



# BRAID

Year 6

## BRAID Annual Report

(Covering the 2019-20 school year)

The sixth BRAID Annual Report was made possible with support from

### PREMIER FUNDERS



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<b>BACKGROUND</b>	<b>2</b>
<b>PARTICIPATING BRAID INSTITUTIONS</b>	<b>2</b>
BEACON SCHOOLS	2
BRAID SCHOOLS	3
2020 AFFILIATE SCHOOLS	3
<b>THE MOMENTUM TEAM</b>	<b>3</b>
<b>BRAID DEPARTMENTAL REPORT</b>	<b>6</b>
<b>RESULTS FROM THE SY 2019-20 DEPARTMENTAL REPORT</b>	<b>6</b>
FACULTY DIVERSIFICATION	7
REFLECTIONS FROM STUDENTS IMPACTED BY BRAID IN THE 2019-20 SCHOOL YEAR	7
INTERACTION WITH BRAID FUNDERS	8
<b>BRAID INITIATIVE HIGHLIGHTS FROM THE 2019-20 SCHOOL YEAR</b>	<b>9</b>
QUARTERLY REPORTING	9
RESUME DATABASE	9
ANNUAL BRAID SUMMIT	10
BRAID AT THE GRACE HOPPER CELEBRATION	11
BRAID IN THE NEWS	12
<b>APPENDIX A. STRATEGIES FOR FULFILLING THE FOUR BRAID COMMITMENTS</b>	<b>13</b>

# Year 6 BRAID Annual Report

## Background

BRAID (Building, Recruiting and Inclusion for Diversity) is an initiative to help computer science departments increase their percentages of women and underrepresented minority students. Launched in 2014 in partnership with Harvey Mudd College, it includes a mixed-methods, longitudinal research study conducted by the UCLA Momentum Research Team.

Under the leadership of their department chairs, 15 Computer Science (CS) departments (BRAID Schools) have committed to implementing practices such as those initiated at Harvey Mudd College and the University of Washington (Beacon Schools) which increased the representation of women and underrepresented groups in computing on their campuses.

Each BRAID School implements a combination of commitments, successful on Beacon School campuses, in order to increase the number of women and underrepresented groups in their undergraduate CS departments. The 4 BRAID commitments are:

1. Modify introductory CS courses to appeal to students with less prior background in computing.
2. Lead outreach programs for (K-12) school teachers and students to inspire a contingency of diverse students interested in computing.
3. Build confidence and community among underrepresented students through programming on and off campus.
4. Develop joint majors and interdisciplinary courses in areas like CS and biology that are attractive to underrepresented students.

In addition to the 15 annual BRAID Schools participating in the longitudinal research study, each year BRAID accepts several schools to gain access to the learning of the BRAID initiative for one year (Affiliate Schools). Department chairs from accredited, degree granting institutions can apply to become an Affiliate School and spend the year learning about best practices from the Beacon and BRAID Schools and convene in person with corporate BRAID Funders, the UCLA BRAID Research team, the AnitaB.org team, and all the BRAID School department chairs at our annual summit.

## Participating BRAID Institutions

### Beacon Schools

Beacon Schools are the schools after which the participating BRAID Schools model their commitments. Each of the Beacon Schools had high participation of undergraduate women in their CS departments at the time of BRAID's launch and provided guidance to the participating BRAID Schools. Harvey Mudd is the lead model and has implemented 4 strategies to increase their numbers—modify the intro to computing course; build community among computing students; perform outreach to local high schools; and pursue development of interdisciplinary courses and majors. These Beacon schools are used as guides and advisors to the BRAID Schools and the BRAID Affiliates. The Beacon Schools include: [California Polytechnic State University](#), [Harvey Mudd College](#), [University of Washington](#), and [University of British Columbia](#).

## BRAID Schools

BRAID Schools are the 15 institutions that receive funding to implement the four BRAID commitments and participate in the UCLA BRAID Research Team's longitudinal study. They include: Arizona State University, Missouri University of Science & Technology, New Jersey Institute of Technology, University of Illinois at Chicago, University of Maryland Baltimore County, University of Maryland College Park, University of Nebraska Lincoln, University of North Texas, University of Rochester, University of South Carolina, University of Texas El Paso, University of Vermont, University of Wisconsin Milwaukee, and Villanova University.

## 2020 Affiliate Schools

Affiliate Schools are institutions that spend one year implementing BRAID commitments to increase diversity in their CS departments. They do not participate in the longitudinal research study, nor do they receive funding. Currently, they participate with BRAID on a one-year rotation that includes attending the annual BRAID Summit. Year 6 Affiliate schools included: Dalhousie University, Northwestern University, Rutgers, the State University of New Jersey (New Brunswick), Southern New Hampshire University, The Australian National University, University of North Carolina at Charlotte, University of South Florida, Tampa, and York University.

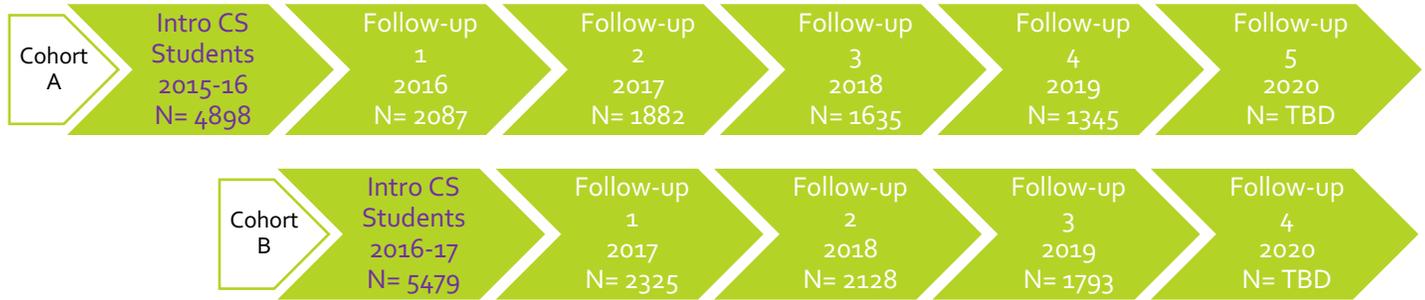
## The Momentum Team

The Momentum team (formerly known as the UCLA BRAID Research team) is led by Dr. Linda J. Sax, Founding Director and Professor of Higher Education in the Graduate School of Education & Information Studies at UCLA. The project is managed by Dr. Kate Lehman, Associate Director, and is supported by a team of 12 graduate student researchers.

