diversity, inclusion, & belonging
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Annual Report on Findings and Recommendations

Graduate Advisory Committee on Diversity, Inclusion, and Leadership
Annual Report | Fall 2020

Table of Contents

1. Introduction

1.1. Executive Summary

The Institute for Applied Computational Science (IACS) aims to "encourage scholarship that advances ethical data science" and "build a diverse, inclusive, and representative community offering opportunities to those who have been historically marginalized."[1] Yet IACS struggles to recruit and retain a diverse student body, and students report a low sense of belonging in our community. While these challenges are not unique to IACS, they still present disproportionate hurdles for historically minoritized IACS students and applicants.

In this report, we present findings and recommendations to help IACS reach its ambitious diversity, inclusion, and belonging goals. These were developed by Graduate Advisory Committee (GAC) members through a review of current practices, interviews and surveys of IACS students, and research of best practices implemented by peer institutions. We focus on practical projects which will have the greatest impact on our community, and as such, we urge IACS to begin implementing these recommendations in the Spring 2021 semester.

We organize these findings and recommendations around the GAC's six core areas of engagement.[2] In many cases, these build on the existing efforts of IACS faculty and staff or amplify goals stated in the 2018 SEAS Diversity, Inclusion, and Belonging Strategic Plan. Broadly, the recommendations are consistent with increasing support - financial and nonfinancial - for IACS students, as well as dedicating resources to improve the environment for historically underrepresented students inside and outside the classroom.

Section 1 of this report introduces the GAC, as well as our seven Fall 2020 quick win projects, many of which were implemented in partnership with IACS faculty and staff. Section 2 outlines our findings and recommendations. Section 3 concludes with a vision for future collaboration and mutual accountability among GAC, IACS, HDSI, SEAS, and GSAS.

As a whole, this set of proposals is intended to work synergistically, with no single remedy or recommendation standing alone, and with an eye to improving the experiences of our diverse community of students. We are proud to partner with IACS faculty and staff, as well as SEAS and GSAS champions, to embark on this work of building a better IACS.

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[1] About IACS - Our Commitment to Diversity, Inclusion, and Belonging: https://iacs.seas.harvard.edu/about
[2] (1) Admissions, Recruiting and Funding; (2) Career Development and Mentorship; (3) Community Building; (4) Historically Minoritized Student Support; (5) International Student Support; (6) Pedagogy.

1.2. About GAC

The Graduate Advisory Committee on Diversity, Inclusion, and Leadership in Applied Computation (GAC) is a Departmental Graduate Student Organization representing students and alumni of Harvard's graduate programs in Data Science and Applied Computation.

Established in Summer 2020 as a collaborative effort among students, faculty, and administrators at Harvard's Institute for Applied Computational Science (IACS), GAC and its student leaders have a mandate to:

- work with IACS staff to foster an inclusive and welcoming environment
- design guidelines for the IACS diversity, inclusion, and belonging strategy
- amplify the voices of underrepresented groups in Applied Computation
- provide a forum for students to gain diversity and inclusion leadership experience within the academic domain

Membership in GAC is open to all IACS affiliates, and many of GAC's current members hold membership in one or more historically minoritized groups in STEM.

GAC's student leadership includes two co-chairs as well as subcommittee chairs representing our six areas of engagement:

1. Admissions, Recruiting, & Funding
2. Career Development & Mentorship
3. Community Building
4. Historically Minoritized Student Support
5. International Student Support
6. Pedagogy

For more information about GAC membership, bi-weekly meetings, and events, visit our website at https://iacs-gac.github.io/.

