



IRIBE INITIATIVE FOR INCLUSION & DIVERSITY IN COMPUTING

MCWIC | MARYLAND CENTER FOR WOMEN IN COMPUTING

Iribe Initiative for Inclusion and Diversity in Computing (I4C): [Web](#) / [Twitter](#) / [Facebook](#) / [Instagram](#)
Break Through Tech DC at UMD: [Web](#) / [Twitter](#) / [Instagram](#)
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2020-2021 Report

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1. **Executive Summary**

In Spring 2019, with a \$1 million gift from Brendan Iribe, the University created the Iribe Initiative for Inclusion and Diversity in Computing (I4C) to expand The Maryland Center for Women in Computing (MCWIC) programs to all underrepresented populations in computing. Two full-time coordinators were added to support the growth of programs: Charlotte Avery and Veronica Sanchez. Each semester, I4C hires 40+ undergraduate students in computing to support programs. I4C aims to create a climate of inclusion for all members of the computing community regardless of variables such as age, experience, nationality, race, ethnicity, gender and gender identity, philosophy and viewpoint, religion, sexual orientation, and disability. I4C and MCWIC directly engaged over 1,500 K-12 students and educators and over 900 UMD students between June 2020 and March 2021 through support from our many partners. Over 80% of all students served are from populations underrepresented in computing.

On March 2, 2021, the University of Maryland (UMD) announced a grant from Break Through Tech to propel more women into computing degrees and careers in tech through curriculum innovation, career access and community building underneath I4C. The grant's goal is to increase the number of women graduating with a tech degree at UMD by at least 12% by 2026. New staff lines were added to support this grant including career and communication lines: Caitlin Rudy and Katie Bemb, respectively.

Since March 2020 and the start of the pandemic, many events and key programs, including summer camps and tutoring, successfully shifted to virtual environments. Programs continued to be offered virtually through Summer 2021 with seven different camps planned for a virtual space supporting over 250 students. Academic year 2021-2022 plans are to incorporate both in person and virtual opportunities.

24 corporate and community partners provided funding for the following programs:

- Over 800 current students attended our programs virtually, including diversity conferences, tutoring, peer mentoring, and additional virtual events.
- Over 150 students attended Diversity Conferences this year, including Richard Tapia Celebration of Diversity in Computing, Grace Hopper Celebration, AfroTech, BEYA STEM, Wonder Women in Tech DC, and oSTEM.
- Free 1:1 and Guided Study Sessions Tutoring for undergraduate students were offered for CMSC 131, 132, 216, 250, 330, and 351 and were supported by 17 tutors. Over 350 students engaged in 900+ tutoring sessions in the 2020-2021 school year.
- I4C co-hosted the Coded Bias movie screening and panel with SEE and CMNS, with over 400+ registered.
- Over 300 students joined our new virtual engagement spaces on Slack and ELMS.
- Over 60 computing undergraduate and graduate students participated in the I4C Peer and Alumni Mentoring Program, which featured technical workshops, topics, and monthly meetings with upperclassmen and alumni mentors. 37 alumni participated in the expanded program.
- 75 students from across the U.S. participated in the virtual Tech + Research workshop as part of Technica. 11 different UMD faculty led projects. The program expanded to Bitcamp in April 2021 with 6 additional projects and 26 students.
- 35 outreach ambassadors supported 210 activities that encouraged students from underrepresented populations to pursue computing careers and interests serving over 1,500 K-12 students, families, and educators.
- 175 campers participated in our Summer 2020 virtual summer camp programming through AI4ALL, CompSciConnect, and Cyber Defense Training Camp. Three camps were cancelled due to the pandemic.
- I4C created new recruitment efforts for undergraduate students from underrepresented populations by mailing postcards and hosted an open house for admitted students.
- Diversity and inclusion training and resources were shared widely within the CS department. An inclusive spotlight was added to the monthly newsletter, and an inclusive moment was added to monthly Friday Faculty meetings.
- Monthly communications through the Diversity TL:DR newsletter were shared with all students in order to encourage a more inclusive climate.

2. History

The Iribe Initiative for Inclusion and Diversity in Computing was launched in April 2019 with a \$1 million gift from Brendan Iribe, UMD alumnus and co-founder of the virtual reality company Oculus. I4C aims to increase diversity and foster a stronger environment of inclusion in the Department of Computer Science (CMSC).

I4C serves as an umbrella over the Maryland Center for Women in Computing (MCWIC). Throughout the 2019-2020 academic year, many of our programs expanded and were rebranded underneath I4C. MCWIC still hosts programs and spaces for students who identify as women, but we have expanded our efforts to serve all students who are from populations underrepresented in computing.

With the 2019 expansion, I4C was able to expand and hire two new full-time coordinators who assist in the expansion and development of programming for K-12 and current students. Dr. Jan Plane and Kate Atchison serve as the Director and Assistant Director of the Iribe Initiative for Inclusion and Diversity in Computing and the Maryland Center for Women in Computing, respectively.

