Departmental BPC Plan
Department of Computer Science
Virginia Tech

Effective dates of Plan: 10/13/2022- 10/13/2024
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1.   Context

In keeping with the Virginia Tech motto *Ut Prosim* (That I May Serve), our responsibility as a land grant institution, and our membership in the Tech Talent Pipeline Initiative, the Department of Computer Science (CS@VT) aims to significantly broaden participation in computing and computer science research across the state of Virginia.

CS@VT offers accredited Bachelors, Masters, and Ph.D. degrees in Computer Science. Based on complete institutional data reported for 2020-21, enrollments total 1,215 students in the B.S. program; 149 students in the M.S. and M.Eng. programs; and 177 students in the Ph.D. program. The undergraduate program is located on the Blacksburg campus of Virginia Tech in the Southwest region of Virginia, while the graduate programs are located at both the Blacksburg and Washington, D.C., metro area campuses in Falls Church, Arlington, and Alexandria, Virginia.

Through our research, teaching, and service, the faculty in CS@VT seek to inspire and engage the minds, imaginations, and aspirations of those individuals and communities most underserved and underrepresented in the field of computer science including those whose regionality may preclude their awareness of or access to the opportunities presented within the field. **CS@VT identifies the following overlapping groups of students as underserved and underrepresented within its 2021 undergraduate student population:**

Enrolled students who…	#	%	# Attended HS in the Western Region of VA	# Attended HS in the Southwest Region of VA
Identify as female	207	17.0%	6	0
Are American Indian or Alaska Native	0	0	0	0
Are Black or African-American	32	2.6%	<5	0
Are Native Hawaiian or Other Pacific Islander	<5	<0.04%	0	0
Are Hispanic or Latino	65	5.3%	<5	0
Are more than one race (not Hispanic)	57	4.7%	<5	0

With a focus on student recruitment and retention, CS@VT has established BPC goals that are designed to promote interest and access, encourage engagement, and ensure success for those individuals who may not otherwise consider a career in computing and/or computer science research. CS@VT encourages faculty PIs to consider ways in which they may contribute to the following goals and activities as they prepare grant proposals for submission.

2.   Goals, Activities, and Measurement

G1: Annually increase the number of undergraduate applications to and enrollment in CS@VT by Virginia students from underserved and underrepresented groups.
A1a. Collaborate with the Center for Educational Networks and Impacts (CENI); the Rural Education Center; and the Center for the Enhancement of Engineering Diversity (CEED) at Virginia Tech to develop new programming and/or support current engagement opportunities for pre-college / K-12 students from underrepresented populations and underserved regions in Virginia in computing and computer science research. [Coordinated by Joan Watson]

A1b. Partner with Virginia's *Access to Community College Education* (ACCE) *Program* and *Get Skilled, Get a Job, Give Back* (G3) *Initiative* to engage female community college students and community college students from underserved and underrepresented populations in computer science projects and research activities. [Coordinated by Joan Watson, James Harder, Bob Edmison]
M1: Number and demographics of students served in pre-college/K-12 and community college activities and events.

G2: Increase engagement surrounding the equitable access to and inclusive delivery of consistent and robust computer science curriculum to underserved and underrepresented public secondary school students in the Western and Southwestern education regions of Virginia.
A2a. Provide support for undergraduate and graduate students in CS and STEM Education to conduct analyses of Virginia public secondary schools in the Western and Southwestern regions of Virginia to determine: (1) curricular engagement with computing and computer science (course objectives, student learning outcomes, etc.), (2) curricular and pedagogical approaches to computing and computer science (academic vs. vocational, engagement in inclusive pedagogical models, etc.), (3) administrator/ teacher/ student attitudes, efficacy, and beliefs regarding computing and computer science, (4) attitudes, efficacy, and beliefs regarding computing and computer science among underserved and underrepresented student populations, and (5) perceived and actual systemic challenges to implementing an enhanced computer science curriculum. [Coordinated by Joan Watson, Bob Edmison]
A2b. Partner with CSTA Blue Ridge Virginia; CSTA Southern VA; the Virginia Tech School of Education; and the Virginia Department of Education to lead in the development of an informed curricular framework and equitable teaching practices for computer science education in elementary, middle, and high schools in rural Virginia. [Coordinated by Joan Watson]
A2c. Collaborate with CSTA Blue Ridge Virginia; CSTA Southern VA; the Center for Educational Networks and Impacts (CENI); the Southwest Center; and the Center for Rural Education at Virginia Tech to develop and implement in-service training opportunities in computer science for public secondary school teachers in demographic regions of Virginia where a lack of sufficient numbers of teachers trained to teach computing is a barrier to implementing an enhanced and equitable computer science curriculum. [Coordinated by Joan Watson, James Harder, Bob Edmison]
M2: Number and demographics of public K-12 teachers participating in professional development activities and events.

G3: Annually increase the participation of students from underrepresented and underserved groups in high-impact, experiential learning opportunities in computing and computer science research at the undergraduate level.
A3a. Increase the exposure of undergraduate students from underrepresented and underserved groups to computer science research by sponsoring conference attendance, travel, and follow-up cohort discussion groups. [Coordinated by Mohammed Seyam]
A3b. Partner with the Alumni Relations Manager at CS@VT to host speakers/panel discussants, themselves from underrepresented and underserved groups, to highlight their experiences as researchers and professionals in computer science for an audience of undergraduate CS@VT students. [Coordinated by Joan Watson, Mohammed Seyam]
A3c. Propose and lead a project-based, year-long research cluster for undergraduate students from underrepresented and underserved groups. [vis-à-vis the CS@VT BURGS (Broadening Undergraduate Research Group for Systems) initiative, coordinated by Margaret Ellis]
A3d. Partner with the Experiential Learning Coordinator to develop a network of colleagues from other institutions and provide support for study abroad (international) and study away (inside the U.S.) opportunities in computer science for CS@VT undergraduate students from underrepresented and underserved groups. [Coordinated by Mohammed Seyam]
M3: Number and demographics of undergraduate students participating in experiential learning opportunities.