1.3. Quick Wins

The Fall 2020 semester saw the GAC make rapid impact in a number of subcommittee areas. This section details 'quick wins' achieved this fall, as well as a brief description of each:

1. *GAC Website*: We have established an internet presence for the GAC, which serves as an interim location for GAC research into sources of funding for prospective IACS students.
2. *Public-facing Funding and Mentorship Opportunities:* This document provides sources of funding for prospective master's students, derived from GAC research. Our compiled data includes easily-accessible links, deadlines, as well as scholarship-specific details regarding funding amounts. We intend for this to serve as a resource for future students who may be uncertain about submitting applications or matriculating at Harvard due to financial constraints.
3. *IACS Industry Fellowships*: As part of an ongoing effort to support students with limited financial resources, we initiated conversations with two private and social sector organizations to fund IACS master's students. In the early fall, we handed these relationships off to University administrators and development leaders to execute on next steps. The partners currently include a leading technology company as well as a southwestern United States nonprofit organization focused on technological innovation.
4. *IACS Admissions support*: The GAC supported a number of DIB-focused recruiting events during the Fall 2020 semester:
    a. *IACS Admissions Information Session*: GAC members helped plan and provided student panel speakers for a DIB-focused IACS admissions session held on October 29.
    b. *DIB Conference Engagement:* GAC members spoke at the following conferences throughout the fall: TAPIA, CareerMingle, AfroTech World 2020.
    c. *Targeted Outreach*: GAC members conducted individualized outreach to raise awareness of IACS master's programs among potential candidates for admission with historically minoritized backgrounds.
    d. *Graduate Application Assistance Initiative:* In partnership with the SEAS DIB Office, GAC members volunteered as mentors for 1:1 feedback sessions with prospective applicants that hold membership in an underrepresented and/or historically minoritized group in STEM.

5. *Weekly Study Sessions:* We hosted five evening study sessions to support students enrolled in data science and applied computation courses. These sessions were financially supported by IACS, the SEAS DIB Office, and the GSAS Graduate Student Council, and added community support resources for students seeking peer connections and opportunities to discuss coursework in the remote environment. The sessions were attended by IACS, HSPH, GSAS, and Harvard College students. We are continuing this initiative into the Spring 2021 semester.

6. *Registration as a GSAS departmental graduate student organization:* GAC registered as the IACS DGSO, gaining access to resources including GSAS Student Council funding to support events and community initiatives.

7. *Funding proposals:* Over the Fall 2020 semester, the GAC submitted a number of funding proposals to further our goals. Those proposals, including status, are detailed below:

   a. *HDSI Bias[2] 2021 Fund (Rejected, $78,800):* Major proposal to establish research assistantships to synthesize research and best practices on fairness in machine learning, specifically aimed at development, deployment, and evaluation of these best practices in data science curricula.

   b. *GSAS Student Council (Approved, $2,750):* Funding proposal to support DIB hackathon and weekly study sessions. Note that to access these funds, the GAC must receive matching funding from HDSI and SEAS sources.

   c. *HDSI Special Projects Fund (In Progress, $5,000):* Proposal to support Spring 2021 study sessions, DIB Lunch & Learn series, as well as screening of Coded Bias.

1.4. Implementation Resource Assessments

We recognize that improving the climate around diversity, inclusion, and belonging at Harvard IACS is a multifaceted undertaking, and thus we expect a broad coalition will need to be responsible for making the proposed changes. This will include GAC members, IACS staff, and IACS students paid for their work, as well as the university's broader DIB resources and personnel. While student volunteers may also be involved on an ad hoc basis (and rewarded and recognized accordingly), it is important that IACS prioritize diversity, inclusion, and belonging efforts alongside other compensated work for students and staff.

To assist with the implementation process, each of the report's recommendations includes an initial estimate of the timeline, financial cost, and effort to implement that recommendation--e.g., "short-term, low-cost, medium-effort." Subject to change, the current criteria used for each categorization are below:

Timeline
- Short-term: Recommendation could be implemented tomorrow
- Medium-term: Recommendation could be implemented in a semester
- Long-term: Recommendation requires more than a semester to implement

*Note that timeline refers to the initial implementation of a recommendation, and not necessarily the full duration. For example, a website change that could be made in a day is categorized as 'short-term,' even if that change could persist for years.