Some programs and events are supported and specific to MCWIC. These programs are highlighted with three ***.

3. Iribe Initiative for Inclusion and Diversity and Computing Staff

- Director: Dr. Jan Plane
- Assistant Director: Kate Atchison
- Retention Coordinator: Veronica Sanchez
- Outreach Coordinator: Charlotte Avery
- Career Access Lead, Break Through Tech DC: Caitlin Rudy
- Communication Lead, Break Through Tech DC: Katie Bemb
- Graduate Assistant: Kristina Kramarczuk
- Graduate Assistant: Sofia Gonzalez Prieto
- Graduate Intern: Enwongo Enobong Ekah
- Office Undergraduate Student Worker: Utsa Santosh
- Marketing Intern: Alex Moy
- Undergraduate Research Students: Maya Narayanasamy and Anaum Khan
- 35 Student Outreach Ambassadors throughout the academic year
- 17 I4C Tutors throughout the academic year
- 10 Summer 2020 Ambassadors

4. K-12 Outreach

K-12 outreach programs include summer camps, after-school outreach programs, workshops, STEM festivals, admitted student events, and weekend events. In Summer 2021, our summer camps were rebranded to Summer Academies to better represent the academic component of these programs. All programs were virtual in the last academic year. Next year, programs will occur in a hybrid, virtual, and in person.

Throughout the year, Ambassadors take our curriculum on the road to visit local organizations and schools (i.e. local Girl Scout troops) with a fun STEM activity. Activities last approximately 2 hours. STEM options include cyber safety, web development, Scratch, cryptology activities, and programming, and each option provides an introduction to computing principles. Additional activities include high school recruiting events and local resource fairs. Outreach efforts are primarily staffed by our Ambassadors. Funding for these programs is supported primarily through Brendan Iribe, AFCEA Bethesda, and MCWIC general funds.

Key Stats:

- ~210 outreach events (100 unique events)
- Over 1,500 unique students reached
- Over 5,000 total participants
- 35 undergraduate students hired to support programs

Outreach Ambassadors

Each year, undergraduate students are selected as Ambassadors and receive training on best practices for teaching and content and then apply these skills to our various outreach programs described below. 10 Teaching Ambassadors were hired full-time in the summer to support and transition our camps to a virtual experience. At least 20 Outreach Ambassadors were hired during the school year to support ~100 hours of events throughout the semester. From Summer 2020 to May 2021, 35 different Ambassadors (91% women, 9% underrepresented racial populations) supported outreach efforts.

Summer Academies

CompSciConnect***

Computer Science Connect is a three-year academy designed to introduce middle school girls and boys from underrepresented populations to programming concepts using drag-and-drop programming, intro to Python, dynamic web pages, and basic virtual reality games. Participants learn additional computer science

topics including number theory, cybersecurity, logic puzzles, and computer use and safety. Since its inception in Summer 2012, over 500 students have participated in CompSciConnect. Undergraduate students serve as Teaching Ambassadors by leading campers through the curriculum and supporting them with school-year projects. In Summer 2020, six different two-week sessions of camp were offered in a virtual setting. Over 200 students and their parents attended the annual showcase in December. The annual Maryland Day presentations were replaced with a spring virtual showcase due to the pandemic.

Key Statistics for Summer 2020:

- 130 students in the summer camp
- ~100 students continuing each month during the school year
- 10 undergraduate Teaching Ambassadors
- 6 two-week sessions of CompSciConnect

View the Fall and Spring Showcase website here: go.umd.edu/cscshowcase

JumpStart Computing Summer Camp

The JumpStart Computing summer program was cancelled in Summer 2020 but resumed in Summer 2021.

Intro to Computing

The Intro to Computing summer program was cancelled in Summer 2020 but resumed in Summer 2021.

AI4ALL

In Summer 2020, I4C hosted its second AI4ALL Summer Camp. AI4ALL is a national program that seeks to increase diversity and inclusion within artificial intelligence by introducing high school students to the field. UMD AI4ALL virtually welcomed 23 students to the program, most from underrepresented populations in computing in the surrounding geographic area. Throughout the three-week program, students were given the opportunity to use artificial intelligence to address problems of a probabilistic and numeric nature. Students explored the field of AI through team projects, industry field trips, and presentations from guest speakers. Nora Blasko served as our curriculum lead for a second year in a row. Four faculty supported research projects within artificial intelligence and machine learning, all culminating in the AI4ALL Showcase. At the showcase, students were celebrated and presented their projects to family, friends, faculty, and staff.

Faculty Projects for Summer 2020

- Using GANs to Generate Realistic but New Images - Soheil Feizi
- Recognizing Object in Images - David Jacobs
- How AI is Making Your Smartphone a Better Camera - Matthias Zwicker
- Searching for Objects in Unknown Environments with a Robot - Pratap Tokekar

View the [2020 AI4ALL showcase here](#).

