

# **Pathways to Diversity and Inclusion: An Action Plan for Brown University's Department of Computer Science**

Drafted by the Diversity Committee

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## **EXECUTIVE SUMMARY**

The Diversity and Inclusion Mission of the Brown University Computer Science Department is to create and sustain a climate in which all students, faculty and staff can thrive.

Our actions, both ongoing and future, can be categorized as follows:

- **Data Collection and Community Input:** Creating mechanisms for collecting data about department demographics and culture, and establishing metrics that aggregate those data to measure diversity and inclusivity.
- **Education and Training:** Instituting diversity and inclusion training workshops to increase awareness of and foster sensitivity towards issues facing underrepresented and/or marginalized members of our community.
- **Community Support:** Enhancing existing academic and social support structures for underrepresented and/or marginalized members of our community.
- **Recruitment, Hiring and Retention:** Improving representation of faculty, students and course staff to eventually match representation within a baseline population, such as that of the University as a whole.
- **Outreach:** Bolstering outreach efforts to spark interest in computer science among K-12 students and members of our local Providence community, and increasing opportunities for students to interact with the computer science community at large.
- **Communication and Dissemination:** Pursuing an improved communication strategy to ensure that the progress we make on achieving the goals set forth in this plan is tracked and disseminated publicly.

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# 1 Introduction

The purpose of this document is to review our past and present efforts regarding diversity and inclusion, and to enumerate our goals and strategies for the future. We include an overview strategies that are already in place, as well as a discussion of additional ones that we hope will enable us to reach our goals.

## 1.1 Mission

A primary mission of Brown University's Department of Computer Science (Brown CS) is to be a world leader in both research and education as it pertains to computing and information technologies. Within this mission lie two primary goals:

1. To help solve the important technical and societal problems of today and tomorrow by continuing to lead and innovate in core CS, and to empower and transform other disciplines through the development and transfer of computational methods, tools and thinking.
2. To produce tomorrow's leaders by equipping our students with a stellar computer science education, as well as excellent leadership, creative thinking, collaboration and communication skills.

Since its inception, the department has been striving to achieve very high standards for education and scholarship, while simultaneously promoting a culture that is collegial and nurturing. Specifically, the department aims to foster an environment of mutual respect, trust and collaboration in which all its members can achieve their full potential.

**Brown CS Diversity and Inclusion Mission:** Built on the department's longstanding diversity efforts and Brown University's [Pathways to Diversity and Inclusion Action Plan](#)<sup>1</sup> (DIAP), our charge is to create and sustain a climate in which all students, faculty and staff can thrive. Given the injustices perpetrated against historically and presently marginalized people --- in our society as a whole, and in the field of Computer Science specifically --- it is our moral imperative to recognize our role in perpetuating discrimination, and to work towards eliminating from our infrastructure any external factors that prevent members of our community from prospering.

Achieving the Brown CS mission is contingent on achieving our diversity and inclusion mission for a number of reasons, including:

- Recent studies have established a link between more diverse groups of people on a team and more effective problem solving.<sup>2 34</sup>

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<sup>1</sup> "Pathways to Diversity and Inclusion: An Action Plan for Brown." 2016. 30 Mar. 2016  
<<https://brown.edu/web/documents/diversity/actionplan/diap-full.pdf>>

<sup>2</sup> <https://www.sciencedaily.com/releases/2010/09/100930143339.htm>

<sup>3</sup>

<https://www.ncwit.org/resources/how-can-companies-promote-innovation-diverse-employees/how-can-companies-promote>

- Added stressors -- due, for example, to discrimination,<sup>5</sup> stereotype threat<sup>6</sup> and stigmas<sup>7</sup> -- can negatively impact health,<sup>8</sup> thereby precluding victims from reaching their full potential.<sup>9</sup>
- People who feel marginalized waste cognitive energy worrying about belonging; this cognitive effort can negatively impact their academic performance.<sup>10</sup>

## 1.2 Terminology

Brown University's *Pathways to Diversity and Inclusion Action Plan* defines *diversity* as a breadth of backgrounds and experiences critical to a vibrant intellectual community, and *inclusion* as acknowledging and respecting each individual's humanity and dignity, ensuring their equal standing as a member of the community.

The CS Department aims to create an environment that is welcoming to everyone, especially groups that have been historically underrepresented and/or marginalized (CS HU/MGs). These comprise:

- Historically-underrepresented groups (HUGs), which the University's Diversity and Inclusion Action Plan defines as American Indian and Alaskan Native; African American/Black; Hispanic and Latinx; or Native Hawaiian and/or Pacific Islander.<sup>11</sup>
- Underrepresented genders in CS, such as women.
- Undersupported groups in CS, including gender non-conforming, first-generation, low-income, undocumented students and students with disabilities.

In addition, we recognize that people within our community identify in the intersections of these groups.

The CS Department also recognizes that the issues marginalized individuals and groups face are not identical or uniform. Therefore the intervention measures and activities recommended in this plan should be uniquely and purposefully tailored and modified to each group's specific needs.

## 1.3 The Brown CS Diversity Committee

At present, the Brown CS Diversity Committee is comprised of a faculty chairperson, two faculty representatives, the Department Chair and Director of Undergraduate Studies. Also on the committee are one departmental staff member, one Ph.D. student and one Master's student.

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<sup>4</sup> Eney, Crystal et al. "Broadening participation: The why and the how." *Computer* 3 (2013): 48-51.

<sup>5</sup> <http://www.apa.org/news/press/releases/2016/03/impact-of-discrimination.aspx>

<sup>6</sup> [http://www.engr.psu.edu/awe/misc/arps/arp\\_stereotypethreat\\_overview\\_31909.pdf](http://www.engr.psu.edu/awe/misc/arps/arp_stereotypethreat_overview_31909.pdf)

<sup>7</sup> Major B, O'Brien LT. The social psychology of stigma. *Annual Review of Psychology*. 2005;56:393-421.

<sup>8</sup> <http://www.webmd.com/balance/stress-management/effects-of-stress-on-your-body>

<sup>9</sup> "Belonging - The Mindset Scholars Network." 2015. 8 Apr. 2016  
<<http://mindsetscholarsnetwork.org/learning-mindsets/belonging/>>

<sup>10</sup> "Belonging - The Mindset Scholars Network." 2015. 8 Apr. 2016  
<<http://mindsetscholarsnetwork.org/learning-mindsets/belonging/>>

<sup>11</sup> As we collect more disaggregated data on representation, we may expand this category to include other groups (such as Southeast Asians).

Finally, a number of undergraduates serve on this committee in their role as paid Diversity Student Advocates. This position was created in Spring 2016 to provide the student body with direct channels of communication with the department. Student Advocates meet as a group on a weekly basis, and meet with the graduate student and faculty members of the Diversity Committee at least once a month. As students in the department, they are more attuned to the concerns of the student population, and represent their interests during committee discussions.

A more complete history of the committee is included in [Appendix C](#).

## 2 Overview and Goals

In this plan we highlight several key activities we are embarking upon to further our progress towards our diversity and inclusion mission, and we articulate additional strategies we plan to enact. Our actions can be categorized as follows:

- **Data Collection and Community Input:** Creating mechanisms for collecting data about department demographics and culture, and establishing metrics that aggregate those data to measure diversity and inclusivity.
- **Education and Training:** Instituting diversity and inclusion training workshops to increase awareness of and foster sensitivity towards issues facing underrepresented and/or marginalized members of our community.
- **Community Support:** Enhancing existing academic and social support structures for underrepresented and/or marginalized members of our community.
- **Recruitment, Hiring and Retention:** Improving representation of faculty, students and course staff to eventually match representation within a baseline population, such as that of the University as a whole.
- **Outreach:** Bolstering outreach efforts to spark interest in computer science among K-12 students and members of our local Providence community, and increasing opportunities for students to interact with the computer science community at large.
- **Communication and Dissemination:** Pursuing an improved communication strategy to ensure that the progress we make on achieving the goals set forth in this plan is tracked and disseminated publicly.

We have committed to funding internal diversity initiatives and diversity outreach at a rate of at least 50% of our annual revenue from our Industry Partners Program (IPP).<sup>12</sup> A budget detailing how these funds will be allocated will be approved by the department chair on an annual basis.

## 3 Current Data

At present, the tenure-track and tenured CS Faculty population is composed of 3 women and 22 men, a ratio worse than 1:7. We also have one non-tenure track research faculty position held by a male. There are also two women (non-adjunct) lecturers; no men hold this position. We do

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<sup>12</sup> This commitment will be reconsidered in 3 years.

not have data on the ethnic/racial makeup of our faculty at present, but are working with the Dean of the Faculty's office to collect these data.

### 2015 Brown University Degrees and Completion by Ethnicity

This chart displays the ethnic/racial population percentages of the 2015 undergraduate, Masters and PhD students, comparing all Brown students to students of all physical sciences to students of computer science, specifically. These data were provided by the [Office of Institutional Research Factbook](#) and the Registrar's Office.<sup>13</sup>

	Undergraduate			Masters			PhD		
	All	PhyS	CS	All	PhyS	CS	All	PhyS	CS
<b>White</b>	46%	48%	53% (47%)	42%	29%	25% (29%)	47%	35%	60% (60%)
<b>International</b>	12%	19%	19% (9%)	31%	54%	52% (53%)	33%	48%	30% (10%)
<b>Asian-American</b>	11%	11%	8% (24%)	7%	5%	8% (5%)	3%	3%	0
<b>Unknown + Multiracial</b>	15%	14%	14% (14%)	12%	8%	13% (11%)	8%	11%	10% (30%)
<b>HUGs<sup>14</sup></b>	16%	7%	6% (6%)	8%	3%	2% (2%)	10%	3%	0

Key: All = All Disciplines, PhyS = Physical Sciences, CS = Computer Science  
 ( \* ) notes 2016 CS graduate percentages

We note that HUGs are less well represented in CS than they are in the physical sciences, and in turn they are much less well represented in the physical sciences than they are across all disciplines, across all degrees.