Over the past five years, the Momentum team has established robust, longitudinal qualitative and quantitative databases. These databases allow the team to explore several key questions relevant to broadening participation in undergraduate computing. In terms of *qualitative data*, the research team has focused their efforts on annual interviews with the 15 department chairs at BRAID Schools. In these interviews, chairs provide updates on their broadening participation initiatives and discuss successes and challenges in their efforts to diversify computing majors. *The department chair interviews provide important data about how the departmental change process occurs.*

With regard to *quantitative data*, the team collects survey data and enrollment and degree attainment data. The longitudinal survey data follows students who enrolled in an introductory computing course through college and into their early post-college years. Specifically, during the 2015-16 and 2016-17 academic years, the Momentum team administered pre- and post-test surveys to all students enrolled in an introductory computing courses at the 15 BRAID Schools, yielding a baseline sample of approximately 10,000 students. The research team has continued to survey those students with an annual follow-up survey, with the most recent data collected in the Fall of 2020. *These longitudinal data on students allows the team to examine the relationships between experiences students have in their introductory courses and computing majors and various desirable outcomes, including earning a computing major or minor and pursuing a computing career.* Analysis of the Fall 2020 data will continue through the Spring of 2021 and will include analysis of graduates' recent career experiences.

**Figure 1. BRAID Research Longitudinal Survey Samples Across Time**



### Beyond the First 4 Years

Based on the follow-up surveys from 2019, the majority of respondents (about 55% across both cohorts) anticipated working in the computing field in a full-time or part-time capacity and about 21% of respondents anticipated attending graduate school (in any field) in Fall 2020. The follow-up survey administered in Fall 2020 and currently in analysis continues to ask about respondents' undergraduate experiences, as well as their graduate school experiences and/or experiences in the computing workforce.

### Trends in Enrollment and Retention

The research team requests data on student enrollment and degree attainment in computing majors from BRAID institutions each year, and disaggregate this data by gender and race/ethnicity dating back to 2014. The team continues to collect these data annually, allowing them to track BRAID institutions' progress toward diversifying undergraduate computing majors.

According to reports from the Computing Research Association, computer science departments are facing a boom in undergraduate computing enrollment that is not only greater than any boom that computing has faced before, but it is greater than any enrollment boom that any field has faced before. As is discussed in a forthcoming SIGCSE paper from the Momentum team, periods of enrollment growth tend to exacerbate participation gaps, such that departments must carefully consider their broadening participation in computing efforts in concert with their enrollment management strategies. Therefore, in studying enrollment trends among BRAID institutions, the research team closely examines these three categories: 1) women, 2) Black, Latinx, and Indigenous students of all genders, and 3) Black, Latinx, and Indigenous women. See Figures 2 and Figure 3 for more detailed information about the enrollment trends among these groups.