Financial Cost
- No-cost: Free or only requires reallocation of existing resources
- Low-cost: ≤$5,000 per semester
- High-cost: >$5,000 per semester

Effort
- Low-effort: ≤8 hours of total staff time required
- Medium-effort: ≤80 hours of total staff time required
- High-effort: >80 hours of total staff time required

2. Findings and Recommendations

2.1. Admissions, Recruiting, & Funding

Findings

The Admissions, Recruiting & Funding Subcommittee has found that diversity at IACS is an issue that begins with gaps in outreach and recruitment. Historically, IACS has not formally recruited master's students, and so there is comparatively little recruitment when compared to other departments and degree programs. The current, limited recruitment process fails to adequately engage and recruit URM applicants. Additionally, process opacity clouds efforts to diagnose bottlenecks. There is a need to improve the reporting of IACS URM applications and admissions outcomes in order to: 1) concretely and properly assess potential biases and barriers in the current application process and 2) evaluate the effect of implementations and progress.

Another significant barrier commonly cited by potential applicants is the lack of financial aid and funding. This disproportionately disadvantages applicants from marginalized communities in a number of ways, given historical wealth disparities. In one particularly notable instance of this, Harvard declines to support master's students who already have secured funding from the National GEM Consortium Fellowship (which specifically targets underrepresented groups) and the National Science Foundation Graduate Research Fellowships Program (NSF GRFP). Winners of these awards must decide between attending Harvard or accepting their award. Interestingly, Harvard will provide the necessary contribution for Ph.D. students who win these awards. International students also report receiving minimal support in navigating financial aid and funding opportunities.

Recommendations

1. Provide financial support for master's fellowships that require a Harvard 'matching' component -- such as the GEM Fellowship and NSF GRFP -- as is currently done for Ph.D. students. (*short-term; high-cost, medium-effort*)
2. Create an internal tracking and reporting system for URM applications, admissions, and retention outcomes. (*short-term; low-cost, low-effort*)
3. Refine, publish, and maintain an external funding resource page on IACS's website with links to relevant fellowships and scholarships. Systematically alert current and prospective students about upcoming deadlines. (*short-term; no-cost, low-effort*)

4. Prepare a "funding your degree" document for admitted students who have indicated during the application process that they do not have the financial resources to fully afford tuition and fees for their degree program. Distribute it to students when admission results are sent. This document may include IACS-specific fellowships or research opportunities, average summer internship salaries, average starting salaries for IACS graduates, etc. (*short-term; low-cost, low-effort*)

5. Formalize and expand URM-targeted admissions and recruiting activities. This includes a variety of activities that can be led by staff, faculty, and/or students. In all cases, this work should include sustained contact with high-potential candidates.
    a. Recruit at and sponsor URM conferences such as TAPIA (*short-term; low-cost, medium-effort*)
    b. Recruit at HBCUs, Hispanic Serving Institutions, Women-Only Colleges (*medium-term; low-cost, medium-effort*)
    c. Lead workshops, sit on panels at URM conferences (*medium-term; low-cost, medium-effort*)
    d. Broadcast the experiences of current IACS URM students and alumni through channels such as LinkedIn. (*medium-term; low-cost, low-effort*)

6. Pursue industry partnerships for URM students that cover tuition and/or expenses while providing real-world experience and training. (*long-term; low-cost, high-effort*)

7. Increase international student financial aid resources such as a compiled list of available external funding resources, including loan funding options and a dedicated Financial Aid officer. (*medium-term; low-cost; high-effort*)

8. Revise admissions processes, criteria, and rubrics to ensure qualified applicants with non-traditional or URM backgrounds receive appropriate consideration from the Faculty Committee, recognizing the different economic and social circumstances faced in underserved communities. (*medium-term; low-cost; high-effort*)