### 2015 Brown University Degrees and Completion by Gender

This chart displays the gender population percentages of the 2015 undergraduate, Masters and PhD student graduates, comparing all Brown students to students of all physical sciences to

<sup>13</sup> The University does not currently disaggregate Asian-Americans in its admissions data. The CS Department recognizes that there are disparities in the representation of East Asians, Southeast Asians, Southwest Asians, South Asians, and Central Asians, so it will conduct internal [climate surveys](#) in attempt to disaggregate these student populations.

<sup>14</sup> HUGs in this chart is reflective of the University's terminology and references racial/ethnicity identity only as defined in the first bullet in the CS HU/MG's definition in [Section 1.2 Terminology](#).

students of computer science, specifically. These data were provided by the [Office of Institutional Research Factbook](#) and the Registrar's Office.<sup>15</sup>

	Undergraduate			Masters			PhD		
	All	PhyS	CS	All	PhyS	CS	All	PhyS	CS
Male	49%	66%	75%	48%	76%	87.5%	54%	64%	70%
Female	51%	34%	25% (26%)	52%	24%	12.5% (27%)	46%	36%	30% (20%)

Key: All = All Disciplines, PhyS = Physical Sciences, CS = Computer Science  
 ( \* ) notes 2016 CS graduate percentages

We note that females are less well represented in CS than they are in the physical sciences, and in turn they are much less well represented in the physical sciences than they are across all disciplines, across all degrees. Note the corresponding 2015 nationwide averages for female CS student percentages are 15.7% (Undergraduate), 24.9% (Masters) and 18.3% (PhD)<sup>16</sup>.

See [Appendix A](#) for race and gender breakdowns of the CS Department from 2005 to 2015.

## 4 Actions and Strategies

The goal of fostering a diverse and inclusive community is to create an environment where no one -- student, staff or faculty -- is marginalized or discriminated against based on aspects of their identity. Strategies for addressing a lack of diversity and inclusion in government, corporations and other institutions, typically fall into one of three categories:<sup>17 18</sup>

1. Create specialized positions for particular personnel whose job it is to ensure that diversity and inclusion improve across the institution, and who will be held accountable/responsible if it does not.
2. Institute staff training and feedback programs to help reduce stereotyping and implicit bias.
3. Support programs that foster the development of peer networks.

<sup>15</sup> Brown University does not currently account for gender-expansive students in its admissions data. The CS Department recognizes that the male/female gender labels are limited and exclusionary, so it will conduct [climate surveys](#) in attempt to better understand the unique identities of its students.

<sup>16</sup> 2015 CRA Taulbee Survey

<<http://cra.org/wp-content/uploads/2016/05/2015-Taulbee-Survey.pdf>>

<sup>17</sup> Kalev, A. "Best Practices or Best Guesses? Assessing the Efficacy of ..." 2015.

<[https://www.cfa.harvard.edu/cfawis/Dobbin\\_best\\_practices.pdf](https://www.cfa.harvard.edu/cfawis/Dobbin_best_practices.pdf)>

<sup>18</sup> Dobbin, F. "Diversity management in corporate America - Harvard ..." 2007.

<[http://scholar.harvard.edu/dobbin/files/2007\\_contexts\\_dobbin\\_kalev\\_kelly.pdf](http://scholar.harvard.edu/dobbin/files/2007_contexts_dobbin_kalev_kelly.pdf)>

Brown CS has implemented and will continue to expand on initiatives that fall into all three of these categories. A number of past and ongoing efforts are detailed in [Appendix E](#), following this categorization. In this section, we detail our current and planned strategies for creating and sustaining a diverse and inclusive community at Brown CS, following the high-level list presented in [Section 2](#).

#### 4.1 Data Collection and Community Input

During the Spring of 2016, we developed our first department-wide climate survey for undergraduate students.<sup>19</sup> The climate surveys will be used to establish metrics to measure diversity and inclusivity, which will form a basis of comparison against which to gauge our progress toward the goals outlined in this plan and realign those goals as necessary. The surveys will continue to be refined and modified based on expert and community input.<sup>20</sup>

Other means by which we are also gathering data about the department's culture include:

- **Town Hall Meetings.** Brown CS holds regular Town Hall Meetings. The first one dedicated to the subject of Diversity and Inclusion<sup>21</sup> was held during the Fall of 2015. This meeting provided all members of the community with an opportunity to engage with one another on diversity and inclusion topics and concerns. A second Town Hall on the subject of Diversity and Inclusion was held in the Spring of 2016.<sup>22</sup> Its purpose was to give the community an opportunity to comment on this very plan.
- **Student Advocate Office Hours.** The Student Advocates hold office hours every week and by appointment; during these times, other students can come to discuss any diversity and inclusion related questions or issues. General information from all such meetings are logged to identify trends. This is a paid position.
- **Diversity Committee Open Sessions.** The final 30 minutes of Brown CS's 90-minute, monthly Diversity Committee meetings are open to members of the community to come and share their thoughts on any topic related to diversity and inclusion within the department, the university, or the field. The topics discussed during this time, are to be posted, along with a summary of the minutes of the Diversity Committee's meetings, on the department's Diversity and Inclusion website.
- **Feedback System.** With input from several department faculty members, WiCS recently created a feedback system that allows students, of their own initiative, to submit anonymous feedback on behaviors experienced in their CS classes that they felt made the environment more or less inclusive. WiCS members then moderate these comments,

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<sup>19</sup> We plan to adopt this survey for graduate students during the Summer of 2016.

<sup>20</sup> The climate surveys were created by the CS Department's Diversity Committee with input and collaboration from Maitrayee Bhattacharyya, Associate Dean of the College for Diversity Programs; Mary Fernandez, Brown CS alumnus and president of MentorNet, a STEM mentorship program for college students; Jane Stout the Director of the Center for Evaluating the Research Pipeline of the Computing Research Association; the Brown Center for Students of Color, and the Sarah Doyle Women's Center.

<sup>21</sup> This meeting was planned and run by two of the department's student groups, WiCS and Mosaic+.

<sup>22</sup> This meeting was organized by the Diversity Committee, and the discussion was moderated by the Student Advocates.

and send bi-monthly digests to the professors participating in the program.<sup>23</sup> This system is owned and moderated by students, with assistance from a staff member.

- **Exit Focus Groups.** The chair of the department is planning to invite graduating students from HU/MGs to participate in casual conversations where they can share with him, and one another, insights about their experiences as a member of Brown CS.

## 4.2 Education and Training

To better understand how social inequality is perpetuated within the field of computer science, including in our own department, we will create spaces for discussion and education around this topic. In addition, we will provide opportunities and resources for members of our community to further educate themselves on this issue.

**Diversity Lecture Series.** One of the primary activities of the Diversity Committee is the organization of a Diversity Lecture Series, which is intended to bring to campus successful computer scientists from CS HU/MGs with the intent that they speak about how their identities have shaped their experiences as researchers. These speakers serve as role models, especially for members of our community from similar underrepresented groups.

**Training.** We are in the process of enhancing existing cultural competency, diversity awareness and sensitivity training programs for faculty, TAs and staff to further raise awareness about discriminatory and insensitive behaviors. Training is focused on, but not limited to, inclusive practices for pedagogy, mentoring and hiring. Student Advocates already receive peer mentorship and Title IX training, and are educated about campus resources, so that they can help students in need.

Diversity and inclusion training will be extended to the faculty in the department. These special sessions will focus on giving faculty the tools to make their courses more inclusive and welcoming to all students. We will leverage evolving efforts on campus (e.g., Sheridan Center's plans to offer inclusivity workshops to faculty). Already underway are discussions about how to incorporate more diverse course material and how to formulate more inclusive course policies.

Diversity and inclusion sessions will be an essential component of TA training for the foreseeable future. These sessions will be organized and facilitated by the Student Advocates in collaboration with the Meta TAs, WiCS and Mosaic+. After training, we will require that all TAs incorporate diversity and inclusion practices into all aspects of their work while employed by the department. For example, going forward, TAs will be asked to refrain from using CS student logins to reference individuals, as this practice is at odds with community building.

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<sup>23</sup> The Feedback system is operating as a pilot program at present. Only a few faculty members were offered the chance to opt in so far. If successful, the program will be expanded in the future.

Future Diversity Student Advocates will receive mandatory training before assuming their roles. The CS Department will also consider expanding training to additional undergraduate student staff, including, but not limited to, SPOCs, URAs, consultants, and head consultants. Undergraduate students not currently employed by the department will also have the opportunity to opt-in to these trainings; we will do our best to make sure that the trainings align well with our students' career goals, thereby providing appropriate incentives for them to opt-in.

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**Social Identity Programming.** In addition to the aforementioned training, we will also begin hosting regular workshops and roundtable discussions on social identity in the context of computer science and the tech community. The goal of these assemblies will be to start and sustain nuanced discussions on issues of social identity among department members. Our hope is that this will help shift the department culture towards inclusion, by uncovering some of the ways that our unconscious biases can create a hostile environment for those in the department who hold marginalized identities. These discussions may also be conducted with our Industry Partners, who can lend both financial support and an industry perspective.