Fig. 2. Key Figures in BRAID Enrollment Growth

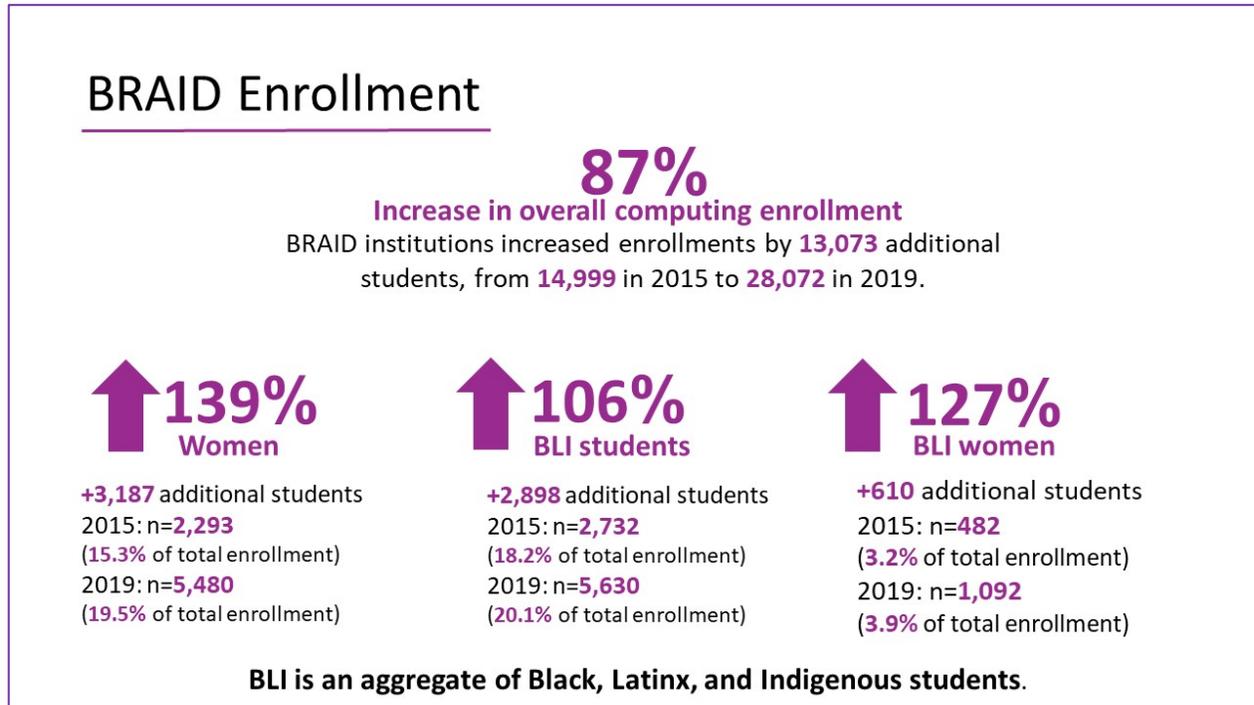
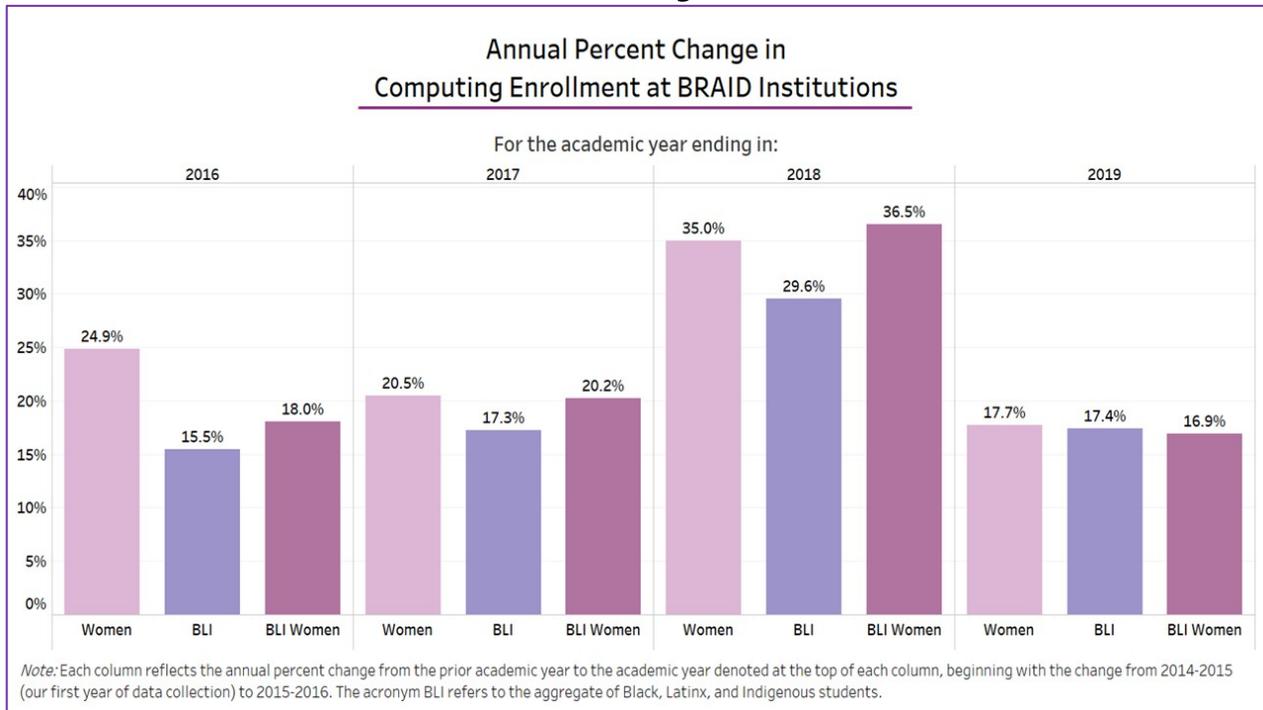


Fig. 3. Enrollment Growth Changes Among Women, Black/Latinx/Indigenous Students, and Black/Latinx/Indigenous Women



## BRAID Departmental Report

Each year, BRAID department chairs complete a departmental report administered by AnitaB.org. The departmental report consists of open-ended and short answer questions that help gather information related to each institution’s pursuit of the four BRAID commitments, how BRAID funds are used, and more. Results from the departmental report are then aggregated and shared in the BRAID Annual Report and disseminated across institutions. Receipt of BRAID funding is partially dependent upon completion of each year’s departmental report.

### Results from the SY 2019-20 Departmental Report

For the SY 2019-20 Departmental Report, all 15 BRAID Schools submitted responses. Aggregated metrics on activities pursued by BRAID Schools that align to the four BRAID commitments can be found in Table 1. Detailed actions are itemized in Appendix A.