9. Add an optional alumni interview to the admissions process, which can be used at the discretion of the admissions committee to obtain additional information about an applicant's qualifications in the context of a non-traditional or historically minoritized background. (*medium-term; low-cost; medium-effort*)

10. Upon notification of admission, assign admitted students from non-traditional or underrepresented backgrounds with a (preferably) current or alumni IACS student mentor from a similar background. (*short-term, low-cost, low-effort*)

2.2. Career Development & Mentorship

Findings

Within the career development and mentorship sub-committee, we have found that there are many areas in which we can better support our students as they think about navigating their professional lives after IACS.

Primarily, we note that students are currently lacking the resources and support to approach all aspects of their job searches. More specifically, we have found that not all students understand how to approach evaluating the diversity and inclusion culture of an organization. Understanding how one's future employer fosters and promotes an inclusive workspace is crucial, as this is where one will spend the majority of the workday and is a key source of professional purpose and happiness.

We have also found that mentorship within our community is an invaluable experience for our students to gain valuable knowledge and insight through career talks and goal setting. SEAS organizations including, but not limited to, Harvard Graduate Women in Science and Engineering (HGWISE) fosters mentorship-mentee relationships through a program that connects SEAS students with professionals in their field of interest. Members of the IACS community already participate in these SEAS programs, which is why developing a IACS-specific mentorship program within our community that connects our alumni with current students would be incredibly beneficial for IACS students looking for career development advice.

Recommendations

1. Leverage the knowledge of our alumni to help current students think about how to approach evaluating company culture. This can come in the form of a survey (which we have already designed) in which alumni retroactively think about the questions they asked (or wished they had asked) and observations they made in order to have a better sense of company culture. *(short-term; low-cost; low-effort)*
2. Compile the results of this survey and produce a quick, one-page reference document on how to evaluate company culture through the lens of diversity and inclusion. Students would then be able to refer to this document as they go through their job search. *(short-term; low-cost; medium-effort)*
3. Create an IACS alumni database with the following information included: Name, email address, phone number, year of graduation, current occupation, and

willingness to participate in an IACS mentorship program (Y/N). This will be useful for the IACS community in establishing a way to keep connected to all alumni. *(medium-term; low-cost; medium-effort)*

4. Create an IACS mentorship program aiming to better connect our alumni with our current students *(long-term; low-cost; high-effort)*. The program would be established with the following guidelines:
    ○ Both IACS students and alumni will fill out a survey:
        ■ Students: year, program, field(s) of interest, academia or industry
        ■ Alumni: year of graduation, program participated in, current occupation, field(s) available to mentor in
    ○ Match IACS student(s) with IACS alumni based on matched survey responses; can be a pod, i.e. multiple students assigned to one alumni.
    ○ Once assigned, mentees will become responsible for contacting alumni, setting up meetings and decide together the topics of discussion and/or goals for each meeting. Meetings should occur monthly.
    ○ Mentor/Mentee relationship will last for one academic year, with the option to continue mentorship for the following year if student is G1.
    ○ New relationships will be established each year for new G1 students and for G2 students choosing to participate with a new mentor.

5. Host IACS Alumni Office Hours *(short-term; low-cost; low-effort)*
    ○ Format: 3-4 IACS alumni per OH session; "Ask me anything" discussion for IACS students

6. Discontinue advertising job opportunities for companies that use computer-graded interviews (e.g., "one-way" interviews), and inform those companies of Harvard's decision and rationale on this issue. These kinds of interviews are not beneficial for truly displaying our students' knowledge and skills, and have been shown to perpetuate racial and gender biases. *(short-term; low-cost; low-effort)*

2.3. Community Building

Findings

The Community Building subcommittee has identified significant challenges and obstacles to building a robust and supportive community at IACS under the current remote environment. This community -- established in terms of both formal and informal relationships -- is essential to promoting success for IACS students inside and outside of the classroom.