**Course Policy.** We will recommend that all CS faculty members include a diversity and inclusion statement in their course missives to emphasize and further cement the department's commitment to diversity and inclusion as a central mission in all courses.<sup>25</sup> Along this same line, we will recommend that all CS faculty members teaching courses discuss their course diversity and inclusion missions in class at the start of each semester.<sup>26</sup> Finally, we will require all CS courses to provide links to Brown's Sexual Harassment Policy and its Discrimination Policy on their course web pages.

**Courses and Research.** The influence of computing and information technology on our society continues to grow at an unprecedented rate. There are examples of negative outcomes as a result of the misuse or misunderstanding of technological innovations, that lead to social injustice and inequity. We can include in our educational and research efforts context that acknowledge these issues and explore solutions to address them.

For example, we can include modules in "big data" courses that highlight the risks of discriminatory outcomes (e.g., algorithmic redlining) as decisions throughout all aspects of our daily lives are increasingly being automated: e.g., in policing, housing, employment, and purchasing, just to name a few. The Data Science Initiative (of which CS is a core member) is creating a new course on "Data and Society" that will include modules that discuss these issues in depth. We also plan to incorporate into our existing data science courses related modules and include real-world data sets that can be analyzed to explore any biases in public practices

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<sup>24</sup> One possible implementation of this training would follow [CMU's bias buster program](#), which was developed in conjunction with Google.

<sup>25</sup> It has also been suggested that all CS faculty post on their course web pages a similar zero-tolerance policy for any form of harassment.

<sup>26</sup> And their sexual harassment policies, if they exist.

and policies. For example, a new CS course entitled “Data Fluency for All” (CSCI 0100) that is being offered for the first time this semester (Fall ’16) will ask students to analyze data that may reveal biases in human decision-making, such as jury-selection and stop-and-frisk data. In another CS data science course entitled “Data Science” (CSCI 1951-a) that was offered last spring, a final group-project used machine learning to analyze Providence crime data (from 2006-2016) across different neighborhoods and various demographics to uncover criminal trends and any potential biases in policing practices.

Another example area is "human-centric computing", where relevant courses can note the unstated typical assumption that computer users are white males, which has led to situations where technology fails to work for a particular group of users (e.g., camera-embedded game consoles or soap dispensers using near-infrared technology not working on people with dark skin<sup>27</sup>). New research can identify approaches to eliminate exclusive design decisions that stem from such biases.

In all areas, we will work to incorporate diversity and inclusion concerns into their CS scholarship, where appropriate.

### 4.3 Community Support

Many of the past and ongoing diversity and inclusion efforts focused on students in the department have been spearheaded and sustained by student groups within the department (WiCS, Mosaic+, etc). The department is committed to continuing and increasing its support for these groups as they work to develop new programs geared towards making sure all students are treated as valued and respected members of the department.

**Support for Student-led Diversity Organizations.** Brown CS is devoting financial resources, and faculty and administrative support to help students form strong peer networks within the department. Ongoing and continuing efforts are focused on:

- Supporting WiCS and Mosaic+.<sup>28</sup> Support includes financial resources, dedicated meeting spaces, diversity and inclusion training, and administrative coordination and faculty advising.
  - Each student group will have a faculty advisor, who represents that group on the Diversity Committee.
  - Each student group will be represented on the Diversity Committee by a Student Advocate for Diversity and Inclusion. The Student Advocate will be a member of the group, and will chosen by the students themselves.
- Supporting the well-established WiCS Mentoring program, and the newly established Mosaic+ Big-Little Mentorship program. Support includes mentorship training, in addition to diversity and inclusion training, and administrative coordination and faculty advising.

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<sup>27</sup> [The reason this “Racist Soap Dispenser” doesn’t work on Black Skin](#), 2015.

<sup>28</sup> The department is also committed to supporting other future diversity-focused student groups.

- Supporting new programs for other CS HU/MGs that might not identify with WiCS or Mosaic+, such as the first Low-Income Roundtable held in Spring, 2016.
- In collaboration with the Science Center's New Scientist Catalyst Pre-Orientation program, providing support for Mosaic+'s transition, pre-orientation program, which invites newly admitted Brown University students from CS HU/MGs to take part in a combination of online and on-campus lessons about the field of computer science during the month of August, just before they matriculate to Brown. Brown CS is offering financial resources to hire Mosaic+ students to facilitate the program, and is also providing administrative coordination and curricular support.
- Supporting diversity-focused social mixers for potential CS concentrators to initiate and maintain peer networks within the department.
- Proposing that we host our own, in-house, mini Grace Hopper and Richard Tapia Celebrations, specifically for Brown students to present and critique each other's work.

**General Student Support.** Students within the department also have a number of concerns that either require departmental action or are not yet covered by student groups. As more concerns are brought to light, we will add to this list:

- The Diversity Committee will also suggest to the faculty that they use updated language in their courses, in place of insensitive language that has been instituted by the CS community, such as "master and slave" as a model of communication. In addition, professors will be instructed not to make assumptions about a person's gender,<sup>29</sup> or use gendered language unnecessarily.
- Finally, the Diversity committee will propose to Brown facilities that they build at least one, but perhaps more, gender inclusive restrooms<sup>30</sup> in the CS department, which occupies the 3rd, 4th and 5th floors of the CIT. In the interim, the women's room on the 5th floor has been converted to gender-neutral effective 4/29/16.
- Enhance support for career and internship opportunities for low income students, for example, provide advancements for interview traveling costs

**Support for Graduating Undergraduates.** Graduating from college and entering the next phase of your life can be a stressful experience. The department is committed to increasing the resources it provides to help students navigate this transition successfully:

- Collaborate with Brown's [CareerLAB](#) to conduct exit surveys after interviews to better understand hiring practices, and then use the information gleaned to help better prepare students for the hiring season.
- Organize our graduating seniors to hold a session for rising seniors on managing the challenging aspects of senior year gracefully, including applying to graduate school, travelling to interviews, and managing course responsibilities throughout.
- Provide additional guidance for low-income and first-generation college students on navigating job opportunities.

<sup>29</sup> <http://www.cunylawreview.org/trans-and-gender-nonconforming-students-suggestions-for-law-faculty/>

<sup>30</sup> A list of existing gender inclusive restrooms on campus is available here:

<https://www.brown.edu/campus-life/support/lgbtq/transbrown/gender-inclusive-restrooms>

- Leverage the existing Industry Partners and create new partnerships to expand scholarship, fellowship, internship and career opportunities for CS HU/MGs.
- Implement an alumni-student mentorship program to provide students with guidance about various career-tracks, including the costs and benefits of graduate school.<sup>31</sup>
- Highlight role models in CS fields, and invite CS HU/MGs Alumni and Faculty to engage with the department, through programs such as [Brown Degree Days](#).
- Encourage rising senior CS undergraduates that identify as female to apply to and participate in the [Women's Launch Pad](#), a 1:1 Alumna-Student mentorship program.

**Graduate Student Networking.** Another important avenue for investment is the expansion external networking opportunities for graduate students, beyond Brown CS to other STEM departments, and even beyond Brown University. We will focus on graduate students, at least initially, because the numbers of CS HU/MGs in graduate programs are particularly small. Creating cross-departmental STEM peer networking opportunities will provide opportunities for CS graduate students to find additional peer support and collaborate across disciplines. This includes, but is not limited to, facilitating partnerships between gWiCS (Graduate Women in Computer Science) and gWISE (Graduate Women in Science and Engineering). Likewise, creating cross-university peer networking opportunities with regional institutions (e.g., MIT, Harvard, Tufts, Northeastern, UMass, Yale, and Dartmouth), including minority-serving institutions, will again provide opportunities for CS graduate students to find additional peer support and meet potential collaborators.

#### 4.4 Recruitment, Hiring and Retention

We are working to increase identification and recruitment efforts so that STEM disciplines see applicant pools that include far more students from CS HU/MGs. Stepping up these efforts is a key part of our plan as we work towards increasing diversity within three primary populations:

**Faculty.** This population includes Brown CS tenure-track and tenured faculty, and postdoctoral researchers. To diversify this group, we recommend that the department take the following steps to diversify representation:

- The department is looking into the creation of an annual CS postdoctoral position specifically geared towards CS HU/MGs (with possible assistance from the Office of the Dean of the Faculty and the Office of the Provost). We also plan to leverage the department's attendance at diversity-focused CS research workshops, such as Women in Machine Learning and Women in Theory, to network and recruit diverse faculty members and postdoctoral researchers.<sup>32</sup>
- We are also considering the establishment of an annual networking event for senior STEM graduate students from HU/MGs who attend school in New England (with possible assistance from the Graduate School). This would be held in the early fall,

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<sup>31</sup> Mary Fernandez, founder of MentorNet, has offered to help us develop a pilot program.

<sup>32</sup> For example, one of our women faculty members attended such a meeting in 2015, which can now be directly linked to the successful hire of a woman postdoctoral researcher in the Applied Math department.

before they begin applying for jobs. In years where this event is held at Brown, Brown STEM departments will benefit from senior graduate students visiting campus; but even in years where this event is held elsewhere, Brown can benefit from their own graduate students attending, and advertising Brown to their peers.

- Finally, the department will start to collect statistics tracking the percentage of CS HU/MGs that apply for tenure-track positions at Brown CS, and the percentage that we interview, to uncover any bias in our internal hiring practices.