**Table 1. Summary of Reporting BRAID Schools’ Activities Aligned to the Four BRAID Commitments**

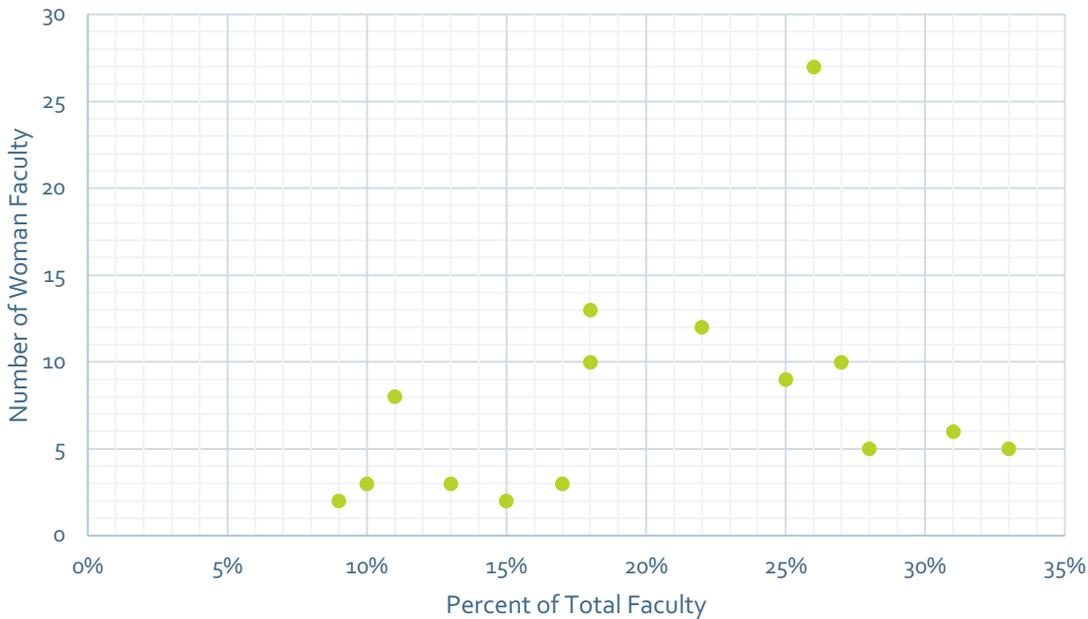
BRAID Commitment	Metrics
<b>Modify Introductory CS Courses</b>	<ul style="list-style-type: none"> <li>93% (n=14) of BRAID Schools modified their introductory CS course to make it more appealing to underrepresented students</li> </ul>
<b>Conducting Outreach to K-12</b>	<ul style="list-style-type: none"> <li>93% (n=14) of the BRAID Schools are doing some kind of outreach to increase diversity in their computing major</li> <li>93% (n=14) of BRAID Schools sponsored summer or afterschool programs for women and/or underrepresented minority students</li> <li>BRAID Schools reached an estimated total of 5,035 high school and 4,836 K-8 students through various outreach efforts</li> <li>BRAID Schools provided CS professional development to an estimated 1,267 high school and 412 K-8 teachers</li> <li>An estimated 616 undergraduate students participated in K-12 outreach efforts</li> <li>26% (n=4) of BRAID Schools partnered with high school guidance counselors to promote computing as a career pathway</li> </ul>
<b>Building Confidence and Community</b>	<ul style="list-style-type: none"> <li>100% (n=15) of BRAID Schools offer student groups for women and/or underrepresented minority students</li> <li>93% (n=14) of BRAID Schools offer opportunities for undergraduate students to participate in research</li> <li>66% (n=10) of BRAID Schools offer mentoring programs to undergraduate students</li> <li>46% (n=7) of BRAID Schools collaborate with industry to offer programs designed for students</li> <li>33% (n=5) of BRAID Schools offer summer bridge programs</li> <li>33% (n=5) of BRAID Schools used BRAID funds to support computing student organizations or community building on campus</li> <li>100% (n=15) of BRAID Schools build community by sending undergraduate students to computing conferences               <ul style="list-style-type: none"> <li>100% (n=15) of BRAID Schools sent (331 undergraduate and 57 graduate) to the Grace Hopper Celebration of Women in Computing</li> <li>53% (n=8) of BRAID Schools sent students to non-GHC conferences including Richard Tapia Celebration of Diversity in Computing, NSBE, and others</li> </ul> </li> </ul>
<b>Develop and/or Promote</b>	<ul style="list-style-type: none"> <li>73% (n=11) of BRAID Schools offer interdisciplinary courses combining CS with other subjects</li> </ul>

<b>Interdisciplinary Courses &amp; Majors</b>	<ul style="list-style-type: none"> <li>• 93% (n=14) of BRAID Schools offer or plan to offer an interdisciplinary major that combines computing with another field</li> <li>• 93% (n=14) of BRAID Schools offer a CS minor</li> </ul>
<b>Additional Efforts</b>	<ul style="list-style-type: none"> <li>• 100% (n=15) of BRAID department chairs plan to implement new and/or different efforts in the upcoming year</li> <li>• 40% (n=6) of BRAID Schools performed outreach to undeclared majors at their institution</li> <li>• 60% (n=9) of BRAID Schools maintain partnerships with community colleges</li> </ul>

### Faculty Diversification

In addition to the four BRAID Commitments, BRAID Schools are taking action to enhance the diversity of their staffs by implementing several strategies aimed at increasing the number of women and people from all underrepresented groups applying to and being hired into tenure-track and lecturer positions. All BRAID Schools reported on the diversification of their faculty in the SY 2019-20 Departmental Report, with some sharing demographic data for only tenure-track faculty and others sharing it for all faculty members\*. On average, 20% of faculty at BRAID Schools identify as a woman with a range of 9% to 33% across all schools. Figure 4 shows the number of woman faculty members reported in relation to the percent of total faculty at BRAID schools in 2019-20.

**Figure 4. Number of Woman Faculty vs. Percent of Total Faculty\* at BRAID Schools in SY 2019-20**



### Reflections from Students Impacted by BRAID in the 2019-20 School Year

In addition to providing updates on efforts related to fulfilling the BRAID Commitments, department chairs work with their faculty and student body to obtain reflections from students that speak to how BRAID-supported efforts are impacting individuals and their larger community. Featured below are a selection of quotes from those reflections:

"The Women in Computing Organization at the New Jersey Institute of Technology was founded because BRAID. In the last couple of years, WiCS has grown to a wonderful community of women in computing and has provided our student body with activities and events that have been a great opportunity for this minority group. Our organization has been able to build connections and have a successful alumni record to show. We also like to thank BRAID for providing us the opportunity to go to the Grace Hopper Celebration because it has granted members of our organizations with meaningful knowledge, connections, and overall empowerment."

- Junior, Information Technology and Human Computer Interaction, New Jersey Institute of Technology

"I think they have made me grow incredibly not only as a professional but as a person. It has inspired me to participate in these activities and sometimes it could seem rather overwhelming so that may be the negative. My connection with others in the program reminded me that everything is a process and that there are steps to becoming successful that don't have to be immediately after graduation. And that there are different definitions of success. It's helped me become happier with the career I have chosen."