In particular, we have found that the remote-only instruction environment inhibits students from forming relationships within and between cohorts. Within cohorts, particularly for first-year students, working relationships traditionally established through project teams become significantly more challenging to create remotely. We find that the peer-to-peer knowledge sharing and collaboration are core components of postgraduate education and academic success at IACS.

Connections between cohorts can be a productive way to foster successful career searches for IACS students. We find that there is a substantial lack of information shared between cohorts regarding potential course selection, career prospects, preparation, and more. As students in separate cohorts may neither share a classroom nor meet in-person or virtually, we find a need for more formalized conduits for this information sharing.

Recommendations

1. Develop a formalized, opt-in peer mentorship program for master's students during the Spring 2021 semester, particularly if a substantial share of the Fall 2021 semester will be administered remotely. We recommend that this mentorship program have two related, but distinct elements *(medium-term; low-cost; medium-effort)*.
    a. First, the program would formally establish relationships between students matriculating to the program and the current first year cohort beyond the admissions process. We recommend that this program establish a formalized path to provide feedback on course selection for the fall semester as well as career guidance.
    b. Additionally, we recommend that alumni be formally included in the mentorship program. In light of the compressed nature of the IACS master's programs, we believe that creation of a platform for connection between

current IACS students and alumni, and active encouragement of its use, will yield benefits to students in navigating the job search process and career landscape.

2. Partner with the GAC for a series of remote social events during the Spring 2021 semester. We recommend that IACS dedicate financial resources to these events in lieu of funding for in-person social activities, which will be matched by GAC funding. The weekly study sessions for IACS classes during the Fall 2020 semester highlights one already-successful format, though we recommend that these events be expanded to specifically social events such as: group exercise classes, group cooking events, and more *(short-term; low-cost; medium-effort).*

3. Host a panel discussion and/or informal meetup between first and second year IACS students to discuss course selection for the Spring 2021 semester *(short-term; low-cost; low-effort)*.

4. Establish formal opportunities for students with shared interests to virtually 'meet' regularly. Our recommendation is that these opportunities include a variety of interests, including academic interests, career interests, and hobbies. As with our recommendation above, we recommend that interested alumni be included in these interest groups. We find that alumni with specific expertise in domains of Applied Computation are often the best resources for students in those areas, and that both students and alumni would benefit from these connections (*medium-term; low-cost; medium effort).*

5. Create a DIB channel within the broader IACS Slack community. This channel would serve as a repository for DIB resources at IACS, Harvard, and in the field of Applied Computation more broadly. Additionally, it would provide a space for students interested in DIB at IACS and in Applied Computation to further share distributed resources *(short-term; no cost; low-effort)*.

2.4. Historically Minoritized Student Support

Findings

The 2018 SEAS climate survey showed that people holding membership in one or more historically minoritized groups feel a lower sense of belonging in our community. This translates into lower academic performance if students feel unwelcome in teams and excluded from resources such as community events, research opportunities, and faculty mentorship.

These feelings persist today among the small number of IACS students with membership in one or more historically minoritized groups, including women, underrepresented minorities, people with disabilities, members of the LGBTQ community, and people with intersectional identities. These feelings are heightened when IACS (inadvertently) continues the historical exclusion of members of minoritized groups through our endorsement of scientific achievements, selection of teaching fellows and collaborators, or framing of course curriculum and assignments.

As IACS recruits additional students with historically minoritized backgrounds and trains a growing number of underrepresented minority students from the College and other schools, it is essential to create a supportive environment in which they can be successful and feel a sense of belonging.

