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Computing Machinery

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NEWS RELEASE

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NEW ACM STUDY GIVES MOST DETAILED PICTURE TO DATE OF US BACHELOR'S PROGRAMS IN COMPUTING

Significant Increases Seen in Software Engineering Enrollments

New York, NY, September 10, 2020 – ACM, the Association for Computing Machinery, recently released its eighth annual [Study of Non-Doctoral Granting Departments in Computing](#). With the aim of providing a comprehensive look at computing education, the NDC study includes information on enrollments, degree completions, faculty demographics, and faculty salaries. For the first time, this year's ACM NDC study includes enrollment and degree completion data from the National Student Clearinghouse Research Center (NSC).

In previous years, ACM directly surveyed Computer Science departments, and would work with a sample of approximately 18,000 students. By accessing the NSC's data, the ACM NDC study now includes information on approximately 300,000 students across the United States, allowing for a more reliable understanding of the state of enrollment and graduation in Bachelor's programs. Also for the first time, the ACM NDC study includes data from private, for-profit institutions, which are playing an increasingly important role in computing education.

"By partnering with the NSC, we now have a much fuller picture of computing enrollment and degree production at the Bachelor's level," explained ACM NDC study co-author Stuart Zweben, Professor Emeritus, Ohio State University. "The NSC also gives us more specific data on the gender and ethnicity of students. This is an important tool, as increasing the participation of women and other underrepresented groups has been an important goal for leaders in academia and industry. For example, having a clear picture of the current landscape for underrepresented people is an essential first step toward developing approaches to increase diversity."

"The computing community has come to rely on the ACM NDC study to understand trends in undergraduate computing education," added ACM NDC study co-author Jodi Tims, Professor, Northeastern University. "At the same time, using our previous data collection methods, we were only capturing about 15-20% of institutions offering Bachelor's degrees in computing. The NSC data gives us a much broader sample, as well as more precise information about enrollment and graduation in specific

computing disciplines—such as computer science, information systems, information technology, software engineering, computer engineering and cybersecurity. For example, we’ve seen a noticeable increase in cybersecurity program offerings between the 2017/2018 and 2018/2019 academic years, and we believe this trend will continue next year. Going forward, we also plan to begin collecting information on data science offerings in undergraduate education. Our overall goal will be to maintain the ACM NDC study as the most up-to-date and authoritative resource on this topic.”

As with previous NDC studies, information on faculty salaries, retention, and demographics was collected by sending surveys to academic departments across the United States. Responses were received from 151 departments. The average number of full-time faculty members at the responding departments was 12.

Important findings of the ACM NDC study include:

- Between the 2017/2018 and the 2018/2019 academic years, there was a 4.7% increase in degree production across all computing disciplines. The greatest increases in degree production were in software engineering (9% increase) and computer science (7.5% increase).
- The representation of women in information systems (24.5% of degree earners in the 2018/2019 academic year) and information technology (21.5% of degree earners in the 2018/2019 academic year) is much higher than in areas such as computer engineering (12.2% of degree earners in the 2018/2019 academic year).
- Bachelor’s programs, as recorded by the ACM NDC study, had a stronger representation of African American and Hispanic students than PhD programs, as recorded by the Computer Research Association’s (CRA) Taulbee Survey. For example, during the 2018/2019 academic year, the ACM NDC records that 15.6 % of enrollees in Bachelor’s programs were African American, whereas the CRA Taulbee survey records that 4.7% of enrollees in PhD programs were African American.
- In some disciplines of computing, African Americans and Hispanics are actually over-represented, based on their percentage of the US population.
- Based on aggregate salary data from 89 non-doctoral-granting computer science departments (including public and private institutions), the average median salary for a full professor was \$109,424.
- Of 40 non-doctoral granting departments reporting over 56 faculty departures, only 10.7% of faculty departed for non-academic positions. Most departed due to retirement (46.4%) or other academic positions (26.9 %).

In addition to Stuart Zweben, and Jodi Tims, the ACM NDC study was co-authored by Yan Timanovsky, Association for Computing Machinery. By employing the NSC data in future ACM NDC studies, the co-authors are confident that an even fuller picture will emerge regarding student retention with respect to computing disciplines, gender and ethnicity.

About ACM

[ACM, the Association for Computing Machinery](#), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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