Cyber Defense Training Camp***

The Cyber Defense Training Camp was held in July 2020. 22 students completed the advanced cyber defense curriculum. An experienced security professional taught the content during the morning sessions and was assisted by 2 ambassadors who ran lab activities in the afternoons. Students also connected with MC2 and ACES faculty and staff. In 2021, the program was modified to extend across two-weeks in the virtual space.

K-8 Outreach

After-School Outreach

In a weekly after-school program, ambassadors provided programs in the nearby Prince George's County Public School system to introduce more students to computing through hands-on activities and real-world

problems. Much of the curriculum is adapted from CompSciConnect and Harvard's Creative Computing curriculum.

Due to the pandemic, we pivoted to offering this program entirely virtually. This enabled us to reach students from areas outside of our neighboring counties, from Frederick County (MD), Fairfax County (VA), Chesterfield County (VA), and more. Past commitments with Lamont Elementary, Mother Jones Elementary, and Langley Park Elementary were put on hold through the end of the Spring 2021 semester. The College Park Academy program continued through the pandemic virtually. Throughout the academic year, we served 127 elementary and middle school students.

Girl Scouts***

We continued our partnership with the Girls Scouts of the Nation's Capital Region to host Cybersecurity and Coding for Good Badge workshops virtually for Brownies (Grades 2-3), Juniors (Grades 4-5), Cadettes (Grades 6-8), and Seniors (Grades 9-10). Because of the pandemic, we pivoted to offering troop-based workshops to troops and individual-based workshops twice a semester. During Fall 2020, we served six troops and held two Saturday workshops, which a total of 206 Girl Scouts attended. In Spring 2021, we served 14 troops and held one Saturday workshop, which a total of 163 Girl Scouts attended. Of the 369 Girl Scouts, most came from our neighboring counties, such as Prince George's County, Montgomery County, and Howard County. Our efforts impacted Girl Scout troops from Charles County (MD), Washington County (MD), Fairfax County (VA), and Loudoun County (VA). We are currently modifying our curriculum to support Girl Scouts across multiple levels in a hybrid option.

Grades 7-12 Outreach

Girls Who Code - UMD Chapter***

Led by three undergraduate women in computer science and 15 other volunteers, over 90 girls in grades 7-12 met weekly in a virtual setting and learned coding fundamentals while also building a strong community of computing women. The students were divided into two classes based on experience due to the large number of participants and volunteers.

Reboot Representation Rise-Up 4 CS***

In 2019-2020, in partnership with University of Michigan and Reboot Representation, we launched the Project RiseUp4CS with over 25 women from the surrounding area. This program supported underrepresented women in passing the Advanced Placement (AP) Computer Science A exam through weekly webinars and 1:1 tutoring sessions with undergraduate tutors here at UMD.

In 2020-2021, we were funded by Reboot Representation to offer a separate program, Rise Up 4 CS. In Fall 2020, we served 36 students who identify as a woman or nonbinary from neighboring counties. Through this program, we offered weekly webinars, 1:1 tutoring sessions and community-building activities. During Fall 2020, we expanded to rolling admissions, and in Spring 2021, we expanded to include tutoring opportunities to students taking AP Computer Science Principles. In total, we supported 43 students.

Navigate Computer Science High School Recruiting Workshops

In Fall 2020 and Spring 2021, we hosted the Navigate Computer Science recruiting event each semester to engage current high school juniors and seniors in learning about the UMD computer science program, computing research, and computing careers. In total, 42 high school women attended from 34 high schools. Students engaged in panel discussions and academic and industry guest speakers. We partnered with our student organizations, such as Girls Who Code, the Association of Women in Computing, Women in Cybersecurity, and Technica.

Perspective CS High School Recruiting Workshop

In Spring 2021, we continued our recruitment efforts by hosting an event that targeted Black, Indigenous, and/or students of color who were juniors or seniors in high school. We served 79 students, 86% of whom identified as Black or African American and Hispanic. Students engaged in panel discussions and with

academic and industry guest speakers. We partnered with Code Black, Technica, Student Advisor Board, and the Association of Women in Computing.

Admitted Student Receptions for Women and BIPOC Students

In order to better recruit and admit women and Black, Indigenous, and/or students of color (BIPOC) into the computer science major, I4C launched a new initiative to target admitted women and BIPOC into computer science. All 350 women who were admitted into computer science at the UMD received a postcard inviting them to a virtual open house on campus. 65 students attended the admitted student open house in Spring 2021.