- Senior, Computer Science, Arizona State University

"I have been a part of WICS since my freshman year and I honestly cannot imagine my college experience without it! I have gained so many friends and peers with whom I take classes with through WICS. It made me feel so much more included in the CS community at UCI. I learned a lot about how nice it is to know people in your classes so you have someone to reach out to for help. In addition, knowing your seniors is a great guiding resource from whom I got a lot of suggestions from. I would say that there aren't really any negatives in my experience. WICS has been a super positive part of my college experience and I want to continue contributing as much as possible so that this positive community is available for all the new incoming college students!"

- Junior, Computer Science, University of California, Irvine

"MCWIC has been an integral part of my experience at UMD. It brought diversity and inclusion into the forefront of our computer science experience. As someone who has often struggled with the lack of representation in the technology field it was incredible to find an org putting inclusivity at the forefront of its mission. For me, this included spaces that brought women together to participate in fun activities like cookie decorating but even networking activities with women in the field and mentoring/ career building activities that allowed women to help support each other. The most integral part of this community, for me, was working with K-12 students who were predominantly students underrepresented in the field to help propel their start into the tech space. It taught me so much about the importance of building diversity and inclusion in a field that has often alienated these terms."

- Senior, Computer Science, University of Maryland, College Park

### Interaction with BRAID Funders

In the SY 2019-20 Departmental Report, BRAID department chairs were asked a series of questions related to engaging with funders of the BRAID Initiative. In the report, 100% of BRAID chairs (n=15) expressed their desire to interact more with BRAID funders. Table 2 provides an overview of how department chairs prefer to engage with BRAID funders.

**Table 2. Department Chair Preferences for How to Engage with BRAID Funders**

Mechanisms for Engagement	% Preferred	Count
Webinar between students and Funders to share internship, mentorship, and other student focused opportunities	100%	15
Webinar between students and Funders to share tips for improving technical resumes and interviews	86%	13
Funder-Department Chair meetup at GHC	80%	12
Webinar conversation between Department Chairs and Funders about corporate opportunities	66%	10
Webinar between faculty and Funders to share tips for improving technical resumes and interviews	20%	3
Internships at BRAID Funder companies designed specifically for BRAID Students	100%	15
Other (Please specify in text box.)	13%	2
We are not interested in engaging with BRAID's corporate Funders	0%	0

## BRAID Initiative Highlights from the 2019-20 School Year

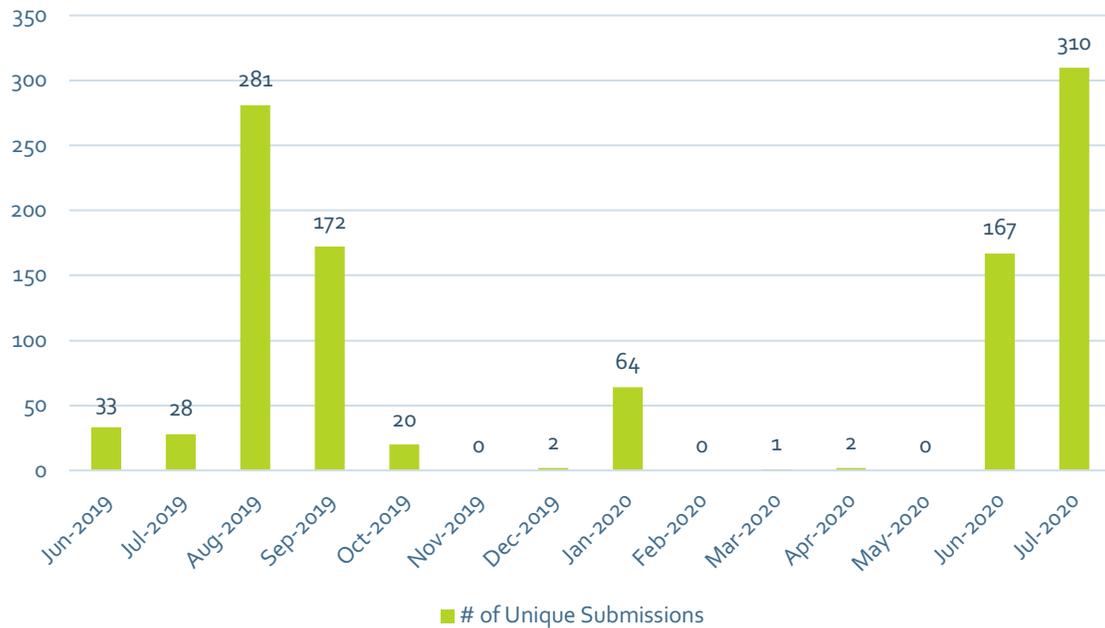
### Quarterly Reporting

General reports on the happenings of BRAID are distributed each quarter via the AnitaB.org Academic Digest. This year's quarterly report shined a light on various BRAID efforts, including a thank you to our 2019 Funders; spotlight on BRAID School commitment efforts; highlight of BRAID Research Team's academic presentations; and overviews of BRAID events at the Grace Hopper Celebration. [Sign up here to receive the Academic Digest](#), including quarterly BRAID updates. Quarterly BRAID updates from 2019- 2020 SY can be found here: [Q3-2019](#), [Q4- 2019](#), [Q1- 2020](#), [Q2- 2020](#).

### Resume Database

The BRAID resume database was promoted with instructions and participation reminders sent to Department Chairs of all BRAID Schools in July, August, and September. We had 1,080 unique submissions to the BRAID Resume Database for SY 2019-20 and the breakdown by month can be viewed in the figure below. The AnitaB.org team provided each BRAID department chair with an outreach toolkit that comprised email and social media language, in addition to direct communication to students at BRAID Schools.