**Graduate Students.** This population includes Master's and Ph.D. students. To diversify this group, we recommend that the department take the following steps to increase awareness of graduate school opportunities among students from CS HU/MGs both at Brown and elsewhere:

- As with the postdoctoral position, the department is looking into the creation of an annual fellowship for a Master's student, specifically geared towards students from CS HU/MGs (with possible assistance from the Graduate school).
- We also wish to leverage the department's attendance at diversity-focused CS research conferences such as the Grace Hopper Celebration of Women in Computing and the ACM Richard Tapia Celebration of Diversity in Computing to identify graduate student applicants from CS HU/MGs.
- The department can also propose an open house program to the Graduate School specifically geared towards bringing students from CS HU/MGs to campus for a weekend to learn about graduate school. This can help clear up misconceptions about graduate school that may prevent them from applying, such as the fact that PhD students do not incur any costs for their graduate school education.
- As with faculty hiring, we will start to collect statistics on the percentage of CS HU/MGs that apply to Brown CS for graduate school, and the percentage that we accept, to uncover any bias in the admission process.

The department is also looking to partner with existing initiatives to sponsor outstanding CS students from HU/MGs:

- The department is also considering creating a summer CS research program to expose undergraduate students from across the country to academic career opportunities in CS. This program could be modeled after, or folded into, Brown's existing participation in the Leadership Alliance.<sup>33</sup>
- The Brown Biomedical Initiative to Maximize Student Development ([IMSD](#)) Program will now offer 7 slots in life sciences and 7 slots in other STEM fields. Brown CS is working to create a lasting partnership with IMSD with the goal of leveraging at least one spot annually for a PhD candidate from a CS HU/MG. Brown CS is also researching opportunities to expand this program to target more PhD candidates from CS HU/MGs in the coming years.
- The department will also work towards establishing partnership programs with Minority Serving Institutions (MSI), similar to the Biomed-Medical department [TRAIN program](#).

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<sup>33</sup> "The Leadership Alliance > Home." 30 Mar. 2016 <<http://www.theleadershipalliance.org/>>

Leveraging these partnerships to access a new diverse student population applicant pool.

**Undergraduate Students.** This population includes all CS and CS-X concentrators.<sup>34</sup> To increase diversity among undergraduates, we recommend the department take the following measures to encourage more students to take CS classes, and to eliminate the various barriers that deter students from becoming CS concentrators.

- To encourage first year students to take a CS course, the department will hold an event during first-year orientation geared towards attracting students who are members of CS HU/MGs. Ideas for potential events include a panel of students in CS talking about their experiences, a meet and greet with existing identity-based CS students groups, and workshops or discussions on the experiences of CS HU/MGs.
- Introductory sequences can offer more forms of support for students to help make the courses less overwhelming. For example, we could establish a [Skills-Based Training Module](#) program specifically targeted to students enrolled in introductory courses who did not have any prior exposure to CS before Brown. The content of the skills-based training modules will be determined by student feedback; for example, Linux skills which are often assumed but not actually covered in depth in any courses could be covered in such a module.
- Extend the existing mentorship model in CS 16, in which every student is paired with a TA mentor, to other introductory courses.
- The department, in collaboration with course staff, will begin conducting shopping period, mid-semester and end-of-semester student surveys for introductory courses to determine what factors influence whether or not students persist in their CS courses. This feedback can be used to evaluate courses and improve retention rates in future years.
- The department will continue to offer and develop courses that present CS as an approachable concentration with far-reaching applications (e.g., CSCI 80, CSCI 100, and CSCI 30).

## 4.5 Outreach

The Brown CS department believes that preeminent institutions of higher education, such as Brown University, have a responsibility to lead efforts that expand access for members of CS HU/MGs to STEM education. Our institution occupies a pivotal role in the educational pipeline, which we can and should exploit to increase primary, secondary, pre-college and post-college education opportunities, and industry partnership opportunities, for diverse populations.

**Conference Attendance.** The department sustains a presence at a variety of professional meetings that facilitate discussions of diversity and inclusion, specifically as they pertain to the computer science community. We are committed to:

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<sup>34</sup> CS-X is defined as a CS concentrator in any variety of CS, including: CS Econ, Applied Math CS, Math CS, Computational Biology, etc.

- Provide annual financial and administrative support for students from CS HU/MGs to attend research conferences in their area of interest. For example, undergraduate women have been supported to attend [OurCS](#) (Opportunities for Undergraduate Research in CS).
- Provide annual financial and administrative support for students to attend CS diversity-focused conferences, such as the Grace Hopper Celebration of Women in Computing and the ACM Richard Tapia Celebration of Diversity in Computing.

**K-12 Outreach.** To diversify the population of K-12 students who are interested in CS, we plan to continue our investments in these programs:

- [Bootstrap](#): an evidence-based curriculum used by more than 10,000 students each year in 17 states and five countries that blends Computer Science with Algebra, and has been shown to significantly improve student performance on certain pencil-and-paper algebra tasks, in addition to providing a rigorous introduction to computing.
- [The Artemis Project](#): a free, five-week summer program in which local girls can explore computing. Student participants span the spectrum of socioeconomic backgrounds, including potential first-generation college students and/or members of CS HU/MGs.
- [IgniteCS](#), [Hour of Code](#) and [Girls Who Code](#): in-school and after-school computing clubs run by Brown students at local K-12 schools.
- The annual Robot Block Party, which is intended to expose robotics to more RI youth.
- Host tours of the Brown CS Labs for K-12 students (e.g., the Robotics Lab).

We will also consider expanding our outreach investments by continuing to research and invest in new initiatives, such as:

- A program modelled after [CMU's Women @ SCS Road Show](#) that takes CS on the road to local K-12 schools, telling stories of how and when the CMU students first discovered CS, what it means to them now, and their plans for the future.
- Efforts to identify and recruit talented high school students from CS HU/MGs who show an interest in CS, and encouraging them to apply to Brown University, for example, by attending college fairs in diverse communities (for example, the [CS NYC Fair](#)).
- Additional K-12 after-school programming designed specifically for black and LatinX students, like [Black Girls Code](#) and [Code2040](#).

**4.6 Communication and Dissemination.** To ensure that the progress toward our diversity and inclusion goals are accurately recorded and communicated to the community, the department will create and maintain a set of web pages in the Summer of 2016, to link to from the CS department's own website, as a central location to:

- Post Brown CS diversity-related events and articles
- Link to diversity-focused student groups' own web pages
- Share community announcements about new initiatives
- Share minutes of Diversity Committee meetings
- Publish up-to-date timelines describing Diversity Committee activities
- Post Diversity Committee annual progress reports

- Receive anonymous feedback and questions from the community<sup>35</sup>
- Feature up-to-date CS demographic statistics
- Include student and faculty profiles
- Highlight career opportunities with our Industry Partners
- Highlight student fellowship, internship, and scholarship opportunities
- Highlight opportunities for outreach activities in local communities

In addition, early and the final drafts of this plan will be accessible from the website, as well as a summary of any milestones achieved and any future modifications.

## 5 Operational Planning

Our achievements to date in the operational planning process are: (1) defining the diversity and inclusion mission of Brown CS; (2) preliminary data collection;(3) and articulating many of the ongoing and emergent activities in the department. The next step in the process is to articulate what success will look like, and develop strategies for achieving success. A detailed operational plan will facilitate the prioritization among the activities in this plan, by identifying those which we determine will most likely lead to success given available resources. The next course of action for the Brown CS Diversity Committee, contingent on the receipt of adequate resources, expertise and direction from the University, will be the development of an *operational* diversity and inclusion plan to appropriately direct and assess future efforts.

## 6 Evaluation

To accurately assess the Diversity Committee’s achievements and progress toward its goals, formal evaluation measures will be put in place. The results of these measures will be available for public consumption, and include:

- CS Department Climate Surveys, computing and reporting changes in metrics over-time (see [Appendix G](#)).
- Gender and ethnicity breakdown of CS student enrollments and graduation rates
- Periodic progress reports on action items proposed in this plan, which list involved parties and describe successes or failures of actions taken

## 7 Accountability

The responsibility of enacting meaningful change to the climate of the Brown CS department, ultimately rests in the hands of all members of the community -- the faculty, students and staff -- under the leadership and guidance of the Diversity Committee. The Diversity Committee, therefore, will be held accountable for managing the implementation of the specific action items listed in this plan. The Diversity Committee will post annual progress reports on the website

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<sup>35</sup> The feedback form will allow members of the community to ask sensitive questions in a safe place, free of fear of judgment, harassment, or condemnation.

critically assessing the successes and failures of their efforts, and re-aligning the department's goals and action items as needed, to maximize the likelihood of success. Supervisors of members of the Diversity Committee will be responsible for assessing the members' efforts, and recording their contribution towards the committee's goals accurately and fairly in their employee annual evaluations.