High School Workshops

In Fall 2020, we continued offering high school workshops virtually to students in 9th through 12th grade. We served 136 students and offered the following workshops:

- Intro to CS
- Cybersecurity
- UI/UX + Web Dev
- Python + Data Science

In Spring 2021, we continued these workshops, expanded our popular workshops to offer more days and included CS + Me, which was a chance for students to discuss the admissions process with representatives from the College of Computer, Mathematical, and Natural Sciences and the College of Letters and Sciences. We served 500 students. Our relationship with the DC College Access Program helped us reach students typically underrepresented in computing.

NCWIT Aspirations***

MCWIC serves on the NCWIT Maryland Affiliate Team. Each year, we promote, recruit, review applications, and host the NCWIT Aspirations in Computing Award Ceremony to honor Maryland young women and their work in computing. In 2021, 90 students and educators were recognized for their efforts. The award ceremony was hosted virtually in May with over 200 people in attendance. Additional outreach support is given through the Aspire IT grant program. We currently support high school student-run programs run by students at Montgomery, Blair, and Poolesville high schools. These programs support current high school girls in running after-school programs that teach programming.

5. Current Students

Throughout the year, I4C offers a wide array of professional development, community-building, and tutoring support for our current students. More than 900 current students participated in one of our programs over the last academic year.

Tutoring Program

I4C tutoring is offered each semester for CMSC 131, 132, 216, 250, 330, and 351 from the second week of the semester to the end of the semester. Undergraduate tutors offer both 1:1 tutoring and specific Guided Study Sessions. Each semester, 12 to 14 students are hired as tutors (17 unique tutors). In 2020-2021, over 300 unique students benefited from the tutoring program during the academic year with more than 630 tutoring sessions completed. 1:1 tutoring and Guided Study Sessions were offered virtually for the 2020-2021 academic year.

Key Stats for 2020-2021:

- 14 undergraduate tutors in Fall 2020
- 13 undergraduate tutors in Spring 2021
- Over 50 hours of 1:1 tutoring offered each academic week
- 323 1:1 tutoring appointments attended

- 12 Guided Study Sessions offered each academic week
- 620 students in Guided Study Sessions

Peer Mentoring

In Fall 2020, we revamped the I4C Peer and Alumni Mentoring Program by moving it to UMD's Terrapins Connect exclusive online mentoring and networking platform. This platform provides tools, tips, and resources, and connects students and alumni with mentorship opportunities. With Terrapin Connect, we were able to provide students a virtual mentoring experience during the 2020-2021 academic year. Over 100 students expressed interest in the program. Students were paired with mentors based on preferences (experience, identity, etc.). Large group virtual meetings on professional development topics such as academic success, networking, and imposter syndrome were held monthly with alumni panels occurring. Each meeting was followed by a hands-on technical workshop. 65 students and 37 alumni participated across the academic year. The Peer Mentoring team was led by Veronica Sanchez along with I4C Ambassadors: Andrew Lambath and Madelyn Forrester.

Diversity Conference Support

With funding support from BRAID and the Iribe Initiative for Inclusion and Diversity in Computing, we sent more than 150 students and 18 faculty and staff to Diversity Conferences last year. Students who receive scholarships attended a virtual orientation as well as virtual conference preparation workshops. Students attended Richard Tapia Celebration of Diversity in Computing, Grace Hopper Celebration, Wonder Women in Tech, oSTEM, AfroTech, and BEYA STEM Conference. They gained valuable connections, resources, career opportunities, and advice.

**All Fall 2020 and Spring 2021 diversity conferences were held virtually.*

Key Stats for 2020-2021:

- Richard Tapia Celebration of Diversity in Computing
 - September 2020
 - 20 students, 5 faculty and staff members
- Wonder Women in Tech
 - September 2020
 - 12 students, 2 faculty and staff members
- Grace Hopper Celebration
 - October 2020
 - 124 students, 8 faculty and staff members
- oSTEM
 - October 2020
 - 17 students, 1 faculty and staff member
- AfroTech
 - November 2020
 - 33 students, 3 faculty and staff members
- BEYA STEM Conference
 - February 2020
 - 11 students, 1 faculty and staff member
- Additional Conferences - 19 students

Diversity Celebration

The Iribe Initiative for Inclusion and Diversity in Computing celebrated these students who attended diversity-based conferences in Fall 2020/Spring 2021 at the Virtual Diversity in Computing Celebration. Student attendees, corporate partners, faculty, and staff came together to share the positive experiences of students who attended these conferences.

Coded Bias Movie Screening and Panel

In March 2021, I4C co-hosted the [Coded Bias screening and panel](#) with additional support coming from the [Student Entertainment Events](#) and the College of Computer, Mathematical, and Natural Sciences. Over 400 participants viewed the video over a four-day period, and over 300 people registered to attend the panel. Hal Daumé led the March 26 panel discussion, which featured Mozilla Foundation Fellow Deb Raji, an expert in AI bias whose work is highlighted in the documentary; [Margrét Vilborg Bjarnadóttir](#), an associate professor of management science and statistics in the Robert H. Smith School of Business; [Nicol Turner Lee](#), a UMD sociology lecturer and director of the Center for Technology Innovation; and Adam Wenchel, co-founder and CEO of Arthur AI. View the [panel recording on YouTube](#).