Recommendations

1. Honor the contributions of historically minoritized groups to applied computation by developing CS-focused programming or events for University celebrations of American Indian Heritage Month, Black History Month, Hispanic Heritage Month, and Women's History Month. *(short-term; low-cost; low-effort)*
2. Create and advertise a mechanism for IACS students and affiliates to report diversity, inclusion, and belonging concerns, including incidents of bias and harassment. Document IACS's processes for resolving reported issues, including support mechanisms for affected persons and administrative remedies for inappropriate behaviors. *(medium-term; low-cost; low-effort)*
3. Establish a dedicated Teaching Fellow position within IACS to focus on promoting Diversity, Inclusion, and a sense of Belonging in Applied Computation courses. *(short-term; high-cost; medium-effort)*

4. Take specific action, such as outreach to individual students, to hire and develop underrepresented minority and women Teaching Fellows for Applied Computation courses. *(short-term; low-cost; low-effort)*
5. Implement teaching, advising, and management strategies that increase a sense of belonging and address stereotype threat and imposter syndrome. Provide the training and resources to assist individuals with learning the strategies related to their area. *(medium-term; low-cost; medium-effort)*
6. Establish and sustain a peer support community for historically minoritized students, to function explicitly as a safe space for students traditionally underrepresented in Applied Computation. *(short-term; low-cost; low-effort)*
7. Integrate efforts more closely with the work of the SEAS Office of Diversity, Inclusion, and Belonging. *(short-term; low-cost; low-effort)*
8. Engage members of historically minoritized groups as members of the IACS Advisory Board. *(short-term; low-cost; low-effort)*

2.5. International Student Support

Findings

The International Student Support subcommittee has identified significant obstacles for G1 international students at IACS under the current remote environment. We conducted two remote learning experience surveys which showed that G1 international students physically residing outside the U.S. are facing substantial challenges associated with learning, career development, and community building.

Although IACS has been working hard to improve the remote learning experience, students with 12 or 13 hours' time differences still find it challenging to attend lectures, complete assignments, and work within project groups. Survey respondents mentioned the increased difficulty in concentrating when they have to attend classes late and study well into the night. They also reported that taking a full course load in such conditions caused additional physical and mental pressure.

In addition to academic challenges, G1 international students have experienced serious obstacles to their career development and plans. International students residing outside the U.S. have to extend their programs to two years in order to be eligible for full-time opportunities in the U.S. after graduation. Over 70% of respondents are planning to extend their program to 2 years to qualify for Optional Practical Training (OPT) in the U.S., a benefit for international students to work off-campus in a field directly related to their major area of study. This requires active F-1 status for two consecutive semesters preceding the start date of OPT and necessitates being on-campus for one year to be eligible for finding jobs within the U.S. after graduation. This has been cited by survey respondents as one of the primary reasons why the fully-remote academic year has negatively impacted their life plans.

Lastly, the fully-remote instruction inhibits G1 international students from forming relationships within their cohort. Over 70% of respondents reported not meeting enough people during their first semester. For example, a student responded that they only know four peers within their cohort that they feel comfortable messaging. Most of the IACS community-building, academic, and career events are designed for people in U.S. time zones which limits the number of events these international students can realistically attend.

Recommendations

1. Provide a diverse range of office hours and recruit TFs in different time zones. *(medium-term; low-cost; medium-effort)*

2. Provide 12-hour extensions for class assignments to ensure people in different time zones have the same daytime working hours to work on assignments. (*short-term; no-cost; medium-effort*)

3. Allow students to take a gap semester and relax the requirement for full-time four-class enrollment for Spring 2021 semester. (*medium-term; high-cost; high-effort*)

4. Offer seminars and social events with two sessions and make one session specifically designed for students outside of the U.S. (*medium-term; low-cost; high-effort*)

5. Host social events specifically designated for international students in non-U.S. time zones. (*short-term; low-cost; low-effort*)

