts of money by looking at schools like San Jose State, for example, whose in-state tuition is less than one-sixth the cost of Carnegie Mellon or USC.

Moreover, outside of the top institutions identified by the heat diffusion model, very little correlation was found between education and engineering talent. The implications of such a finding are stark: employers regularly discriminate against candidates because of where they went to school without an empirical reason to do so.

Finally, applying a heat diffusion model requires a seed group, which carries with it inherent biases. Even with such biases in tact, Gild's findings highlight overlooked institutions. A model without such inherent biases would likely produce a list that departs even further from conventional wisdom.