Student Advisory Board (SAB)

The student advisory board is an opportunity for undergraduate and graduate students to share feedback, concerns, and advice to help make the UMD Department of Computer Science more inclusive and to shape programming and resources to provide for the community. The SAB is supported by Veronica Sanchez, I4C Retention Coordinator, and a member of the CS Undergraduate Advising Office. In August 2020, our first elected student chair and three vice chairs took office for the 2020-2021 academic year. Over the last year, students advocated for computing students, supported virtual outreach events and awareness events, and shared ideas.

DICE Lounge

The Diversity in Computing Education Lounge (DICE) provides an inclusive space for students to gather, study, and build community. Tutoring, corporate events, and many socials are held in this space on the first floor of the Iribe Center. In order to support students virtually, I4C pivoted our lounge to a Slack workspace branded as the virtual DICE Lounge. Students engage on this platform to build community, ask questions, learn about events, and connect with each other. Over 300 students joined our virtual DICE Lounge on Slack.

Diversity and Inclusion Newsletter

In order to increase awareness around diversity and inclusion issues, a Diversity and Inclusion spotlight is sent out each month to all 4,000+ undergraduate and graduate students. Each month features an affinity group spotlight as well as the DICE Roll-up Tip. You can view the 2020-2021 newsletters below.

- [September - National Hispanic-Latino Heritage Month](#)
- [October - Disability Awareness Month](#)
- [November - National American Indian Heritage Month](#)
- [December - National Human Rights Awareness](#)
- [February - Black History Month](#)
- [March - Women's History Month](#)
- [April - Campus Pride Month](#)
- [May - Year in Review \(2021\)](#)

Community Building Socials

Each month we held virtual community events to support creating space and awareness of unique inclusion issues for these students. Additionally, we used social media to share resources, events, and build community in a virtual space.

Fall 2020

In Fall 2020, over 150 students participated in at least one of our Fall events. All events were virtual in Fall 2020.

- I4C Virtual AMA (Ask Me Anything)
- Diversity Conference Overview
- GradWomen Imposter Syndrome Workshop
- LinkedIn Profile Review

- Friday Meditation and Yoga by Yogi Terps
- Pumpkin Decorating Social
- Halloween Netflix Party Night
- Virtual Terp Tech Dash
- CS Gobble Gobble Bake Off
- Diversity Conference Celebration
- Senior Send-Off

Spring 2021

In Spring 2021, over 200 students participated in at least one of our Spring events. All events were virtual in Spring 2021.

- Diversity Conference Overview
- Landing An Internship
- Coded Bias Screening and Panel
- Diversity Conference Celebration
- Senior Send-off

Tech + Research: Welcoming Women to Computing Research***

The Department of CS at UMD and MCWIC presented the third [Tech + Research: Welcoming Women to Computing Research](#) three-day workshop geared toward engaging undergraduate women and nonbinary students in computing research. In collaboration with [Technica](#), the largest all-women and nonbinary hackathon in the nation, 75 students from across the country and world participated in the research track. Students came together and worked collaboratively to use technology to solve pressing issues through a total of 11 hands-on research projects with UMD faculty.

Along with providing hands-on research experience in a dynamic hackathon setting, the weekend workshop included sessions introducing attendees to the basics of computer science research (CSR) and highlighting the exciting opportunities that come with pursuing a graduate degree in computer science. Students presented their projects as part of the demo session at Technica. The Tech + Research workshop was virtual this year. This project was funded through Google's [Explore CSR](#). Thank you to Dave Levin for leading the Computer Science Research Bootcamp. Thank you to the nine faculty leads and their graduate students for serving as mentors on the leading [research projects](#):

- User-centered Design of Technology For People With Dementia (Lazar)
- Virtual Try-On Systems (Lin)
- 3D Rendering for Online Cognitive Studies (Abshire)
- Autonomous Driving via Accident Analytics: "Learning How Not to Drive" (Lin)
- Contextualizing Datasets through a Data Feminism Lens (Hying)
- Detecting Internet Censorship (Levin)
- How AI is Making Your Smartphone a Better Camera (Zwicker)
- Measuring the Evolution of Phishing Webpages (Levin)
- Privacy Concerns Related to COVID Boundary Collapse (Mazurek)
- Supporting Veterans through Voice Interface Technologies (Reitz)
- Where am I? Localizing Ground-View Images with Matching Aerial-Views (Tokekar)

You can view the full 2020 [Technica annual report here](#).

