IRIBE INITIATIVE FOR INCLUSION & DIVERSITY IN COMPUTING

MCWIC | MARYLAND CENTER FOR WOMEN IN COMPUTING

Iribe Initiative for Inclusion and Diversity in Computing (I4C): Web | X/Twitter | LinkedIn| Instagram
Break Through Tech DC at UMD: Web | X/Twitter | LinkedIn | Instagram

2023-2024 Report

1. Executive Summary

The Iribe Initiative for Inclusion and Diversity in Computing (I4C) aims to create a supportive, vibrant and inclusive community of students, educators and researchers coming together to increase the involvement—and success—of all individuals from underrepresented groups in computing. I4C delivers on this mission by hosting a wide variety of current student programming including mentoring, tutoring, community building and student support—as well as K-12 outreach. A unit within the University of Maryland's Department of Computer Science, I4C supports all computing majors across campus. Break Through Tech DC at UMD, a national initiative committed to increasing gender equality in tech, is also housed within I4C. The RESET Project, a new program for Black, Latina and Native American (BLNA) women, launched in Spring 2023. Over 2,500 K-12 students and educators and over 2,200 UMD students directly engaged with I4C programming each year through support from our many partners. Over 75% of all students served are from populations underrepresented in computing.

In the academic year 2023-2024, 20 corporate and community partners provided funding for I4C programs. Outcomes and efforts include:

- Over 1,800 current students participated in our programs, including diversity conferences, tutoring, mentoring and community-building programs.
- 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 Guided Study Sessions and 1:1 tutoring for undergraduate students were offered for CMSC 122, 125, 131, 132, 216, 250, 330 and 351— supported by 17 tutors. Over 300 students engaged in 1,000+ tutoring hours in 2023-2024.
- 2,400+ students, faculty and staff are on our I4C DICE Lounge Slack community.

- 120 computing undergraduate and graduate students participated in the I4C Mentoring Program, which featured technical workshops and monthly meetings with upperclassmen and alumni mentors. 43 alumni and industry volunteers participated in the expanded program.
- 52 students from across the U.S. participated in the hybrid [Tech + Research](#) workshop as part of Technica. Nine UMD faculty members led projects.
- The Reboot Representation Tech Coalition awarded I4C $500,000 for the RESET Project, a new program that aims to reset tech culture and increase the number of Black, Latina and Native American women receiving undergraduate computing degrees at UMD.
- Break Through Tech DC at UMD hosted 20 community-building workshops with 1,102 unique attendees.
- 85 students participated in Break Through Tech's Summer Guild program. 199 students participated in a supported intro course (CMSC 100/INST 101 or CMSC 125).
- 157 students participated in Break Through Tech's Sprinternship and Career Launch programs in January 2024.
- 30 [outreach ambassadors](#) supported 50 activities that encouraged students from underrepresented populations to pursue computing careers and interests, serving over 2500 K-12 students, families and educators.
- 220 campers participated in our 2023 [Summer Academy](#) through AI Summer Academy, Create Tech, CompSciConnect and Cyber Defense
- 170 Girl Scouts attended workshops to earn coding and robotics badges.
- In support of recruitment efforts for undergraduate students from underrepresented populations. I4C mailed postcards and hosted open houses for admitted students in Spring 2023.
- 110 high school women and 3 educators were recognized with Maryland Aspirations in Computing Awards by NCWIT Aspirations in Computing
- In summer 2023, I4C received a new grant to launch SECURE IT, a one-week-long, non-residential Cybersecurity summer academy held at the University of Maryland and at North Carolina State University. 14 students attended the summer program. Five Cyber workshops were held.
- New funding was received from NSF to support Broadening Participation efforts to lead the broadening participation efforts for [TRAILS](#)
- Monthly communications through the Diversity newsletter were shared with all students to encourage a more inclusive climate.

