

Broadening Participation in Computing (BPC) Plan Connected

Both Georgia Institute of Technology and University of Illinois Urbana Champaign have detailed BPC plans that have been approved. Both schools have several goals to expand faculty participation as mentors, speakers, research advisors, and in other capacities related to support of K-12 through Ph.D. minority students. The PIs have extensive track record of supporting these goals and plan to continue working on them. In particular:

- 1) We will continue to include undergraduate students in our research. The PIs Zajic and Prvulovic have long history of advising undergraduate students (26 undergrads) through Opportunity Research Scholar (ORS) program at Georgia Tech and individual mentorship, while PI Kumar has advised several undergraduate researchers who have gone on to join graduate studies at UIUC and elsewhere and has advised undergraduate students who have recently published in premiere computer architecture conferences, including ISCA, HPCA (best paper nomination), and DAC. Dr. Kumar also has 30 undergraduate mentees that he meets at least once every semester. Six of his mentees belong to underrepresented groups. The interdisciplinary nature of the project will help us engage a large number of undergraduate students in research and will provide both graduate and undergraduate student with a unique interdisciplinary skillset. We will additionally focus on promoting our research to underrepresented groups and try to regrou them into our research labs.
- 2) We will continue to engage general public, especially high-school students and teachers, on issues related to side-channel signals and hardware security. The PIs Zajic and Prvulovic have done this in the past with hands-on demonstration for the Family Science Night at the Mimosa Elementary School in Roswell, GA and hands-on STEM activities at Pace Academy in Atlanta, GA. The PIs are also often judges in high school science competitions. Similarly, Dr. Kumar has assisted in the organization of events such as HackIllinois and Engineering Open House (EOH) that see enthusiastic participation from the local community. He will have a booth on “processors that leak information” in the next three EOHs to get high school students excited about intersection of computer architecture and security. We will additionally focus on promoting engineering and computer science to underrepresented groups.
- 3) We will continue to regrou PhD and post-doc minorities into our research labs. The PIs Zajic and Prvulovic have two female PhD students in the research group, while Dr Kumar currently has three women researchers in his research group. We will continue to seek researchers from different underrepresented groups into our research programs.

Both schools have goals to engage faculty in serving on the committees that promote diversity and inclusion. The PIs have extensive track record of supporting these goals and plan to continue working on them. In particular:

Dr. Prvulovic was associate school chair until recently and in that role he actively participated in hiring minority faculty and plans to continue working on improving diversity, equity, and inclusion in School of Computer Science at Georgia Tech.

Dr. Zajic, as a member of minority group has always worked on promoting diversity, equity, and inclusion in School of Electrical and Computer Engineering. Currently, she is doing that though her role in graduate committee in ECE.

Dr. Kumar serves on executive committee of the College of Engineering at UIUC. One of the thrust areas for the committee is to improve DEI markers for the college. Kumar also serves on the faculty recruitment committee of the ECE department. In this role, he advocates consideration and hiring of members from underrepresented groups.

**Departmental BPC Plan
College of Computing
Georgia Institute of Technology**



Effective dates of Plan: 05/23/2022- 05/23/2024

Contact: Betsy DiSalvo, Associate Professor, School of Interactive Computing,
edisalvo3@gatech.edu

Context: Georgia Institute of Technology (Georgia Tech) College of Computing (CoC) is one of the highest-ranked computer science (CS) programs in the country. As a public institution, we take pride in providing an affordable (\$10,258 in-state and \$31,370 out-of-state tuition) CS degree for students from the southern US and students with fewer financial resources. We have many programs in place to improve diversity among students who are from underrepresented groups (URG)¹ in computing. These programs work under two robust BPC programs, *Constellations Center for Equity in Computing* and the *CoC Department of Outreach, Enrollment and Community*.

All undergraduates at Georgia Tech are required to take an Intro to CS. Across the CoC undergraduate majors (CS, Computational Media and Computational Engineering), over 25% identify as female and over 14% as part of an underrepresented ethnic or racial group. In graduate programs, including our affordable online MS programs, over 21% of the graduate students identify as female, and over 10% as part of an underrepresented ethnic or racial group.

	UNDERGRADUATE					GRADUATE				
	CS	Comp Media	CompE	Total		MS On-campus	MS Online	PhD	Total	
Total	3591	230	659	4480		828	12118	372	13318	
Male	2668	125	532	3325	74.22%	606	9629	280	10515	78.95%
Female	923	105	127	1155	25.78%	222	2489	92	2803	21.05%
Am. Indian/Alaska Native					<1%					<1%
Asian	1977	90	275	2342	52.28%	603	6096	222	6921	51.97%
Black/African American	244	34	75	353	7.88%	12	411	16	439	3.30%
Hispanic/LatinX	226	16	46	288	6.43%	20	874	15	909	6.83%
White	962	75	229	1266	28.26%	160	4192	105	4457	33.47%

Among the CoC faculty, 23% identify as female, and 7% identify as members of an underrepresented ethnic or racial group.