**Figure 5. Number of Unique Submission to the BRAID Resume Database in SY 2019-20**



### Annual BRAID Summit

The annual BRAID Summit took place virtually, July 15-17, 2020. We welcomed roughly 60 participants from different BRAID Schools, 2020 Affiliate Schools, Beacon Schools, BRAID Funders, and nonprofit partners. Participants engaged in a variety of discussions on topics including fundraising to support BRAID-related efforts and the impact of COVID19 on students and faculty. The Momentum Team provided an update on their research following the progress of students and CS departments as a whole over the past six years of the project and offered breakout sessions geared toward helping department chairs make sense of their data.

### BRAID Summit | Public Sessions

The final day of the BRAID Summit was open to the public, including faculty and staff invited by BRAID department chairs. We welcomed an additional 70 people during this special programming. This day included panels and presentations from our BRAID Schools and special guests on topics including prioritizing equity through online instruction and resources for building an NSF BPC plan. In addition to the content presented, AnitaB.org hosted a virtual career fair with three hours dedicated to BRAID students exclusively.

#### Participant feedback Included:

“Really appreciate the care that went into making this as interactive as possible.”

- Department Chair, BRAID School

“Thank you so much for hosting this and overcoming what is obviously a horrible disruption (COVID) to meeting in person. I think every single person in your team did a fantastic job! And I think every participant got something valuable out of it! Well done!”

- Department Chair, BRAID School

## BRAID at the Grace Hopper Celebration

Grace Hopper Celebration serves as a unique, inspiring, and transformative opportunity for community building among BRAID stakeholders, especially students. The learnings and community of BRAID are celebrated each year on site. In 2020, 372 students and 39 staff members from BRAID Schools attended GHC 19

### *Welcome Reception at GHC 19*

The BRAID Welcome Reception at GHC19 was sponsored by Audible and Northrop Grumman. Over 300 attendees enjoyed great food and company, as we celebrated the fifth anniversary of the BRAID initiative. All 15 BRAID Schools had representatives at the Welcome Reception. Students and faculty alike had the chance to network with the BRAID initiative's annual corporate funders, the Welcome Reception sponsors, allies in the work of broadening participation in computing, and each other.

### *BRAID Stakeholder Meetup at GHC19*

This invite-only meeting created a space for deeper learning between BRAID department chairs, faculty, and students from BRAID Schools, and representatives from the companies that fund BRAID. Students dropped in to learn about the companies and meet with representatives from IBM, Intel, Microsoft, and Qualcomm, as well as to learn about the larger programmatic features of BRAID. Over 50 students, 10 department chairs and faculty, and 15 representatives from BRAID-funding companies engaged in lively discussion.

### *The Momentum Team Presentation*

The Momentum team, led by Drs. Linda Sax and Kate Lehman, hosted an audience of over 40 attendees at their GHC 19 update. The research team shared the progress of the longitudinal research study, providing key learnings from their five years studying trends on BRAID campuses. In the presentation, the research team revealed there has been a 108% increase in enrollment of women and a 77.4% increase in enrollment of underrepresented minorities in computing on average across BRAID Schools.

Check out [the Momentum Team's slide deck from GHC 19 here](#) for more details.

### *Student Reflections*

"Attending GHC is always a memorable and valuable experience. It gives me the opportunity to be immersed in a one-of-a-kind event that celebrates and supports women in tech. Every year, I feel revitalized and inspired from seeing the energy of all the attendees. All of the sessions and workshops are very interesting and relevant to the current times. The ones I attended gave me perspective into the innovation by women in the technology industry. The career expo is also an amazing networking opportunity. Apart from securing interviews, I was able to connect to many accomplished professionals. Regardless of if I join their company, the connection I made is lasting."

- Senior, Computer Science, New Jersey Institute of Technology

" My experience participating in GHC19 was extremely influential and beneficial in not only expanding my understanding of networking amongst fellow women in tech but also expanded my knowledge of the kinds of work I can pursue post-graduation. Attending GHC with my scholarship enabled me to secure an internship this summer with a software company that I am extremely excited to participate in. I spent a majority of my time at the Job fair networking with other undergraduates as well as companies in attendance as well as the interview hall. This was my first experience at a job fair and to say I was overwhelmed is an understatement. I felt very supported, however, by my departments desire to guide me to make successful connections and learn how to present myself to recruiters while at

the conference. I also extremely enjoyed the keynote opening and closing sessions along with the many breakout sessions I attended. I could not be more appreciative of the experiences this conference gave me, and the confidence it instilled in me to give my upcoming internship my all this summer.”

- Junior, Computer Science, Villanova University

“My experience in this conference was truly astonishing. At the end of the conference, it left me inspired. I am more inclined to have a concentration in Cybersecurity by attending the workshops. Even more, I loved the not only the technical lessons, but the advice given by the MC's on their journey and what roadblocks they experienced. It struck me that, I can achieve my dreams. It led me to create my own projects that I am passionate about and it led me to keep on improving myself. Not only that I truly felt very comfortable knowing there's someone out there that will be of help and the whole conference was cheering for one another.”

- Sophomore, Computer Science, University of Texas at El Paso

### BRAID in the News

Throughout the 2019-2020 school year, BRAID department chairs shared several articles that highlighted their participation in BRAID and the program's influence on their efforts to broaden participation. Some of those highlights were featured through a variety of campus media outlets, including:

- UR | [Students thrive at the intersections of engineering, computer science, and humanities](#)
- UCI | [27 ICS Students to attend 2019 Grace Hopper Celebration](#)
- UMD | [Maryland Center for Women in Computing Celebrates Five Years of Success](#)
- USC | [Glaeser is NSF Graduate Fellow](#)
- AnitaB.org & UMD | [VOA Explores the Impact of BRAID](#)

## Appendix A. Strategies for Fulfilling the Four BRAID Commitments

Table 3 displays a subset of the strategies each BRAID School implemented to fulfill the four BRAID commitments in the 2019-20 school year. Please note that the table reflects information provided in the SY 2019-20 (Year 6) Departmental Report and that reporting is not exhaustive of all activities. To view strategies used in the 2018-19 school year, access the Year 5 BRAID Annual Report ([LINK](#)).