## **8 Conclusion**

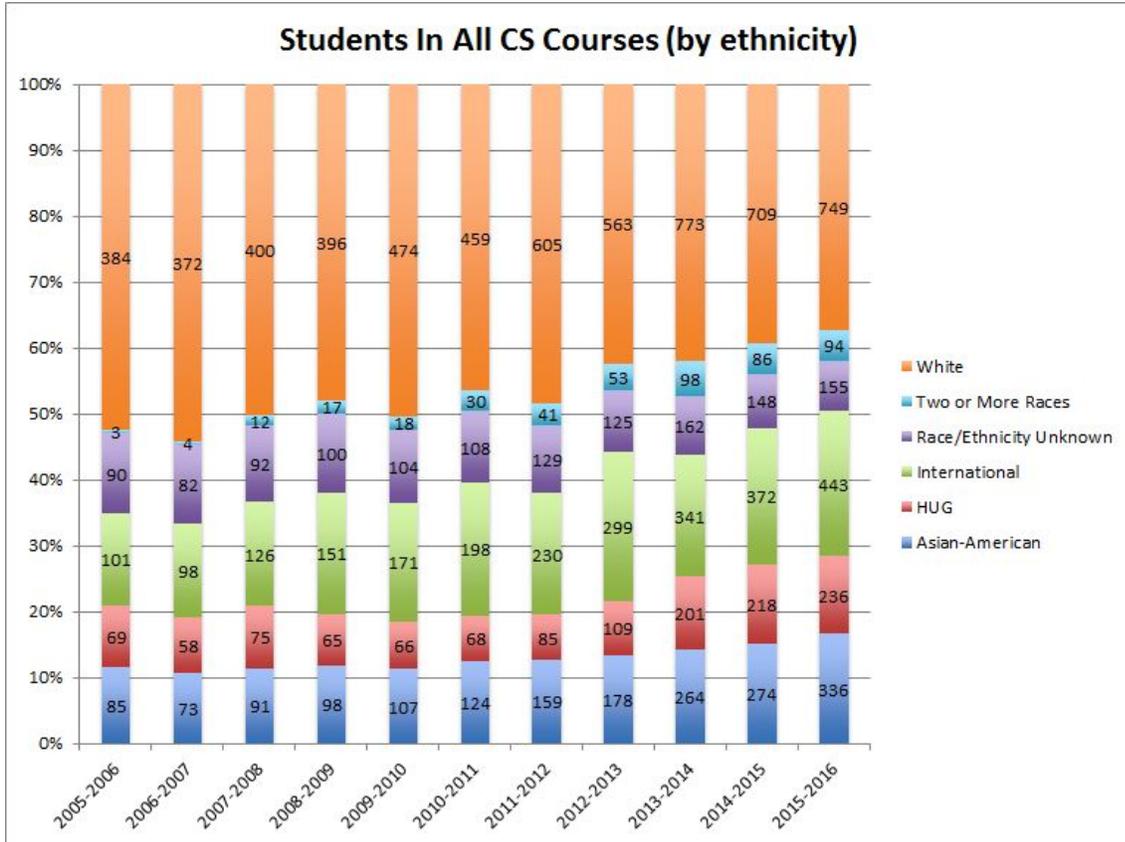
The Brown CS department believes that academic practices, especially in STEM fields, can reinforce a false dichotomy between excellence and diversity.<sup>36</sup> Moreover, prevailing attitudes can create a hostile working environment for underrepresented and marginalized members of an academic community, reproducing oppressive structures that exist in society at large. This, in turn, can limit achievements, thereby preventing the Brown CS department -- a part of the academy -- from fulfilling its mission. The Brown CS department is committed to implementing the strategies outlined in this plan to better support its community members, especially those who are most affected by these injustices, and to work towards eliminating all forms of bias within the community.

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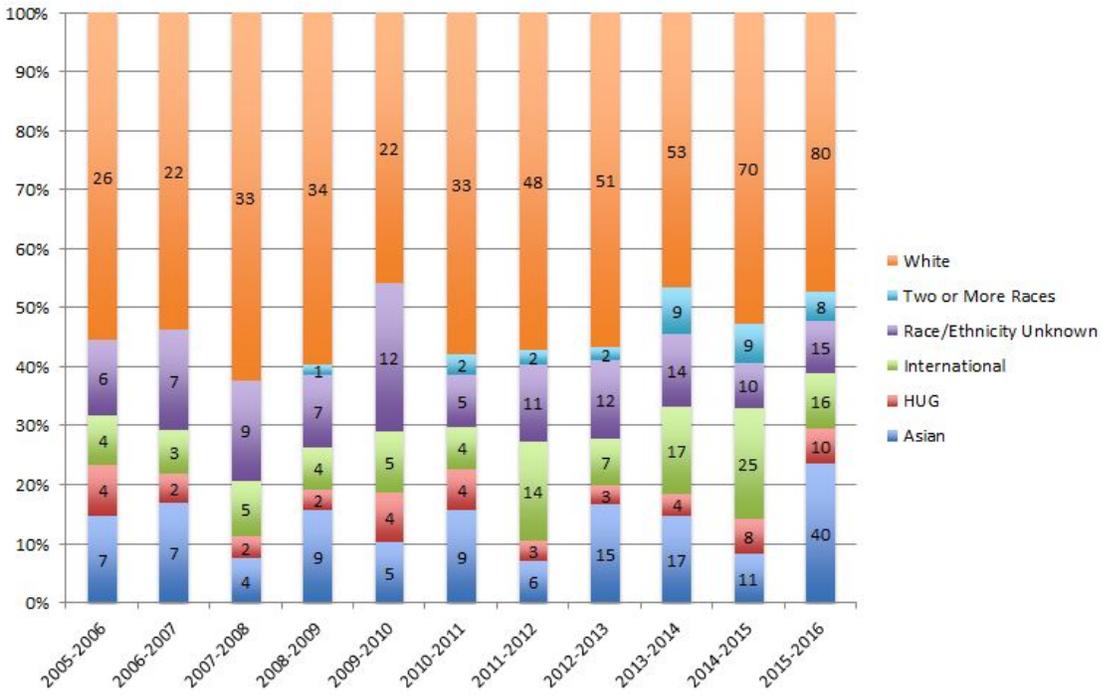
<sup>36</sup> Curcio, AA. "Testing, Diversity, and Merit: A Reply to Dan Subotnik and Others." 2015. <[https://www.umassd.edu/media/umassdartmouth/schooloflaw/students/studentorganizations/umasslawreview/vol9issue2/nine\\_two\\_curcio.pdf](https://www.umassd.edu/media/umassdartmouth/schooloflaw/students/studentorganizations/umasslawreview/vol9issue2/nine_two_curcio.pdf)>

# 9 Appendices

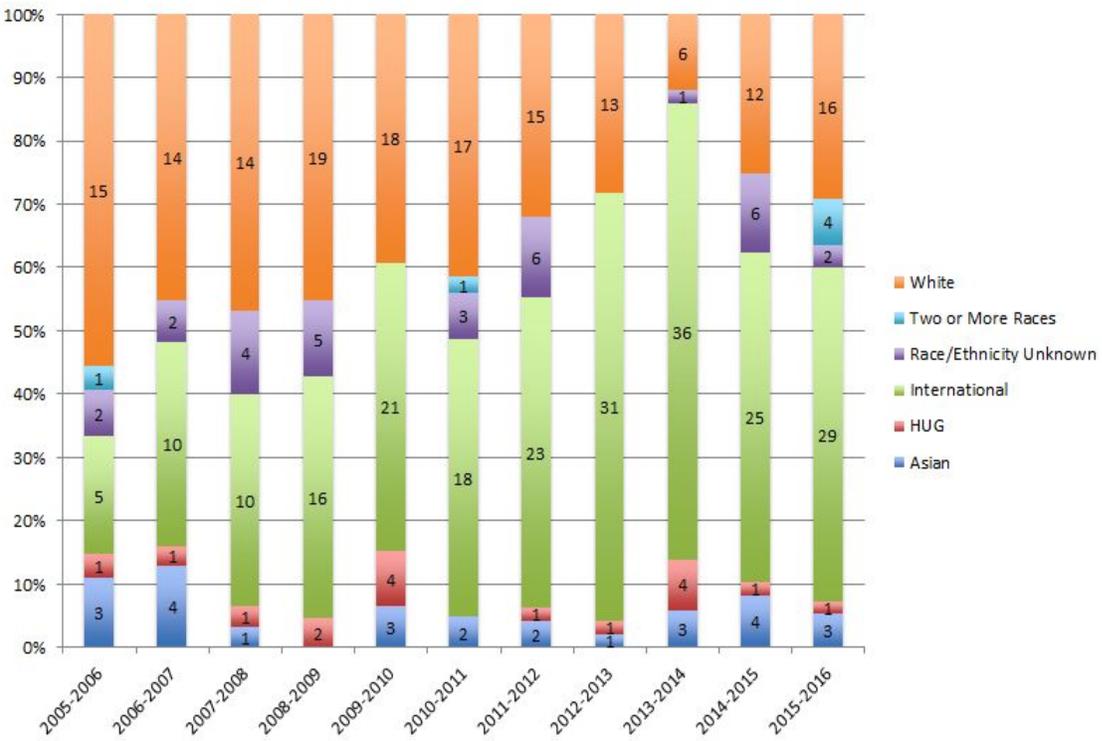
## Appendix A: Current CS Department Demographics