College of Computing Faculty		
Total	174	
Male	132	75.86%
Female	41	23.56%
American Indian/Alaska Native	0	0.00%
Asian	57	32.76%
Black/African American	10	5.75%
Hispanic/LatinX	2	<2%
White	93	53.45%

¹ The representation of some groups of people in computer science differs from their representation in the US population. The CoC considers women+, persons with disabilities, and persons from three racial and ethnic groups—Blacks, Hispanics, and American Indians or Alaska Natives as part of Underrepresented Groups (URG).

Goals (G), Activities (A), and Measures (M)

In 2022 we will hire an Associate Dean of Diversity, Equity, and Inclusion (DEI) to oversee our goals for the 22-23 school year, the activities we will start or continue to meet those goals, and measurements that will help us identify if we are meeting our objectives.

G1. To establish baseline numbers and expand our efforts to students with disabilities, our goal is to create and implement a systematic data collection and reporting plan by 8/23.

A1. Faculty will work with the new Associate Dean of DEI to implement data collection and reporting plans for the CoC to report on annual changes in the number of students and faculty who are part of URG and participation levels in our student support and outreach programs. An annual report will be produced, and the first report will be disseminated by 8/23 with new BPC goals set for the 2023-2024 school year.

(TBD – Associate Dean of DEI)

M1. The annual report will be produced with the first report disseminated by 8/23

G2. Our focus for the 22-23 school year is to engage more faculty with current efforts to support Georgia Tech students who are part of URG and increase the computing pipeline from Kindergarten through Ph.D. Our goal for academic year 22-23 is for 20% of the faculty to mentor, advise, or provide support for one of the organizations or programs listed below.

A2. Faculty can participate as mentors, speakers, research advisors, and other capacities with the following current efforts to support K-Ph.D. students and Faculty from URG in computing studies and careers.

- *Minorities at the College of Computing* (M@CC) group (**Cedric Stallworth**),
- Women+ organizations for undergrads, grads, and faculty (**Annie Anton**)
- Fellowship program for URM Ph.D. students (**Kamau Bobb**)
- *Computing Equity and Fellowship Program* (**Lien Diaz**),
- *BridgeUp* program in partnership with NCWIT (**Betsy DiSalvo**),
- Advanced Placement preparation programs (**Cedric Stallworth**)
- *Dataworks* program (**Betsy DiSalvo**)

M2. Faculty leaders listed above will actively track the faculty engagement in their programs.

G3. To increase the number of faculty from URG, our goal is to have over 25% of our faculty interviews with candidates from URG in the 2022/2023 faculty searches.

A3. Faculty will proactively reach out to women and candidates from URG by conducting DEI discussions early in hiring cycles, recruiting at the Tapia Conference and the Anita Borg Conference. Each school will collect data on faculty interview demographics and set new goals and action items to increase the diversity of faculty candidates we identify and interview. (Chairs of hiring committees: **Munmun De Choudhury for IC, Mostafa Amar for CS, Edmond Chow for CSE, Vijay Madisetti for SCP**)

M3. The Chairs of the hiring committees will measure the demographic information of all job applicants in 2022-2023, providing descriptive statistics on those selected for interviews, those offered positions, and those that accept.

G4. By 2027, 50% of faculty will have attended a DEI or implicit bias workshop.

A4. Faculty will attend institute sponsored or outside workshops on DEI and implicit bias. **(TBD – Associate Dean of DEI)**

M4. Tracking the number of faculty attending DEI or implicit bias workshop through Georgia Tech's ADVANCE program and the Institute of Diversity, Equity and Inclusion.

Departmental BPC Plan
Department of Electrical and Computer Engineering
University of Illinois at Urbana-Champaign



Effective dates of Plan: 11/22/2021- 11/22/2023

Contact: Bruce Hajek, b-hajek@illinois.edu, Professor and Department Head

The Department of Electrical and Computer Engineering (ECE) at the University of Illinois at Urbana-Champaign (UIUC) is one of the largest departments at our public, land-grant institution. There are about 1200 undergraduates in Computer Engineering, 900 undergraduates in Electrical Engineering, and 700 graduate students of whom 540 are in the MS or PhD program. One of the four main goals listed in the department's strategic plan is to "Recruit and retain diverse groups of students, faculty, and staff and promote a sense of community."

Goals, Activities, and Measurement (Contacts are listed in parentheses.)