In addition to hosting the workshop, we submitted a full research paper to the 2021 Annual Conference on Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT) that was accepted. Our paper titled "First-generation undergraduate women and intersectional obstacles to pursuing post-baccalaureate computing degrees" discusses the impact of the Tech + Research workshop on student participants with a specific focus on the experiences of first-generation undergraduate students. The complete paper can be accessed [here](#).

Exploration Trail: Research at Bitcamp

The Department of CS at UMD and I4C presented the first [Exploration Trail: Research at Bitcamp](#) three-day workshop geared toward engaging BIPOC and first-generation college students in computing research. Similar to the Tech + Research workshop, Exploration Trail occurred concurrently with the [Bitcamp](#) hackathon. A total of 26 students from across the country and world participated in the research workshop and worked together to use technology to solve pressing issues through a total of 6 hands-on research projects with UMD faculty. The Exploration Trail workshop was virtual this year.

The Exploration Trail research workshop followed the same schedule as Tech + Research. Students gained hands-on research experience in a dynamic hackathon setting, participated in sessions on the basics of computer science research (CSR), and learned about the multiple exciting opportunities that come with pursuing a graduate degree in computer science. Students presented their projects as part of the demo session at Bitcamp. This project was also funded through Google's [Explore CSR](#). Thank you to Leilani Battle and Dave Levin for leading the Computer Science Research Bootcamp. Thank you to the five faculty leads and their graduate students for serving as mentors on the leading [research projects](#):

- User-centered Design of Technology For People With Dementia (Lazar)
- Detecting Internet Censorship (Levin)
- How AI is Making Your Smartphone a Better Camera (Zwicker)
- Energy Aware Sensing and Learning for the Battery-Free Future (Roy)
- Localizing Drones Through the Interaction of Sound with Microstructures (Roy)
- Build a Question-Answering System (Boyd-Graber)

Employer Spotlights

As part of our corporate partner program, partners hosted employer spotlights. Partners were spotlighted across multiple channels with programs, workshops, talks, and opportunities highlighted about each partner.

6. Break Through Tech DC

[UMD announced](#) on March 2, 2021, a grant from Break Through Tech to propel more women into computing degrees and careers in tech—through curriculum innovation, career access, and community building. The grant's goal is to increase the number of women graduating with a tech degree at UMD by at least 12% by 2026. New staff lines were added to support this grant including career and communication lines: Caitlin Rudy and Katie Bemb, respectively.

UMD is committed to making computing inclusive and accessible for all. Through initiatives funded by Break Through Tech, we will raise the graduation rate by 12.5 percentage points by 2027 for women across majors in computer science (CMSC), information science (INST), and new majors that will begin in upcoming fall semesters including immersive media design (IMDM), social data science (SDS), and technology and information design (TIDE). At UMD, this increase to CIP code 11 means that 35% of computing graduates will be women and at least 200 additional women will graduate with computing degrees by 2027. Since 2016, UMD's CIP code 11 has increased the number of women graduating by 5.8%.

To streamline and centralize efforts while using existing support structures, many of the core programs are housed within I4C to support computing students across campus. Kate Atchison serves as the site lead; Jan Plane serves as the academic lead and co-PI; and Kate Izsak serves as co-PI. Each core area of the program has a leader, committee, and regular meetings to ensure the team is making progress toward our overall goal. Led by I4C and the College of Information Studies (iSchool), Department of CMSC, the iSchool iConsultancy, the Institute for Advanced Computer Studies (UMIACS), the Office of Undergraduate Studies (UGST), and CMNS, UMD is excited to implement the Break Through Tech model of curriculum innovation, career development, and community-building.

In Spring 2021, new staff was hired to run and implement the program, students were recruited for Guild, and new intro courses were approved including a revamped and cross listed 1 credit course CMSC 100/INST 101 and CMSC 125.

[Break Through Tech DC Website](#)

[About Us and Staffing](#)

[2021-2022 Strategic Plan Overview](#)

7. Research Efforts & Special Projects

Faculty Diversity and Inclusion Training

Inclusive moments at monthly Full Faculty Lunches continued through the virtual setting with a departmental data review of challenges and opportunities, guest speakers from Disability Office, Coded Bias preview, and preparation to use the Dept BPC plan. In Spring 2021, 10 faculty and staff members participated in the [ODI Anti Racism Toolkit](#).