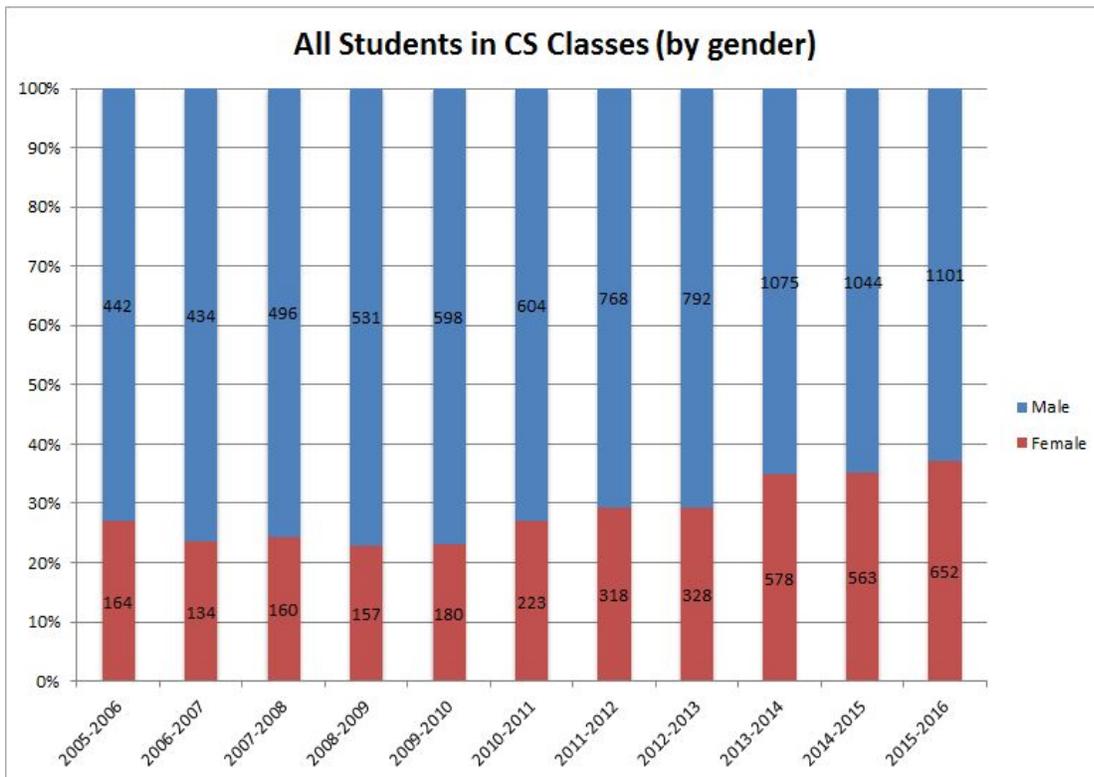
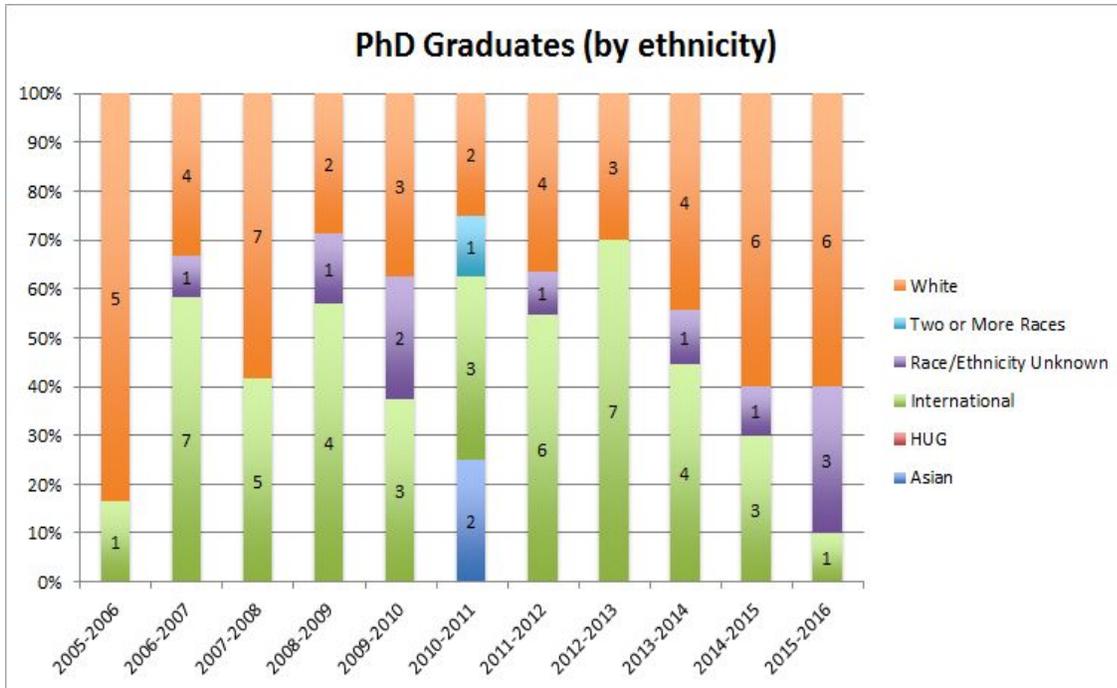


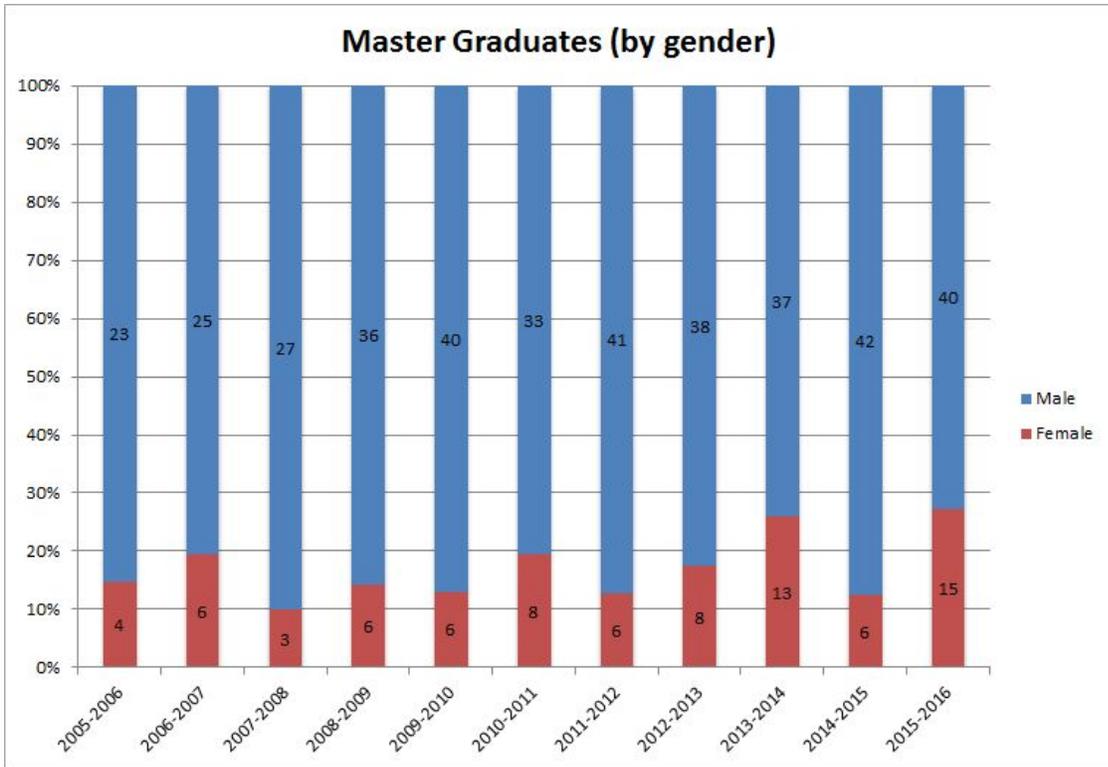
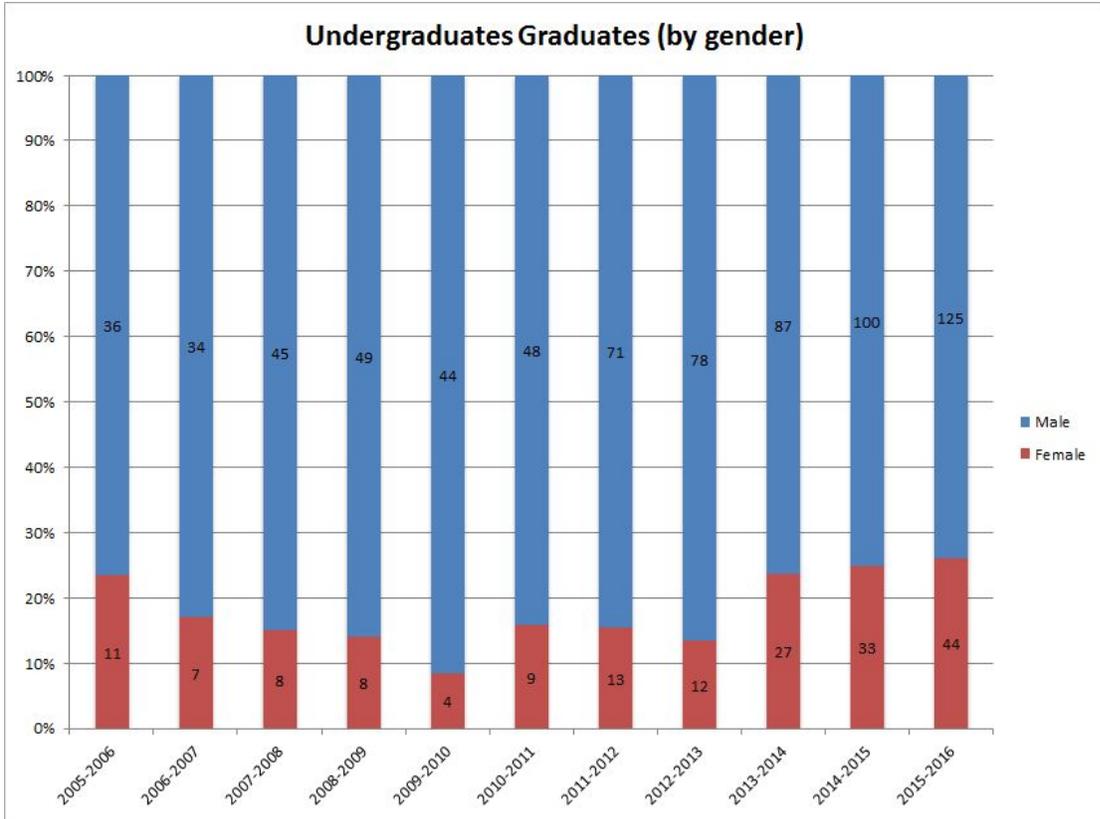
### Undergraduate Graduates (by ethnicity)