Legend:

- **Introduce:** New in SY 2019-20.
- **Continue:** Something the department continues to do without change.
- **Modify:** Existing program or initiative that is not new but was changed in SY 2019-20.

**Table 3. Strategies implemented by BRAID Schools to Fulfill the Four BRAID Commitments**

Modifying Introductory CS Courses	Lead K-12 Outreach Programs for Students and Teachers	Build Confidence and Community Among Underrepresented Students	Develop Joint Majors and Interdisciplinary Courses
<b>Arizona State University</b>			
<ul style="list-style-type: none"> <li>• <b>Introduce:</b> Using an e-text book that provides interactive reviews and coding practices</li> <li>• <b>Introduce:</b> Added more TA's to assist students individually</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Offer middle school and high school summer camps in the areas of robotics, application development, and gaming</li> <li>• <b>Continue:</b> Offer introductory online lesson planning tools and learning platforms that instruct K-8 teachers in computational thinking.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Regularly offering new programs and mixers to engage underrepresented populations</li> <li>• <b>Continue:</b> Encourage and support student participation in student organizations like WICS, Code Devils, and Software Developers Association.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Introduce:</b> Offers interdisciplinary majors combining CS with other majors</li> </ul>
<b>Missouri University of Science &amp; Technology</b>			
<ul style="list-style-type: none"> <li>• <b>Introduce:</b> Deployed a new introductory course for those with little to no experience in computer science.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Outreach at K-12 schools</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Undergraduate Research ACM-W chapter organizes activities for women and URM students</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Offers interdisciplinary courses combining CS with other subjects</li> <li>• Offers a CS Minor</li> </ul>
<b>New Jersey Institute of Technology</b>			
<ul style="list-style-type: none"> <li>• No changes made in intro course due to changes in staffing</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Summer teacher training program with high school teachers.</li> <li>• Running 9 weeklong Saturday programs for local middle school students</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Ongoing support to three women in computing clubs on campus [ACM-W student chapter, graduate Women in Computing Society (WiCS), and undergraduate WiCs]</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Offers interdisciplinary courses and majors combining CS with other subjects</li> <li>• <b>Continue:</b> Offers a CS Minor</li> </ul>
<b>University of Illinois at Chicago</b>			
<ul style="list-style-type: none"> <li>• <b>Continue:</b> Support of prior changes made to introductory CS course</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Provide CS education professional development to high school teachers.</li> <li>• <b>Continue:</b> Outreach aimed at K-8 students</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Supporting student attendance at conferences such as GHC and Tapia</li> <li>• <b>Continue:</b> Support of student organizations, including Women in CS and Latinx Students in CS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Working towards offering interdisciplinary majors combining CS with other subjects</li> </ul>
<b>University of California, Irvine</b>			
<ul style="list-style-type: none"> <li>• <b>Modify:</b> Introduced an accelerated intro course for those that have more experience in computer science.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Provide CS education professional development to high school teachers.</li> <li>• <b>Continue:</b> Outreach aimed at K-8 students</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Supporting student attendance at conferences such as GHC, NSBE and Tapia</li> <li>• <b>Continue:</b> Support of student organizations like WICS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Continue:</b> Offers interdisciplinary courses and majors combining CS with other subjects</li> <li>• <b>Continue:</b> Offers a CS Minor</li> </ul>

Modifying Introductory CS Courses	Lead K-12 Outreach Programs for Students and Teachers	Build Confidence and Community Among Underrepresented Students	Develop Joint Majors and Interdisciplinary Courses
<b>University of Maryland Baltimore County</b>			
<ul style="list-style-type: none"> <li><b>Continue:</b> Support of previously modified introductory CS course and efforts to create separate sections for people without prior experience</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Sponsored summer camps for K-8 girls.</li> <li><b>Continue:</b> Perform extensive outreach to high school women, hosting an overnight event called Cyber101.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Supporting student attendance at conferences such as GHC and Tapia</li> <li>Mentoring programs with mentors successful in computing majors or careers</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offers sections of introductory CS to non-majors</li> <li><b>Continue:</b> Offers a Computer Science minor</li> <li><b>Modify:</b> Working towards offering interdisciplinary majors to combine CS with other subjects</li> </ul>
<b>University of Maryland College Park</b>			
<ul style="list-style-type: none"> <li><b>Introduce:</b> Offering a new intro to computing course for those that have a background, but not enough to take the more advanced intro course</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Expand reach of K-12 summer camp and school outreach programs</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Supporting student attendance at conferences such as GHC, Tapia, AfroTech, and more</li> <li><b>Continue:</b> Increase number of staff supporting students</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offers interdisciplinary courses and majors combining CS with other subjects</li> <li><b>Continue:</b> Offers a CS Minor</li> </ul>
<b>University of Nebraska Lincoln</b>			
<ul style="list-style-type: none"> <li><b>Modify:</b> The 101 course in their department has been redesigned by young instructors with a passion for inclusion. It now uses ZyBooks to provide an encouraging scaffolded learning experience.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Outreach to K-8 students and teachers through Hour of Code creates a broad exposure to computing as a concept which allows us to recruit teachers for training (many are women or URMs to create a visible role model).</li> <li><b>Continue:</b> Collaborate with local school districts to provide professional development to high school teachers</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Supporting student attendance at GHC</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Existing interdisciplinary course and major efforts</li> </ul>
<b>University of North Texas</b>			
<ul style="list-style-type: none"> <li><b>Introduce:</b> Added new introductory courses</li> <li><b>Modify:</b> Updated the CSCE 1010 Discovering Computer Science course to use standardized national materials</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Sponsored Digital Divas, a high school programming contest for girls and NCWIT Aspirations in Computing Awards Ceremony.</li> <li><b>Continue:</b> Send women and underrepresented minorities to local high schools to share information on the CS program</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Supporting student attendance at GHC, CRA-W, and Tapia.</li> <li><b>Continue:</b> Support of student organizations such as ACM, Cybersecurity Club, Women in Computing, and IEEE Computer Society</li> <li>Increased diversity in faculty and TA's.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offers interdisciplinary courses and majors combining CS with other subjects</li> <li><b>Continue:</b> Offers a CS Minor</li> </ul>

