Departmental BPC Plan
School of Computer Science
Carnegie Mellon University

Effective dates of Plan: 02/23/2022- 02/23/2024
Contact: Jodi Forlizzi, Herbert A. Simon Professor of Computer Science and Associate Dean, DEI, Carnegie Mellon University, forlizzi@cs.cmu.edu

1. Context

Carnegie Mellon University, located in Pittsburgh, PA, is a private research university with approximately 14,800 students and 1,500 faculty. The School of Computer Science (SCS) at Carnegie Mellon University is top ranked for research and teaching (currently ranked 2nd by the US News & World Report). The undergraduate program offers an accredited bachelor of science (B.S.) degree in computer science, artificial intelligence, computational biology, and human-computer interaction. The tables below show baseline data for undergraduate student diversity university-wide and for the School of Computer Science. As of 2021, SCS is at or slightly above the university's average in percentage of women and groups traditionally underrepresented in computing (Black, Hispanic, American Indian, Alaskan Native, Native Hawaiian, or Other Pacific Islander). The goal of this BPC plan is to understand what strategies have been successful to cause (and help continue) this trend.

CMU undergraduate student demographics 2019-2021 (BIPOC includes Black, Hispanic, American Indian or Alaskan Native, Native Hawaiian, or Other Pacific Islander).

CMU UNDERGRADUATE student demographics	Fall 2021			Fall 2020			Fall 2019		
	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths
Women	3,684	50	50.4	3,511	50	50.3	3,480	50	50.2
Men	3,624	50	49.6	3,471	50	49.7	3,449	50	49.8
Total	7,308	100	100	6,982	100	100	6,929	100	100

CMU UNDERGRADUATE student demographics	Fall 2021			Fall 2020			Fall 2019		
	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths
BIPOC	949	13	13.0	866	12	12.4	843	12	12.2
Non-BIPOC	6,359	87	87.0	6,116	88	87.6	6,086	88	87.8
Total	7,308	100	100	6,982	100	100	6,929	100	100

SCS UNDERGRADUATE student demographics	Fall 2021			Fall 2020			Fall 2019		
	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths
Women	453	46	46.0	430	48	48.0	403	47	47.2
Men	531	54	54.0	465	52	52.0	451	53	52.8
Total	984	100	100	895	100	100	854	100	100

SCS UNDERGRADUATE student demographics	Fall 2021			Fall 2020			Fall 2019		
	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths	Count	Percent	Percent to the tenths
BIPOC	146	15	14.8	113	13	12.6	93	11	10.9
Non-BIPOC	838	85	85.2	782	87	87.4	761	89	89.1
Total	984	100	100	895	100	100	854	100	100

2. Goals

Carnegie Mellon's School of Computer Science aims to create a diverse, inclusive environment for all of our stakeholders. In 2018, we implemented some changes to course prerequisites and applications of basic computing with the goal of increasing the numbers of female students in our undergraduate program. This plan will help us understand what strategies have been

successful, and to apply them to the goal of substantially increasing the percentage of women and people from groups underrepresented in computing in the next ten years. Specifically:

- Year 1 Goal. Capture baseline measures for CMU UG students in computer science. The goal is to understand how 2018 strategies affect *sense of belonging* and *growth mindset* for undergraduate women in computer science.
- Year 2 Goal. Target and implement two strategies with a focus of increasing sense of belonging and growth mindset for undergraduate students from groups traditionally underrepresented in computing

3. Activities and Measurement

Y1/A1a – Activity 1. (Forlizzi). Collect and verify the following quantitative undergraduate student data: demographics; admissions; matriculations; graduations for our four undergraduate major programs (CS, Comp Bio, AI, HCI).
Y1/A1b – (Forlizzi). Work with Eberly Center for Teaching Excellence and Educational Innovation for variables for the measures of *sense of belonging* and *growth mindset*. Develop IRB.
Y1/A1c – (Forlizzi). Collect qualitative data on the student experience, using the Data Buddies survey, student focus groups, and student interviews.
Y1/A1d – (Forlizzi). Conduct data analyzes relative to *sense of belonging* and *growth mindset* of undergraduate students in core CS courses (taken in all majors). Create mapping of strategies employed to increase diversity and variables for *sense of belonging* and *growth mindset.*
Year 1/Activity 1 Metrics. Success will be determined by gaining a clear idea of what strategies have led to positive outcomes for our female undergraduate students, and how these might be employed for recruitment and retention of students from groups traditionally underrepresented in computing.

Y2/A2a - Activity 2. (Darla Coleman, Executive Director of DEI, CMU SCS). We will apply successful strategies with a goal of recruiting and retaining students from groups traditionally underrepresented in computing. (We have an existing, centralized repository of BPC activities, which we routinely update, that provides detail about individual activities and strategies). We will leverage a number of ongoing programs within SCS and focus in particular on activities including 1) an online recruiting event, 2) peer to peer tutoring in core CS courses, 3) identification of a faculty or grad student mentor for each undergraduate student.
Y2/A2b - (Forlizzi). Ensure that all faculty with eligible grants apply for our summer REU program, which brings participants together for lunches, lectures, mentoring activities, field trips, and social activities. We will recruit REU students from groups traditionally underrepresented in computing.
Y2/A2c – (Forlizzi). Continue to increase numbers of Tartan Scholars in our undergraduate programs with an expanded, online recruiting event. These are students from lower SES and underrepresented groups.
Year 2/Activity 2 Metrics. Success will be measured by tracking strategies implemented and student demographics in years 2022-2025.