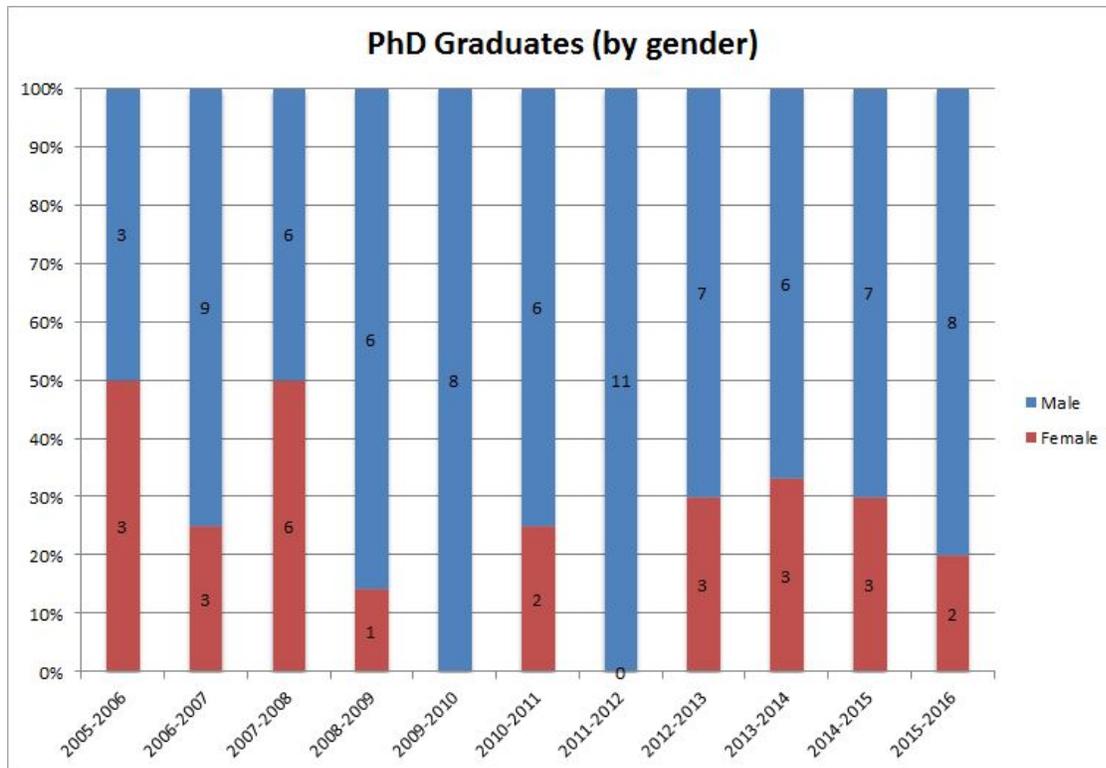


### Masters Graduates (by ethnicity)









## Appendix B: Brown University Demographics

<https://www.brown.edu/about/administration/institutional-research/factbook/degrees-and-completions>

<https://brown.edu/web/documents/diversity/actionplan/diap-full.pdf#page=61>

## Appendix C: History of the Diversity Committee

In 1996 two female undergraduate Brown University CS students started the [Artemis Project](#) with the goal of enhancing the self-confidence and visibility of women in the computer science community through hands-on experience with programming. The Artemis Project mission purposely highlights the importance of computer science intervention at the middle-school age when “the disparity between males and females in the sciences becomes most pronounced”. The Artemis Project is a free 5-week summer-camp, hosted by Brown CS, for 20 middle-school girls, that each year features a unique curriculum designed and implemented by four female undergraduate Brown University students. After 20 years, this program has impacted about 400 students from the local Rhode Island middle-schools, and about 80 Brown women undergraduates.<sup>37</sup>

<sup>37</sup> "The Artemis Project - Brown University Department of ..." 12 Apr. 2016  
<http://cs.brown.edu/people/orgs/artemis/>

In 2008, CS faculty members formed the Brown CS Diversity Committee, with the mission of promoting the success of all students in Computer Science, both within and outside Brown University. During the early years of the committee's inception, the efforts focused on interventions that would enact change at the root of the problem -- a general lack of CS education in public schools nationwide -- which consequently results in a less diverse CS undergraduate applicant pool. The lack of uniform access to CS education across public schools disproportionately affects students in disadvantaged school districts, and contributes to the continuation of a homogenous CS student body in higher education. Seeking to combat this problem, and increase opportunities for CS HU/MGs students, the Diversity Committee folded the Artemis Project under its charge, and began implementing other educational programs at local middle- and high-schools, such as [Hour of Code](#) sessions during [Code Week](#), and [Girls Who Code](#) after-school clubs. With auxiliary support from the department, these efforts are coordinated and led by Brown CS undergraduate students, in paid and unpaid positions, sometimes sacrificing other higher-paid summer internship opportunities to participate. Brown students are impacted positively by the experience because of the opportunity to further develop leadership, teaching and communication skills.

In 2013, Brown CS graduate students circulated a report that highlighted the gender disparity of CS graduate school enrollment, women being largely underrepresented. In response to this report, the Diversity Committee expanded its charge inward, beyond K-12 CS education outreach, critically assessing the Brown CS Department climate for opportunities to improve diversity and inclusion awareness. As a result, the department increased its funding of existing students groups, Women in Computer Science (WiCS) and Graduate Women in Computer Science (GWICS), and its funding of student attendance to diversity-related CS conferences, including the Grace Hopper Celebration of Women and the ACM Richard Tapia Celebration of Diversity in Computing.

## **Appendix D: Past Department Efforts**

A number of past and ongoing efforts are detailed in this Appendix, organized according to the "Best Practices" categorization presented in [Section 4](#):

1. Expanded the Diversity Committee, and assigned to the committee the responsibility for ensuring that diversity and inclusion metrics improve at Brown CS.
2. Created new positions in the CS Department:
  - a. The department hired Laura Dobler on 1/26/2016 to fill the role of Financial and Outreach Coordinator, allocating 30% of the workload to administrative support for internal diversity initiatives and diversity outreach.
  - b. The department hired 7 undergraduates from diverse backgrounds to serve on the Diversity Committee as Student Advocates for Diversity and Inclusion.
  - c. The department is also creating specialized roles within the UTA program to offer tutoring, workshops, and more advanced supplemental education.

3. Conducted diversity training and collected student course inclusivity feedback forms. To date, training and seminars have included:
  - a. Three 2-hour diversity and inclusion training sessions as part of UTA training, led by Shane Lloyd, Assistant Director of the Brown Center for Students of Color, and Alex Karim '17, Student Advocate for Diversity and Inclusion.
  - b. Two 1-hour conversations about diversity and inclusion at two separate CS faculty meetings, where faculty discussed topical reading materials suggested by Dean Bhattacharyya, Associate Dean of the College for Diversity Programs, and Shane Lloyd, Assistant Director of the Brown Center for Students of Color.
  - c. A research talk by [Frank Dobbin](#) and discussion with the CS faculty on the effectiveness of corporate diversity programs and if/how the research results from the corporate world transfer to academic diversity programs.
  - d. A 1.5 hour interactive training session for Diversity Committee Student Advocates on their roles as peer-mentors and allies conducted by Ruthy Kohorn Rosenberg, Brown University Ombudsperson.
  - e. A 1 hour training for Diversity Committee Student Advocates on available Brown student centers and resources, including [Counseling and Psychological Services \(CAPS\)](#) 401-863-3476 and the [Department of Public Safety](#) (863-4111), conducted by Amanda Walsh, Title IX program officer.
4. Devoted financial resources and allocated dedicated space, as well as faculty and administrative support, to student groups including WiCS, GWiCS, and the newly formed Mosaic+, thereby helping to solidify peer networks within the department.

## **Appendix E: Office of the Provost's Strategies for Inclusion**

The following list of actions was circulated by the Office of the Provost as strategies for inclusivity. As should have hopefully been made apparent in this plan, the Brown CS department is presently engaged in all these activities.

- Invite DUGs and graduate students to nominate their own representatives to the committee.
- Ask your students how they would like to be involved, what the constraints on their time commitment may be, and what kinds of issues they would like to see addressed by the DDIAP.
- Create and share a plan or schedule for the drafting process, demonstrating when and how you will be collecting input from various groups.
- Schedule times for the committee to meet with the larger bodies of grads, undergrads, and staff.
- Create student-driven, student-run focus groups for undergraduates to offer input among a group of peers.
- Learn from other departments: research the initiatives other departments are pursuing; consider setting up a cross-disciplinary meeting to share notes on how you are

approaching the process of drafting a DDIAP; submit a draft for interdepartmental review.

- Circulate an anonymous form inviting all members of the department to weigh in on the climate, culture, and standard practices of your specific department.
- Use student feedback to create a checklist of issues to be addressed by the DDIAP.
- Refrain from assigning menial or purely administrative tasks (making copies, taking notes, etc.) to student representatives serving on the committee.
- If your committee is to meet with any regularity, consider offering a professional development or research stipend or honorarium for student representatives.
- Set up a feedback mechanism for non-concentrators as well as concentrators. Concentrators can provide meaningful insight on the dynamics and atmosphere of the department while non-concentrators can provide alternative and important perspectives. For example, non-concentrators may have been driven from the concentration due to a perceived lack of diversity or inclusivity in the department. Underclassmen, who have yet to declare, would also thereby be allowed and encouraged to contribute.
- Share internally a draft of those areas of your DDIAP that pertain to student life and curriculum. This draft might utilize color coding to highlight the contributions from various constituencies or include a summary of how student ideas have shaped the plan.
- Hold a departmental forum to discuss an early draft of your DDIAP. **Allow ample time<sup>38</sup> for all parties to review the draft in advance.**
- Establish metrics for the success within the DDIAP.
- Approach the DDIAP as a first step. Designate a time to reconvene after the adoption of your draft in order to assess follow-through and analyze how well the measures you have taken thus far have met the needs of students, faculty, and staff.

