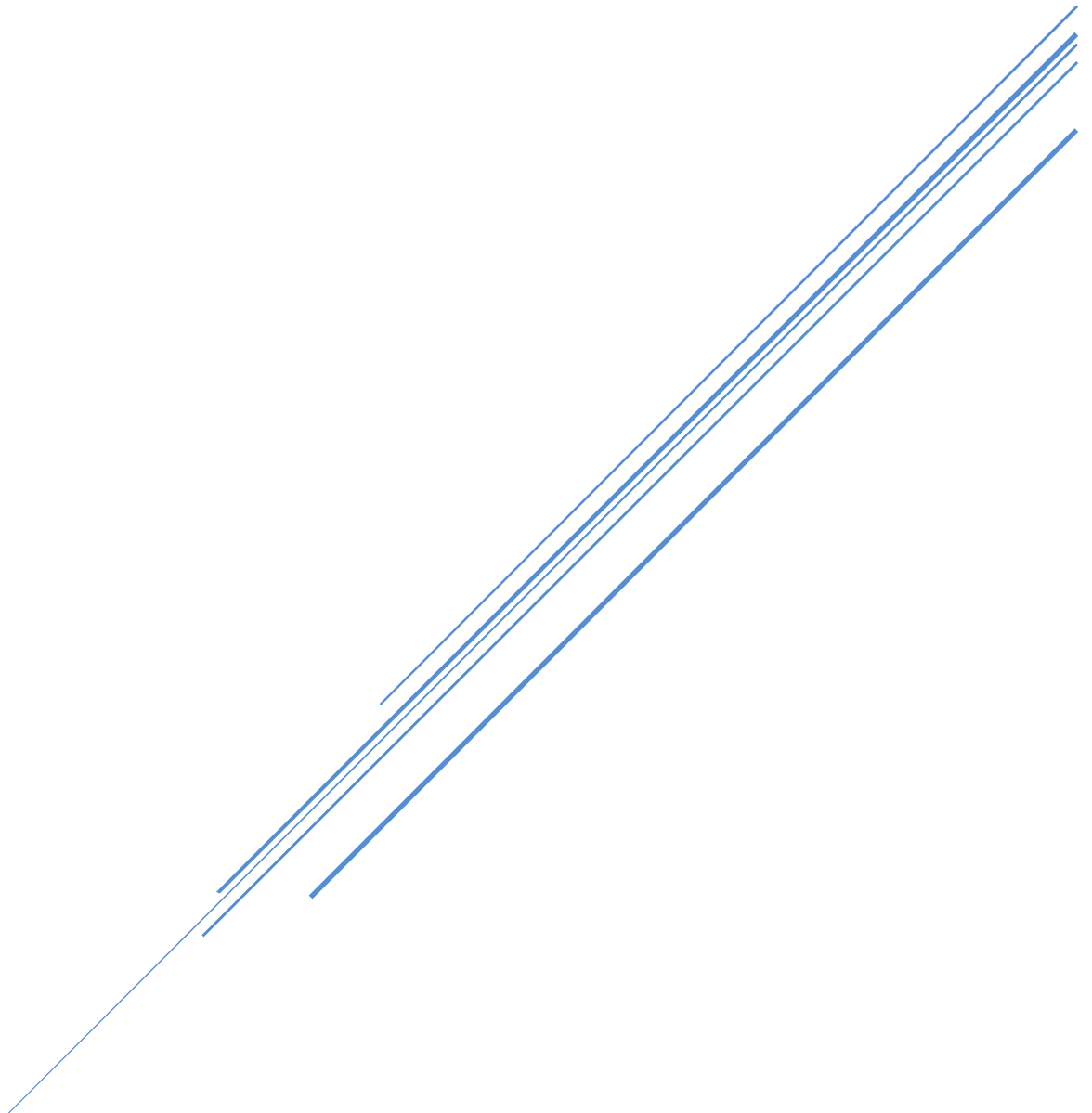


STRIVING TOWARDS BLACK INCLUSIVITY

Report to the Faculty of Applied Science and Engineering
of the University of Toronto



By: The Engineering Faculty's Black Inclusion Steering Committee
September 2019

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Executive Summary

The 2017-2022 academic plan of the Faculty of Applied Science and Engineering (FASE) highlights as one of its major goals to “attract diverse, outstanding students from a wide range of backgrounds; and leverage all types of diversity to promote inclusivity and create opportunities to experience working collaboratively across cultures”. To that end, a significant body of work has been done to enhance gender, cultural and international diversity, and more recently the [Eagle’s Longhouse Steering Committee was established to provide recommendations](#) for greater inclusion of the Indigenous community in FASE.