2.6. Pedagogy

Findings

While discussing diversity, inclusion, and belonging within the School of Engineering and Applied Sciences, our group has confirmed that certain racial, ethnic, and gender biases persist in the curricula and methodology of the institution. For example, rather than continuing to use skin color to determine how likely an individual is to evade taxes in a particular assignment, our advising team can work to expose why harmful data measurements exist and how data science practices can be altered to be more inclusive. Rather than completely erasing insensitive material, it will be important to address why that material exists in the first place and how we as an institution can better deal with these issues. This is particularly important because Harvard students will go on to participate in influential institutions that have the ability to mitigate historic and continuing biases against minority groups. Harvard students must be able to combat ingrained practices of exclusion by being able to understand course content in a more nuanced manner. Outside of a single ethics module, classroom procedures currently do not allow for in-depth discussion of ethical issues. A mechanism must exist that instructors can use, regardless of their own training, that will allow students to engage in discussion as these issues come up.

In addition to addressing this lack of DIB within classrooms, professional development must become a focus for IACS professors in order to improve pedagogies. Time-saving materials and lesson planning help should be available to professors. Professors, especially during the last fall semester, found they were pressed for time and overloaded with administrative duties. It should be made easier for professors to know how students are doing. This issue also addresses DIB because minority students are less likely to address their professors or peers when they face issues in class.

Recommendations

1. Create a curriculum advising service staffed by paid graduate students with a diversity of backgrounds to support IACS instructors in amending, creating, and implementing more sensitive and inclusive content. *(medium-term; high-cost; high-effort)*
2. Create and make available a continuous anonymous feedback form for students to submit concerns over macro- and microaggressions in course curriculum and interactions. *(short-term; no-cost; low-effort)*

3. Provide advice and prepare concrete curriculum materials for IACS instructors (like lesson templates, readings, digital materials, and possible assignment ideas) and offer opportunities for professional development *(medium-term; high-cost; medium-effort)*

4. Enhance lectures and in-class materials with ungraded supporting questions to more easily check for student understanding and more quickly discover knowledge gaps. *(medium-term, low-cost, medium-effort)*

3. Conclusion

Like many educational institutions and programs, Harvard's Institute for Applied Computational Science fails to recruit, advance, and retain a truly diverse student population. Students (and potential students) from historically minoritized groups continue to bear the burden of the University's shortcomings in this space. Harvard is privileged among a small number of American institutions that predate the United States government, and the University coexisted for many years with the nation's original sin. In this context, we are excited to have University leaders engaged in opening our program to populations that have been historically underserved and underrepresented in the United States.

When IACS educates a group of students that is not fully representative of the available talent pool, we uphold barriers to the advancement of underrepresented communities and to the advancement of knowledge in the fields of Data Science and Computational Science & Engineering. Data Science starves itself of the best talent when it is not open to all talent. Computational Science & Engineering will never benefit from contributions to the field made by the people it turns away.

The findings and recommendations in this report constitute necessary and intentional actions IACS Staff, Faculty, Students, and Alumni can take to increase Diversity, Inclusion, and Belonging in our community. Beyond IACS, we know that this work will require the material participation of the School of Engineering and Applied Sciences, the Graduate School of Arts and Sciences, and the Harvard Data Science Initiative. We hope that this report and the recommendations herein promote common understanding of the student experience and our responsibility to build a stronger, more inclusive home for translational research in applied computation.

2021 IACS Statement on GAC Recommendations

In the Spring of 2021, the Graduate Advisory Committee to the IACS presented recommendations for the advancement of IACS policies regarding Diversity, Inclusivity, and Belonging (DIB). This letter is a response to those recommendations and is an overview of the actions we have engaged in and the work that is yet to be done.

Admissions, Recruiting, and Funding: The GAC recommended increased funding opportunities and communication clarity around those opportunities for incoming students. They also proposed that we change our admissions practices to include a more holistic evaluation of applications (especially those from URM candidates) while expanding and formalizing our recruitment of URM students.