2.   Iribe Initiative for Inclusion and Diversity and Computing Staff
- Founding Director: Dr. Jan Plane
- Interim Director: Dr. David Weintrop
- Associate Director: Kate Atchison
- Program Manager, Current Students: Veronica Sanchez
- Program Manager, Community Outreach: Charlotte Avery
- Program Manager, Industry Partnerships: Caitlin Rudy
- Coordinator, S3C2: Ronaisha Ruth
- Student Career Programs Coordinator: Noah Owens
- Communications Lead, Break Through Tech DC: Katie Bemb
- Community Outreach Graduate Assistant, Break Through Tech DC: Poojaa Kumar
- Curriculum Innovation Lead, Break Through Tech DC: Elias Gonzalez
- RESET Scholars Graduate Assistant: Vivica Joines
- K-12 Research Graduate Assistants: Kristina Kramarczuk
- Current Students and Marketing Graduate Assistant: Asia Jones
- Break Through Tech Data Graduate Assistant: Omonegho Ugheoke
- K-12 Outreach Graduate Assistant: Nimisha Sharma
- Office Undergraduate Student Workers: Amber Melton, Makayla George, Jaylen Carrillo
- 34 Student Outreach Ambassadors throughout the academic year
- 17 I4C Tutors throughout the academic year
- 11 Summer 2023 Ambassadors

IRIBE INITIATIVE FOR INCLUSION & DIVERSITY IN COMPUTING

2023–2024 HIGHLIGHTS

2,500+ K-12 students impacted

60+ student staff (Ambassadors/Tutors)

50+ professional and social events

150+ Diversity Conference Scholarships

2,400+ students in DICE Lounge Slack

112 students in Career Launch and Mentoring

60 students participated in Tech + Research

1,100+ students engaged with Break Through Tech

3.   Break Through Tech DC

Break Through Tech DC at UMD is a national initiative committed to increasing gender equality in tech, and is housed within I4C. Through curriculum innovation, career access, and community building, Break Through Tech's goal is to achieve gender equality in tech. Break Through Tech DC at UMD works to create a more inclusive tech ecosystem, starting right here in College Park.

On March 2, 2021, 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. The grant's goal is to increase the number of women graduating with a tech degree at UMD by at least 12% by 2026. 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%.

2023-2024 Impact By the Numbers (August '23 - May '24)

85 students in 3 sessions of Summer Guild

157 students in Sprinternship and Career Launch

2.6K+ followers on social media

2.2K+ students receive newsletter

1K+ community event attendees

798 distinct women or non-binary students interacted with BTT

199 students in CMSC100/INST101 and CMSC125

98 industry volunteers from 46 different organizations

90 attended Grace Hopper Celebration

20 community-building events

[Break Through Tech DC website](#)
[About Us and Staffing](#)
[Break Through Tech Effect and Impact](#)

4.   Research Efforts & Special Projects

I4C is actively involved in the computing education research community and is committed to contributing research ideas and findings to the field to promote and inform an inclusive and equitable future of computing as well as applying that research to advocacy for policy changes in our field, on campus, and in our state. Our research helps us—and others—pinpoint the barriers to the inclusion, recruitment, and retention of women and students from underrepresented populations in computing. We work with national agencies such as the National Center for Women and Information Technology and Reboot Representation to promote information exchange and contribute to resource repositories. To date, our team has published 16 different research papers, posters, and articles on the impact of our work. Research areas include computer science education (domestic and international), computational thinking, cybersecurity education, pre-service/in-service teacher preparation, broadening participation in computing, and K-12 computing outreach and impact. This year we added a [new research section](#) to our website.

By attending and presenting at national conferences such as SIGCSE, AERA, Tapia, and RESPECT, the center continues to identify and implement high-quality and data-driven practices that acknowledge and target disparities in computer science based on students' gender identification, race, ethnicity, socioeconomic status, sexual orientation, and/or disability status. We share our findings at national conferences and events to receive invaluable feedback on the research process as well as gain access to the latest research on computing education.