Big Ten Academic Alliance - Women in STEM

With support from the Provost's Office in 2019, MCWIC participated in a four-day workshop at Rutgers University where 10 of the Big Ten schools collaborated to share, compare, and brainstorm new ideas of how to recruit and retain more diverse populations into the STEM fields. The goal of the Summit was to work collaboratively to design new initiatives to increase equity in undergraduate, graduate and faculty ranks at the Big Ten universities. Since the workshop, we continue to meet virtually monthly as a full group or on various subcommittees with other universities pursuing similar goals. ([View video highlight](#))

CompSciConnect/Laboratory for Telecommunication Sciences

I4C and MCWIC regularly evaluate their programs to understand how exposure and access to computing in the K-12 landscape affects girls and BIPOC students' confidence in pursuing STEM majors and careers. Through one-day workshop-style events, summer camps and after-school programs, pre- and post-surveys are collected from student participants. An initial analysis of surveys collected shows several trends in the lack of encouragement and exposure to computing that girls and BIPOC middle school students receive. Analysis also shows that our outreach efforts, including our virtual programming, have a positive impact on student confidence and interest in the field of computing. During the last year, the following submissions were made:

- Going Virtual: Underrepresented Student Experiences in a Virtual Computing Camp - *Poster accepted for the Annual 2021 American Educational Research Association Conference (AERA).*
- Increasing Girls and BIPOC Access to Computing through an Online Computing Camp - *Poster accepted for the Ninety-Fourth Annual NARST International Conference.*
- Increasing Access to STEM: Computing as a Pathway to Success - *Paper NOT accepted for the 53rd ACM Technical Symposium on Computer Science Education.*

CS for All Commitment

I4C and MCWIC represent two of 147 organizations committed to broadening participation in computing through the CS for All movement. CS for All is a political initiative launched in 2016 that aims to make computer science an integral part of the K-12 educational experience. The policy specifically emphasizes broadening the participation of students historically underrepresented in the field (e.g. girls and BIPOC students). I4C and MCWIC's specific commitments are as follows:

- MCWIC will collaborate with two regional organizations—the Girl Scouts of the Nation's Capital and Rise Up 4 CS—to provide workshops to 600 middle-school and high-school female students interested in coding basics, app development, game design, cybersecurity, and Advanced Placement Computer Science A (Java).

- I4C will offer a series of summer academies and workshops to 500 middle and high school-aged students who identify as female or non-binary and/or Black, Latinx, or Native American.

More information about the CS for All national non-profit organization can be found [here](#) and detailed information about I4C and MCWIC's commitments can be accessed [here](#).

Maryland Center for Computing Education [MCCE]

For many years, I4C has partnered with other programs improving the computing education K-12. This began with the CS Matters in Maryland Project, expanded to Jan Plane's chairing the statewide steering committee for computer science education and serving on the advisory board for the MCCE created as a USM center by Maryland state statute. The goal of the steering committee is to help develop policies through broad representation to improve education for computing at all levels. The MCCE's primary goal is in the preparation of teachers for computing across the grades and across the state. MCWIC partners with MCCE to ensure that diversity, inclusion, and equity are major considerations in those goals.

In partnership with Prince George's County Public Schools (PGCPS) and MCCE, Charlotte Avery has conducted professional development for 55 current PGCPS middle school teachers in the areas of HTML, CSS, JavaScript, Computational Thinking, curriculum development and student engagement. We have also assisted with their Family Coding Night event in Fall 2020, serving 300 participants.

BRAID

The BRAID initiative includes 15 computer science departments across the U.S. including UMD that are committed to implementing changes to their introductory computer science courses, pathways into the major, departmental climate, and outreach efforts in hopes of diversifying their computer science majors. In return for funding, we provide data on the computer science department and our students. Updated research can be found [here](#). BRAID formally ended in support of UMD during the 2020-2021 academic year.

8. In the News and Recognition

- Former tutors, student org leaders, and diversity conference scholarship recipients [highlight their career paths](#)
- [Kate Atchison receives Department staff award](#)
- [Donna White named Break Through Tech DC Director](#)
- [I4C co-sponsors Coded Bias moving screening and panel](#)
- [Coded Bias Panel Recap](#)
- [Rise-Up 4 CS helps HS students get college credit](#)
- [Exploration Trail at Bitcamp](#)
- [New Partnership: Break Through Tech DC Announced](#)
- [UMD contributes to CS4ALL](#)
- [CodeBlack aims to boost minority representation in CS](#)
- [Technica is the first virtual hackathon for women and non-binary students](#)
- [Technica broadens its horizons](#)
- [Tech + Research at Technica](#)
- [Terps attend virtual GHC and Tapia conferences](#)

9. Additional Department Diversity Efforts and Student Support

Dr. Jan Plane, Kate Atchison, and Veronica Sanchez are all active on the CMSC Diversity Committee. In Fall 2020, a new [CS diversity](#) tab was created to highlight and showcase the work of the committee. The Committee has been active in collecting survey data from faculty, staff and students and aligning that survey data with the university's efforts in the same area. A new incident reporting procedure was created. Faculty

actively recruited graduate students and faculty from diversity conferences and list-serves targeted towards underrepresented communities. The committee is specifically looking at hiring practices and graduate student admission practices to better understand diversity and inclusion in these contexts as well as better connecting undergraduates to research opportunities next year. You can view the highlights of the 2020-2021 work on the new [CS diversity tab](#).