G1: Faculty Knowledge of Department Demographics and Student Experiences: Each semester, data is shared at a faculty meeting on the representation and experiences of current ECE students from underrepresented groups (i.e., people who identify as women, African American, Black, Hispanic, Latinx, Native American, Native Alaskan, Native Hawaiian, Pacific Islander, and/or Indigenous), disaggregated by major (CompE and EE undergraduates) and level (undergraduate, professional masters, MS, and PhD).

A1a: Presentation of demographics to faculty: Faculty members on the BPECE data subcommittee collect data and present it at a faculty meeting each semester (Kudeki, Lumetta, Oelze).

A1b: ECE faculty promotion of Data Buddies Survey: The faculty encourages ECE students to participate in the CRA Data Buddies Survey by announcing in classes and discussing with mentees. Faculty members on the BPECE data subcommittee work to customize the survey, and present data at a faculty meeting annually (Hajek, Hobbs, Lumetta).

M1: Track what data is collected and shared. Track participation in the Data Buddies survey.

G2: BPC Learning by Faculty: At least 80% of the faculty participate in learning about BPC annually.

A2a: External programs: Opportunities include workshops and seminars hosted by the Office of the Vice Chancellor for Diversity, Equity, & Inclusion and the Grainger College IDEA institute. Faculty organizes a BPC session at each annual faculty retreat. (Hajek).

A2b: ECE Distinguished Colloquium Series: Faculty members coordinate with organizers to propose, recruit, and host speakers from underrepresented groups (Veeravalli, Winterbottom).

M2: Track faculty participation through attendance sheets, and track demographics of colloquium speakers to ensure a range of identities are represented.

G3: BPC activities through committee service (G3): At least 15% of the faculty (fifteen faculty members) serve on a BPC oriented committee annually.

A3: ECE faculty serve on diversity, equity, and inclusion (DEI) oriented committees: Opportunities include the College Committee on Diversity (IDEA Institute), the ECE Broadening Participation Advisory Committee, Vice Chancellor's Committee for Diversity, Equity & Inclusion (Sweet).

M3: Track faculty participation using committee assignment system and annual faculty biodata reports.

G4: K-12 broadening participation outreach: Promote interest and understanding of opportunities in ECE for at least 500 K-12 students or their parents from underrepresented groups, annually.

A4a: Faculty participation in engineering summer camps for K-12 students from underrepresented groups: ECE faculty provide informal learning opportunities, ranging from a half day to a week or more. Partnering opportunities include the WYSE High School Summer Camps program and Young Scholars Program in the Grainger College of Engineering and the 4-H Illini Summer Academy. (Y. Chen, N.S. Kim, Bhowmik, Goddard).

A4b: Expanding role of Saturday Engineering for Everyone and Engineering Open House: Faculty members help promote attendance of SEE and EOH by classes from K-12 schools with high percentages of underrepresented students, and present engaging lectures. (Roy Choudhury, Schutt-Aine).

M4: Track faculty participation in outreach, number of faculty visits to local schools or churches, number and demographics of students reached, and ongoing, established evaluation of summer programs.

G5: Undergraduate research: Increase the number of undergraduate students from underrepresented groups participating in thesis research. (Undergraduate theses completed per year, 2011-2021 average: female 9, Hispanic 1, Black 1/3. Increase to 12+, 3+, 2+ per year, respectively, in next two years.)

A5a: Collection of data on undergraduate research: Collect data on numbers of undergraduate students in underrepresented groups participating in thesis research (Lumetta).

A5b: Recruit and mentor undergraduate students from underrepresented groups to pursue research: Faculty deliver research presentations in student organizations or events addressed to underrepresented groups, and invite/encourage engagement through invitations to group meetings and individual weekly research discussions (Hajek, Kudeki).

A5c: Faculty support of BPC through conference participation: The faculty recruits and mentors students from underrepresented groups to attend technical conferences, including but not limited to the diversity, equity, and inclusion (DEI) specific conferences NSBE, SHPE, NCWIT, and Grace Hopper. Faculty members organize pre-conference information meetings and accompany students at conferences (Hasegawa-Johnson, Somers).

M5: Track number and demographics of students participating in research and attending conferences.

G6: Faculty, Staff, and Student Recruitment and Retention: Each year, the representation of faculty and staff applicants and of matriculated students from groups underrepresented in ECE will increase.

A6a: Student recruiting and retaining diversity advocates: Faculty members serve as diversity advocates on graduate recruiting and fellowship committees and assist faculty in the mentoring of a diverse student population (Ilie, Chitambar, Bernhard).

A6b: Hiring practices: Search committees document effective proactive efforts to build diverse applicant pools. Faculty members serve as diversity advocates and lead BPC faculty recruiting efforts implementing college recommended practices, such as serving as mentors for the Rising Stars in EECS Program (Hajek).

M6: Track number and demographics of faculty and staff applicants and matriculated students, faculty participation as diversity advocates.