We train, teach, and model community-building and advocacy skills so our community members are equipped with the tools and resources to advocate for change and make the computing field more inclusive. While our programs' efforts to recruit, retain, and support groups historically underrepresented in computing have been effective in many ways, it has been important for our team to advocate for systemic change.

The following submissions were accepted in the 2023-2024 cycle:

- Kramarczuk, K., Atchison, K., Hilliard, M., Plane, J., Bond, S., Rudy, C., and Weintrop, D. (2024). [Micro-internships and Career-Focused Programs as Mechanisms for Diversifying Computing.](#) In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE 2024), March 20-23, 2024, Portland, OR, USA. ACM, New York, NY, USA.
- Gonzalez, E. and Atchison, K. (2024). I[ncreasing Diversity of Computing Course Participation Using a Summer Bridge Program.](#) In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024). Association for Computing Machinery, New York, NY, USA, 1658–1659.
- Avery, C (2024). Designing Create Tech: A Discussion of Previous Camp Iterations and Outcomes. In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024). Association for Computing Machinery, New York, NY, USA, 1658–1659.
- Kramarczuk, K., Avery, C., Cardenas Guzman, M., Shijo, N., Atchison, K., Weintrop, D., Plane, J., & Khan, A. (2023). [A longitudinal study of the post-secondary experiences of women of color in computing.](#) In 2023 Conference on Research in Equitable and Sustained Participation in Engineering, Computing, and Technology (RESPECT). IEEE.

5.   Feature Articles and Recognition

- Maryland Today:
  - [UMD Receives $500K to Boost Number of Black, Latina and Native American Women in Computing](#)
  - [2024 UMD Summer Camps](#)
- Computer Science Department:
  - [Helping UMD Students Find Belonging in Computing Majors](#)
  - Panel at Computer Science Day: [Bringing Equity and Inclusion into Computer Science](#)
  - [Announcing Break Through Tech DC at UMD's 2024 Sprinternship Host Organizations](#)
  - [University of Maryland Honors Two Computer Science Staff Members with Prestigious Awards](#)
  - [Break Through Tech DC at UMD Hosts Career Launch Expo](#)
  - [Jan Plane Wins the ACM SIGCSE Award for Broadening Participation in Computing Education](#)
- College of Computer, Mathematical, and Natural Sciences:
  - [UMD Receives Reboot Representation Funding to Reset Tech Culture](#)
  - [Falling in Love with Coding](#)
  - [Parsing Big Data to Identify Hidden Threats](#)
  - [CMNS Faculty Awarded Nine 2024 Teaching Innovation Grants](#)
  - [College Announces 2024 Employee Award Recipients](#)
  - [Tamara Clegg Named Director of UMD's Iribe Initiative for Inclusion and Diversity in Computing](#)
- Break Through Tech National: [Break Through Voices: In Conversation with Kate Atchison, Site Director at Break Through Tech DC at UMD](#)
- College of Behavioral and Social Sciences: [Bennett Sellers '26 Serves as Microsoft 'Sprintern'](#)
- College of Education: [College of Education Alum Helps UMD Students Find Belonging in Computing Majors](#)
- Peraton: [Peraton Recognized for Diversity Excellence by Forbes and Others](#)

6   Additional Department Diversity Efforts and Student Support
- Kate Atchison, Elias Gonzalez, and Veronica Sanchez are all active on the CMSC Diversity Committee.

- Kate Atchison serves on the CMNS Diversity and Inclusion Advisory Council.