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<b>University of Rochester</b>			
<ul style="list-style-type: none"> <li><b>Continue:</b> Have not modified the introductory course but have instead modified the introductory pathway. Students with less exposure to CS start with the Intro to Programming course, while those with experience start with the Intro to CS course.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> URWiC-MiC participated in a STEAM event for high school students with a goal to recruit high school students for Girls Who Code.</li> <li><b>Continue:</b> Participates in pre-college summer school organized by Rochester's Institute for Data Science as instructors.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Supports student participation in organizations such as URWiC-MiC, NSBE, SHPE, and SWE</li> <li><b>Continue:</b> Supports student attendance at conferences such as GHC, Lesbians Who Tech + Allies, NSBE, SHPE, SWE, and more.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offers interdisciplinary courses and majors combining CS with other subjects</li> <li><b>Continue:</b> Offers a CS Minor</li> </ul>
<b>University of South Carolina</b>			
<ul style="list-style-type: none"> <li><b>Introduce:</b> Offers multiple sections of intro course with smaller enrollments to facilitate a more interactive experience.</li> </ul>	<ul style="list-style-type: none"> <li>Nothing reported</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offer summer bridge programs</li> <li><b>Continue:</b> Support events hosted by student clubs, such as Women in Computing, Minorities in Computing, ACM, Cybersecurity Club, and Gamer's Club</li> <li><b>Continue:</b> Support student attendance at conferences such as GHC, NSBE, and Tapia</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offers interdisciplinary courses combining CS with other subjects</li> <li><b>Continue:</b> Offers a CS Minor</li> </ul>
<b>University of Texas El Paso</b>			
<ul style="list-style-type: none"> <li><b>Modify:</b> Developed a set of problem-solving course in consultation with Google and other CAHSI institutions</li> <li><b>Modify:</b> Introductory courses incorporate more project-based learning strategies to make them more appealing and effective</li> <li><b>Modify:</b> Modified curriculum to include socially relevant class projects and exercises</li> </ul>	<ul style="list-style-type: none"> <li><b>Introduce:</b> Designed and developed a culturally and environmentally relevant game to expose K-12 students to computing concepts.</li> <li><b>Continue:</b> Provided professional development workshops on computational thinking to middle and high school teachers in Paso del Norte region.</li> <li><b>Introduce:</b> Developing program to train teachers in developing project-based learning modules that are culturally, environmentally, and linguistically relevant and focuses on computational thinking.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Google Explore Computer Science Research Program funded events aiming to inspire undergraduate women to pursue advanced degrees in computing</li> <li><b>Continue:</b> S-STEM program funds students' participation in research, professional development, and competitions</li> <li><b>Continue:</b> Supporting student attendance at GHC and other conferences</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Offers interdisciplinary programs to include students pursuing non-engineering majors</li> <li><b>Continue:</b> Offers a CS minor</li> </ul>

Modifying Introductory CS Courses	Lead K-12 Outreach Programs for Students and Teachers	Build Confidence and Community Among Underrepresented Students	Develop Joint Majors and Interdisciplinary Courses
<b>University of Vermont</b>			
<ul style="list-style-type: none"> <li><b>Modify:</b> Incorporated online grading software in the introductory programming course, which increased student feedback on assessments</li> <li><b>Continue:</b> Offer sections of intro programming course for students with no prior experience</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Maintain outreach efforts through Girls Who Code</li> <li><b>Continue:</b> Send students to local high schools to talk about their CS program</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> CS Crew and Women in Computer Science (Undergraduate CS Club)</li> <li><b>Continue:</b> Student participation in GHC</li> <li><b>Continue:</b> Enhanced efforts to hire more diverse faculty.</li> <li><b>Continue:</b> Diversity training for faculty new hires</li> <li><b>Continue:</b> Create opportunities for students to share CS projects and research through an annual CS fair.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Supporting existing work with Data Science undergraduate degree and Complex Systems graduate degree</li> <li><b>Continue:</b> Offers a CS minor</li> <li><b>Continue:</b> Offers interdisciplinary courses and majors combining CS with other subjects</li> </ul>
<b>University of Wisconsin Milwaukee</b>			
<ul style="list-style-type: none"> <li>No changes made in intro course</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Outreach efforts through Girls Who Code</li> <li>Empowers undergrad students to teach K-12 students on campus or at the schools.</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Support student Groups for women like WiCS</li> <li><b>Continue:</b> Student participation in GHC and BITCon</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Implementing a Bachelor of Arts program in CS that requires a second major or two additional minors</li> </ul>
<b>Villanova University</b>			
<ul style="list-style-type: none"> <li><b>Continue:</b> Maintaining previously implemented changes to the introductory course</li> <li><b>Continue:</b> Implement faculty-based interventions aimed at creating more inclusive environments for students through the Villanova VISIBLE project</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Outreach at K-12 schools</li> <li><b>Continue:</b> Working with Aspire IT from NCWIT</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Sending students to conferences aimed at underrepresented groups in computing (i.e., GHC, NSBE, and Tapia)</li> </ul>	<ul style="list-style-type: none"> <li><b>Continue:</b> Support existing interdisciplinary CS efforts</li> </ul>