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Guest Editors' Introduction: Best of RESPECT, Part 2

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BEST OF RESPECT PART 2

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We're delighted to bring you this special issue on the best of RESPECT, part 2! As we stated in part 1, the IEEE Special Technical Committee on Broadening Participation conference, Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT), was founded on the belief that engaging diverse groups of people in computing is a matter of equity—all people deserve the opportunity to solve increasingly complex global challenges. The inaugural RESPECT 2015 conference, held 13–14 August 2015 in Charlotte, North Carolina, was co-organized by the STARS Computing Corps BPC Alliance and collocated with the STARS Celebration to leverage and engage the existing activist-oriented community in broadening participation (BP) research. The RESPECT and Celebration conferences shared a joint theme, "RESPECT for Diversity," that you will find throughout this two-part special issue. The five articles in this second part of the two-part series include the remaining best papers from RESPECT 2015.

The articles in this two-part series highlight the ways diverse populations experience and perceive computing, along with some ways to encourage engagement. These results are critical to the success of CS for All and for the field of computing in general.

The first two articles look at individual perceptions in an attempt to understand the lack of participation for diverse groups: African-American girls and Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) students. While women of color comprise 35 percent of the general US population (www.catalyst.org/knowledge/women-color-united-states-0), fewer than 10 percent of bachelor's in computing degrees are awarded to them (http://cacm.acm.org/magazines/2011/7/109907-the-status-of-women-of-color-in-computer-science/fulltext#UT1). The article by Ashley Robinson, Manuel Perez-Quinones, and Glenda Scales, "African-American Middle School Girls: Influence on Attitudes toward Computer Science," explores the factors that impact the attitudes of African-American middle school girls about computing. The authors found that, in line with other broader studies of middle school girls, the African-American girls participating in this study had a negative perception of computing, citing common negative stereotypes about the work and the people that perform it. Importantly, the work points to four factors that can have a positive influence on attitudes of African-American middle school girls toward computing: participation in a computing intervention, such as a workshop; the intervention content domain; the facilitation of performance accomplishments; and participant characteristics.

In further studies of individual perceptions of computing, Jane Stout and Heather Wright found that LGBTQ students with a low sense of belonging in the computing community were more likely to consider leaving the field in their article, "Lesbian, Gay, Bisexual, Transgender, and Queer Students' Sense of Belonging in Computing: An Intersectional Approach." As the theory of intersectionality would predict, women LGBTQ students reported the lowest sense of belonging among all student groups in the study samples. These results highlight the need to promote a stronger sense of community and inclusitivity in computing, which is particularly important for students who are members of more than one underrepresented group.

Minority status can negatively impact perceptions of and sense of belonging in computing, but there are promising approaches for keeping diverse groups engaged in STEM degree programs. In "Julian Scholars: Broadening Participation of Low-Income, First-Generation Computer Science Majors," Gloria Childress Townsend and Kay Sloan study Julian Scholars, a scholarship program designed to recruit and retain low-income, first-generation college students into STEM degrees. Seventy-nine percent of the participating Julian Scholars have completed an undergraduate degree in a STEM discipline, and many chose to major in computer science. The authors' findings show that the program of a week-long summer research experience bridging high school and college, common classes for each cohort, mentoring, one-on-one resume and internship/research counseling, and scholarships were highly effective at engaging these students with computing.

The STARS Computing Corps has applied a community-building approach as well. In "STARS Computing Corps: Enhancing Engagement of Underrepresented Students and Building Community in Computing," Jamie Payton and her colleagues reported on the STARS Computing Corps, a national community that develops college faculty and students as leaders who work to broaden participation in computing. The key finding is that undergraduate computing students felt that STARS positively impacted them in their academic, career, and personal lives, with students from underrepresented groups experiencing the most benefit.

In addition to motivating women of color to pursue the study of computing, RESPECT authors address the issues these women face once they enter computing degree programs. In "Enacting Agency: The Strategies of Women of Color in Computing," Apriel Hodari and her colleagues examine how women of color employ their agency to apply strategies that have a direct impact on their own success in computing degree programs. Narrative analysis of interviews and case studies reveals four navigational approaches that women of color

have employed to find the motivation and courage to persist in computing: acknowledging barriers to success, connecting their technical computing work to their unique personal experiences, developing soft skills and using them to address diversity and race, and creating technology to promote social activism.

In January 2016, President Obama called on Congress to fund the "CS for All" initiative that would provide all K–12 children with access to high-quality education in computing. The articles in this two-part series highlight the ways diverse populations experience and perceive computing, along with some ways to encourage engagement. These results are critical to the success of CS for All and for the field of computing in general. We invite you to attend or present your work at RESPECT 2016, which lasts from 11–13 August 2016 in Atlanta, Georgia. Find out more at http://respect2016.stcbp.org and help us develop interdisciplinary partnerships to promote CS for All. ▣

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