In partnership with David Mount and with funding from the [NCWIT Learning Circles](#) program, CMSC offered regular TA Training for all undergraduate and graduate TAs in the department. Additionally, an ELMS site was launched to continue sharing resources and training for TAs. Looking at the next academic year, the TA team is reviewing survey data, best practices, and feedback on how to grow and improve the TA process. In Spring 2021, a formal TA Training course was approved for the department with new TAs encouraged to take the 1 credit course, CMSC 395.

In August 2021, President Pines directed all colleges to provide a Terrapin Strong training for all incoming undergraduate students. Kate Atchison and Natalie Lightfoot-Soloman served on the CMNS committee. Four staff members helped host Terrapin Strong sessions in November 2021. Over 1,000 students participated in this effort.

In September 2021, Dean Varshney created the CMNS Diversity Council. Dr. Mihai Pop and Kate Atchison were appointed for a two-year term. Emily Kaplitz and Jai Upadhyay serve in the one-year student role.

10a. Mission for Iribe Initiative for Inclusion and Diversity in Computing

The Iribe Initiative for Inclusion and Diversity in Computing (I4C) is committed to making computing a field that includes participation of individuals across the intersections of gender identification, race, ethnicity, socioeconomic status, sexual orientation, and disability status. We aim to create a vibrant, inclusive community of students, educators, and researchers coming together to increase the involvement—and success—of underrepresented populations interested in computing.

Goals:

- Supports, educates, and mentors from underrepresented populations majoring in computing fields at the University of Maryland.
- Collaborates with the K-12 community in order to encourage all students, especially those from underrepresented populations to participate in computing.
- Sustains a vibrant community of scholars, researchers, students and educators working together to increase the involvement—and success—of those from underrepresented populations interested in earning a computer science and other technical degrees.
- Fosters a supportive, collaborative, and inclusive community for faculty, undergraduate and graduate students studying computing at the university.
- Advocates for underrepresented populations by increasing the awareness and skill set of those within the computer science community.

In the Iribe Initiative for Inclusion and Diversity in Computing, we base the foundation of our definition for “underrepresented populations in computing” on the National Science Foundation (NSF) statement below.

“Across the computing workforce at all levels, there is underrepresentation of various populations including women, minorities (African Americans/Blacks, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons from economically disadvantaged backgrounds), and persons with disabilities.” (<https://www.nsf.gov/pubs/2018/nsf18101/nsf18101.jsp>) We also recognize and support underrepresented populations across the intersections of gender identification, race, ethnicity, socioeconomic status, sexual orientation, and disability status.

10b. Mission for Maryland Center for Women in Computing

The Maryland Center for Women in Computing (MCWIC) works to increase diversity in all fields of

computing by providing opportunities for individuals who identify as women to engage and contribute to the technical community through research, education, outreach, and partnerships. MCWIC envisions a vibrant community of scholars, researchers, students and others coming together to increase the involvement—and success—of all women interested in earning or currently pursuing a computing degree.

Goals:

- Supports, educates and mentors who identify as women majoring in computing fields at the University of Maryland.
- Collaborates with the K-12 community in order to encourage all students, especially women to participate in computing.
- Sustains a vibrant community of scholars, researchers, students and educators working together to increase the involvement—and success—of those who identify as women interested in earning a computer science and other technical degrees.
- Fosters a supportive, collaborative, and inclusive community for faculty, undergraduate and graduate women studying computing at the university.
- Increases the awareness and the skill set of the computer science community in how to strengthen its advocacy for those that identify as women.

11. Supporters and Funding

Fiscal Year 2021 Budget Total:

Annual Budget Allocation

\$50,000- College of Mathematical and Natural Science

\$25,000- Dept of Computer Science

\$25,000- UMIACS (University of Maryland Institute for Advanced Computer Studies)

Additional Financial Support

- \$500,000 gift from Brendan Iribe to start the Initiative
- \$100,000 yearly from Brendan Iribe- 2017-2021 for MCWIC
- \$10,000 from AI4ALL National Organization for the AI4ALL Summer Camp
- \$21,000 yearly- AFCEA Bethesda- earmarked for Outreach
- \$40,000 yearly from NSA's research lab - Laboratory Telecommunication Science (LTS)- earmarked for research
- \$30,000 from AnitaB through the Braid program.
- Corporate Partner Support/Alumni Giving- ~\$40,000 for 2020-2021
- Registration Fees for summer camps and workshops
- Various Gifts and Grants- NCWIT, CSMatters-NSF, and Reboot Representation

2020-2021 Sponsors

Advocate Level (\$4000+):

AFCEA Bethesda

Capital One

Comcast

Lockheed Martin

Google

Additional Support (\$2000):

Accenture

Appian

Drop Box

Duolingo

Easy Dynamics

Fact Set

Fannie Mae

Leidos

M&T Tech

Northrop Grumman