The IACS is happy to report the following:
- Two-year fellowships designated for URM students funded by a gift from Amazon Robotics have been awarded to two members of the incoming 2021-2022 class as part of a special new fellowship program for students at Harvard, MIT and Stanford.
- Revised admissions practices for holistic review of applications, specifically those from URM candidates, resulted in the acceptance of 12 URM students (100% increase vs. 2020).
- A formalized relationship with HBCU Florida A&M University for research and recruitment, and increased sponsorship of Grace Hopper and TAPIA conferences to recruit prospective students.
- A dedicated funding page on the IACS website, with information on current funding opportunities, information on URM specific funding, and financial aid information for domestic and international students.
- Internal tracking systems for URM applications, admissions, and retention.

Many of the recommendations are still under consideration, awaiting approval of funding lines and/or additional information. We hope to be able to offer funding for a limited number of funding-matched grants, and to include more information supporting international students in the future. Mentorship programs and discretionary interviews are currently on hold as we evaluate capacity.

Career Development and Mentorship:
As campus re-opens for Fall semester 2021, IACS plans to expand networking opportunities, develop more Alumni Career Panels, revive workshops for resumes and cover letters, and coordinate with the Harvard Office of Career Services (OCS) to provide discipline-specific support.

In addition to these efforts, the IACS will be working on the following:
- Strengthening connections with alumni and industry partners for career programs and job postings
- Surveying IACS alumni to assess overall outcomes of the program
- Development of guidelines and requirements for posting jobs through IACS

Community Building
The IACS would be happy to partner with the GAC for events and community-building exercises, including a virtual online orientation to be held in July 2021.

Historically Minoritized Student Support: Support for URM students throughout their time at Harvard is a priority for both the GAC and the IACS.

To that end, the IACS has implemented or is planning the following:
- Events, such as an Annual Chinese New Year Celebration, which de-centralizes the American calendar in planning social events and celebrations, as well as the implementation of an events and communication schedule that coordinates with Heritage Months

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- Continued integration with SEAS DIB office, including sharing of calendars and partnering in SEAS events and URM recruitment for students, TFs, and interns
- Clear establishment of the Program Manager for Student Engagement as an advocate and resource for URM students and DIB initiatives within IACS
- Creation of a TF and Lecturer training program and curricula review to develop a toolbox for preparing instructors for the specific needs for URM and underserved students

International Student Support: The GAC provided recommendation for international student accommodation and support for the remote learning period which do not fully apply to incoming academic year. We are, however, building on current resources to improve communication on financial support.

Pedagogy: The GAC recommended student input in the evaluation of materials and data sets with a secondary concern for the academic support of the teaching staff. We have begun the following:
- Curricula overview of both CSE and DS, as well as a review of materials, with potential compensated feedback from the selected GAC members
- Planning for additional workshops throughout the semester for TFs, and bi-annual training workshops for lecturers in collaboration with SEAS to ensure that instructors at all levels are given the support that they need to troubleshoot student engagement and learning goals

Growth Areas: We have identified the following three areas as priority growth areas:
- **Communication**: We plan to highlight URM contributions to CSE and DS in ongoing IACS community communications. We are also evaluating our website to foreground information on current and alumni contributions to the IACS and the world, bias and harassment safeguards within SEAS, and current funding opportunities.
- **Financial and Community Support for International Students**: We are working to make information on financial aid resources more readily available to current and incoming students, and to create community building programming for international students.
- **Mentorship and Work/Life Balance for URM students**: We welcome continued conversation with the GAC on how best to pursue these support structures for URM students, particularly recognizing that the burden of DIB work should not rest on URM students and not be invisible unpaid work.

The IACS is incredibly proud and appreciative of the work that the GAC has invested in the improvement and development of the culture of diversity, creativity, and humanity that defines our program. We look forward to partnering on these and future recommendations.

Sincerely,

IACS Staff
      Erin Erhart
      Cathy Chute
      Petros Koumoutsakos
      Pavlos Protopapas
      Daniel Weinstock

June 8, 2021