Over the last seven years, I4C has participated, partnered, and been invited to participate with the following external organizations and research efforts focused on diversity, equity, and inclusion. Current collaborators include:
- Maryland Site Lead: NCWIT Aspirations: 2015-Present
  - Recognizes high school women interested in computing
- Maryland Center for Computing Education: (MCCE)
  - State center to support K-12 computing education
- NCWIT Learning Circles: 2019-2020 (Kate Atchison, lead) & 2023-2025 (Veronica Sanchez)
  - Assist academic computing departments with the development and implementation of strategic initiatives to increase gender diversity in their undergraduate programs to create a customized strategic recruitment and retention plan, discuss challenges, and track progress.
- LEAP Alliance 2021-Present
  - Increase diversity in Ph.D. candidates among African Americans, Hispanics, Native/Indigenous Americans, and People with Disabilities

Over the last few years, the number of student organizations supporting computing students has grown significantly, including specific identity-based organizations. Student organizations are significant in providing students an opportunity to explore their interests and connect to peers while building a strong sense of community. Over 2000 students are engaged in student organizations. Key identity-based organizations include the Association of Women in Computing (AWC), Technica, Code: Black, JHacks, Girls Who Code, and Hack4Impact. Additional CS students receive support and take on leadership roles in larger engineering or STEM-based groups such as BES, SHPE, SACNAS, and oSTEM. During the 2023-2024 academic year, the Computer Science department in collaboration with a joint position with Break Through Tech created the Student Career Programs Coordinator to support these student organizations in addition to career efforts.

7. Mission for Iribe Initiative for Inclusion and Diversity in Computing

Mission
We aim to create a supportive, vibrant and inclusive community of students, educators and researchers coming together to increase the involvement—and success—of all individuals from underrepresented groups in computing.

Vision
We envision a diverse tech sector where all areas of computing are inclusive of all individuals from historically marginalized populations in computing.

Goals

- Support, educate and mentor students from populations underrepresented in computing majors and minors at the University of Maryland

- Collaborate with the K-12 community to encourage all students, especially those from underrepresented groups, to become creators and leaders in the computing and technical workforce

- Foster a safe space for undergraduate and graduate students in computing to connect across intersections of their identities through social, academic and professional programming

- Build bridges between faculty, staff and students in all computing units, creating pathways for interdisciplinary careers, research and student support to diversify the tech sector

- Train, teach and model community-building and advocacy skills so our students and community members are equipped with the tools and resources to advocate for change and lead the way in making the computing field more inclusive

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 or https://www.nsf.gov/cise/bpc/)

Definition of Computing: Computing refers to academic and job-related activities that involve coding, software engineering, information science, immersive media, artificial intelligence, data science, and other applications of computer science knowledge and skills.

8.   Supporters and Funding
Fiscal Year 2024 Budget Total:
Annual Budget Allocation
$25,000 – Department of Computer Science
$25,000 – UMIACS (University of Maryland Institute for Advanced Computer Studies)

Additional Financial Support
- $1,000,000 gift from Brendan Iribe to start I4C
- $2.9 million grant from Break Through Tech via Pivotal Ventures
- $26,000 yearly – AFCEA Bethesda
- $40,000 yearly from DOD's research lab – Laboratory Telecommunication Science (LTS) – earmarked for research
- $500,000 Reboot Representation for RESET Scholars
- Corporate Partner Support/Alumni Giving – ~$49,000 for 2023-2024
- Registration Fees for summer programs and workshops
- Various Gifts and Grants – NCWIT, NSF, and more

2023-2024 Sponsors
Champion Level
AFCEA Bethesda
LTS
Reboot Representation
Break Through Tech

Advocate Level ($7000+):
Qualcomm
Workday
Accenture

Partner Level ($3000 for CPIC) or ($5000 non CPIC):

Appian	M&T Tech
Capital One	Microsoft
EY	Peraton
Google	Uber
Leidos	
Lockheed Martin	

Break Through Tech DC 2024 Sprinternship™ Hosts
Appian
BeaKen Systems & Technology Solutions,
Inc.
Capital One
Crown Castle
Easy Dynamics
Exiger
Immuta
Microsoft
KPMG
Mastercard
University of Maryland Quantum Startup
Foundry
Skyward IT Solutions
Ticketmaster
University of Maryland University
Libraries