## Appendix F: Summary of Community Input

On April 29, 2016 the CS Department shared with the CS community (students, faculty and staff) a working draft of the *Pathways to Diversity and Inclusion: An Action Plan for Brown University's Department of Computer Science*. Community members were invited to share their input through an anonymous online form and to attend to Diversity Committee Town Hall on May 4, 2016. The online form closed on May 8, 2016 collecting 17 submissions. In addition the Diversity Committee received several email responses to the plan from alumni, faculty, students, staff and other individuals affiliated with the department. The comments from the community highlighted areas of growth that helped direct several changes improving the working action plan. The input came in the form of comments on, and amendments to, the draft DIAP; specific edits; requests for clarity or more explicit detail on specific aspects of the draft; and new proposals. The Diversity Committee reviewed each submission received, categorized the submission, and determined the appropriate course of action. Suggestions and comments were

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<sup>38</sup>It took 6 months to complete a draft of this plan, which limited the amount of on-campus time available for community input.

incorporated directly into the plan, included in this summary, and/or noted for future action plan iterations. Included here is a brief summary of the trends and categories among the feedback.

### **Action Plan Organization, Direction and Goals** (14 comments)

The largest number of comments related to organization of the Action Plan, focusing on recommendations for changing the focus and the goals highlighted in the plan. The feedback highlighted the challenges of creating a thorough, inclusive document that effectively meets the needs of all members its community. They raised the importance of including specific emphasis on intervention measures and activities that will positively impact students with learning and physical disabilities, and students from first-generation and/or low-income backgrounds. Other feedback recommended incorporating a Multi-Year Strategic Plan that clearly states our intended goals and uses evidence-based research and demonstrated best practices to determine which intervention measures and activities will have the most impact on reaching our goals. In this Strategic Plan we will clearly define the intervention measures used for different groups of students recognizing that the issues marginalized individuals and groups face are not identical or uniform. Other feedback recommended identifying key partners inside and outside of the University that have an invested interest in reaching our goals. The key partners include, but are not limited to, the Office of Institutional Diversity and Inclusion, and CS Industry Partners.

Other organizational recommendations highlighted areas of the plan that were not clear to the community and required clarifications. The feedback suggestions included: clarifying that the WiCS Feedback program was still in its pilot stage and is not yet open to all CS classes; ensuring that HU/MG's was used consistently throughout the document; clarifying the purpose of diversity-focused scholarships; and including the location of the Diversity Webpages. Recommendations for additional content in the plan included: adding the rationale that diverse groups increase innovation in the mission statement; promoting budget commitments to diversity initiatives; encouraging female CS students to participate in the alum-student mentor program, Women's Launch Pad; adding the climate survey questions to an appendix; and emphasizing a reparations approach/justification in the mission statement. Recommendations for content additions and clarification were incredibly illuminating and beneficial to the clarity and focus of the department's diversity efforts. All recommendations that could be addressed specifically by the department were incorporated into the plan.

### **Definition and Purpose of Diversity Initiatives** (10 comments)

Feedback on how the department and university defines diversity and inclusion illustrates the truly varied perspectives, background and experiences of individuals within the department. The feedback also highlighted the various interpretations of the term "diversity" recommending that the plan focus on a diversity of ideas rather than identities. While the purpose of the plan is to increase the representation and promote the successes of marginalized students in the department, to achieve an inclusive culture it is also important to create an environment that is open and receptive to differing ideas and opinions.

The intended goal of the plan is to help establish the framework to effect a fundamental change in the social structure and culture of the CS department; this type of societal change is often met with different perspectives of the presumptive results, some casting doubt that the changes will have the intended positive effect. The CS department will actively engage in evidence based evaluation models to ensure that programming doesn't have unintentional negative effects. A handful of the comments we received shared a similar theme that the perceived unintended consequence of diversity and inclusion training and activities, is that it brings additional attention to marginalized individuals by highlighting differences of identity which could inadvertently further polarize individuals and groups. To achieve our intended positive results we must fully embrace diversity and inclusion, as noted in the University's plan, absent inclusion our diversity efforts will likely "generate misunderstandings and feelings of invisibility, fragmentation, frustration, and even anger that stem from the unproductive clash of people who bring different worldviews, experiences, and concepts of identity to campus but who do not often interact/engage with one another on campus"<sup>39</sup>. When developing diversity and inclusion programming it will be imperative that all members of the community are encouraged and incentivized to participate.

#### **Curriculum Development, Programming and Language** (9 comments)

Many community members offered suggestions for improving the course development and programming, and department language. Among these recommendations, some were incorporated directly into the action plan and others will be used as references for directing future efforts. Several community members requested curriculum modifications, for example one request was to include more specific examples of curriculum plans and [Skills-Based Training Modules](#), while this level of detail is not appropriate for an Action Plan, it will be incorporated in the Diversity Webpages as initiatives develop. Other requests included creating a new course titled Ethics of Algorithms/Big Data, and incorporating discussions of algorithmic redlining and big data becoming discriminatory in Algorithms to classes like Intro to Algorithms and Data Science. Included in a new Data Science Masters program will be a course on Data and Society. Other community members recommended expansions and additions to community programming such as investing in more outreach efforts targeted specifically to black and LatinX students, [Black Girls Code](#) and [Code2040](#); we incorporated this request directly in [Section 4.5 Outreach](#). And conducting exit interviews (focus groups) by the CS Department Chair with CS HU/MGs graduates; we incorporated this request directly in [Section 4.1 Data Collection and Community Input](#). Other programming suggestions have been implemented this past academic year, 2015-2016, and will continue to be built-upon in future years including: increasing the frequency of faculty diversity and inclusion training, providing more workshops and roundtables each semester, and increasing advertising in intro courses that elicit student involvement in outreach efforts.

#### **Limitations of Current Data** (7 comments)

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<sup>39</sup> "Pathways to Diversity and Inclusion: An Action Plan ... - Brown University." 2016. 3 Jun. 2016 <<https://brown.edu/web/documents/diversity/actionplan/diap-full.pdf>>

Several members of the community indicated several limitations and inaccuracies with the current data compiled in the plan. Specifically, community members noted that asian-americans are not disaggregated in the data, not taking into account the disparity of needs among east asians, southeast asians, south asians and southwest asians. Others noted that the gender data is not inclusive of gender-fluidity. Another comment drew the critique that due to changes in majors and degree tracks between 2005-2016 that data on graduation rates may not be accurate. Other comments provided recommendations for future data collection including: tracking statistics of faculty positions offered and accepted, and study and incorporate CS retention & advancement models from Minority Service Institutions. The Computer Science Department will recommend these changes to the University Admissions' data collection and will implement and improve internal data collection procedures.

#### **TA Hiring, Training and Pay (7 comments)**

Feedback to the plan also included requests for changes to the TA program. While the scope of the diversity and inclusion action plan does not include fundamental changes to the TA program, and the Diversity Committee is not directly responsible for enacting change to this program, we recognize the influence this large program has over the lives of our students, faculty and community. Most comments focused on changes to the mandatory TA training program, that included 7 hours of diversity and inclusion training in the Spring 2016 semester. The suggestions ranged from eliminating the mandatory training requirement completely to expanding the training to all students, especially those in paid CS positions. The Diversity Committee has thoroughly reviewed the variety of suggestions and critiques, and is developing modifications to the training modules to maximize effectiveness and inclusivity. Included in those recommendations are: increased training on disability-awareness and sensitivity, avoiding use of CS logins to identify students, varying the presentations to include more small group workshops so students feel comfortable to participate, and emphasizing 'why' TA's should modify their actions to be more inclusive, rather than focusing on 'how'.

#### **Computer Science Department & Diversity Committee Accountability (5 comments)**

Community feedback included specific recommendations for how the Diversity Committee can improve its accountability by promoting transparent communication. Several community members recommended incorporating dates in the Action Plan. A multi-year timeline will be developed by the end of the summer and published to the CS Diversity Website. Status updates and annual progress reports will be included in the CS Diversity web pages to ensure timely completion of tasks and accurate community reporting. The periodic updates on the Diversity webpages will also clearly articulate barriers and challenges the Diversity Committee faces to achieving its goals.

Other requests for clarification included an understanding of how members of the community would be held accountable for anonymous feedback, how the CS budget will be adjusted to support the added initiatives, and a rationale for why certain initiatives are "suggestions" and other initiatives are "requirements." While these critiques do not fit directly within the scope and framework of action plan, they will be taken into consideration when organizing future processes

and developing future communications. Increasing transparency and improving accountability is a critical component to the success of diversity and inclusion initiatives by ensuring active community engagement. The Diversity Committee is committed to increasing community engagement through comprehensive, well organized and advertised initiatives and programs, and effective, accurate and thorough analysis of progress and barriers shared publicly with the community.

### **Appendix G: Preliminary Results of Our Initial Climate Survey**

We conducted our first departmental climate survey in May 2016. While we have not yet completed a thorough analysis of the data, we have identified the following themes:

1. Lack of inclusive language in courses.
2. Microaggressions and implicit bias.
3. Lack of faculty diversity.
4. Competitive department culture.

We are seeking professional help us to put together a more detailed analysis of the survey data, and design future surveys. Meanwhile, we are already beginning to address the aforementioned issues. A summary report will be shared with the community once complete.