Over the last few years, there has been a justified resurgence in the discussion, at both a municipal and provincial level, about the Black experience and challenges that the Black community faces. This is highlighted by works such as [the Black Experience Project in the Greater Toronto Area \(GTA\)](#) (launched by Environics Institute) and the [Ontario Black Youth Action Plan](#) by the Ministry of Children and Youth Services. These important discussions are also taking place at both a Faculty and institutional level, stimulated by negative incidents as well as positive initiatives happening within and outside the University. This was signified by a town-hall held by the University of Toronto (U of T) Black Students Association and the National Society of Black Engineers U of T Chapter in November 2017 to address issues of Black inclusivity and Anti-Blackness within Engineering. U of T FASE acknowledges that self-identified Black students, faculty, and staff within the Division are underrepresented as a community and that a significant body of work is required to address the underlying obstacles faced by this key population group within the Faculty in keeping with the spirit of the Academic Plan. The formulation and mission of the **FASE Black Inclusion Steering Committee (BISC)** are based on this essential work.

The FASE BISC was formed in June 2018 with the mission of facilitating a Faculty assessment of its operational framework and work environment in order to identify various entrenched barriers to access, success and inclusion for its current and prospective Black students/staff/faculty, and to provide actionable recommendations to address these barriers. Leveraging the insight and expertise of members of BISC as well as consulted stakeholders

throughout the institution, an interim report was produced in November 2018, offering a number of initial recommendations for the Faculty to pursue. These recommendations included:

1. Establish a Faculty Equity, Diversity & Inclusion (EDI) office
2. Collect race-based data
3. Acknowledge and support Black History Month
4. Enhance and streamline communication to advertise and build inclusivity efforts
5. Have Black representation at departmental and Faculty seminar/lecture series
6. Have targeted Black undergraduate student recruitment
7. Increase involvement at the NSBE National Convention
8. Build formal relationships with GTA Black community focused and professional organizations

Since the production of the interim report, the Faculty has made varying degrees of progress on addressing the provided recommendations. Further consultations were completed, leading to the creation of a list of additional recommendations broached within this BISC Final Report. These recommendations, split generally by target stakeholder group include the following:

Prospective and Current Undergraduate Students

1. Continual review of broad-based admission goals and procedures to further enhance the equitable and inclusive nature of general admissions
2. Develop alternative, gap-spanning admission and/or access pathways into U of T Engineering
3. Develop a centralized peer mentorship initiative
4. Create infrastructure to increase faculty engagement in Outreach
5. Increase access to financial aid and scholarships

Prospective and Current Graduate Students

6. Develop targeted workshop series to promote graduate school and support current graduate students
7. Create targeted undergraduate research opportunities
8. Continue to develop targeted recruitment strategies

Prospective and Current Faculty

9. Intentional utilization of Provost Office diversity-driven initiatives
10. Develop a framework to facilitate diverse candidate pool formulation and consideration
11. Define the means to value and incentivize EDI and mentoring work for faculty

Prospective and Current Staff

12. Develop avenues for formal mentorship
13. Provide opportunities for affinity group community building
14. Improve access to secondment and professional development opportunities

Other/General

15. Integrate broader EDI considerations into Alumni and Advancement office operations
16. Develop more equitable and accessible modes of financial reimbursement and invoice generation
17. Offer and incentivize more equity and cultural competency training for staff/faculty
18. Establish hard targets for representation at all Faculty levels

Committee Structure

The FASE BISC has 2 co-chairs:

Mikhail Burke – *Dean's Advisor on Black Inclusivity Initiatives and Student Inclusion & Transition Advisor*

Thomas Coyle – *Vice Dean, Undergraduate Studies*

The role of the co-chairs was to facilitate meetings, guide discussion, coordinate operational logistics and lead the committee to complete its mission. It was important to have two co-chairs in order to ensure that the committee was led both by a staff/faculty member whose portfolio was EDI focused as well as having a committee lead who was senior leadership within the FASE administration.

The rest of the BISC membership was nominated representation from both within and outside the Faculty; bringing relevant experience, expertise, and perspective into discussions; assisting in the completion of the committee mission. The other members included:

Chioma Ekpo – *Assistant Director, Professional Experience Year Co-op Program (PEY Co-op) + Engineering Career Centre*

Dawn Britton – *Associate Director, Engineering Student Outreach Office*

Emma Scully – *HR Manager, Faculty of Applied Science and Engineering*

Portia Deterville – *Former Chairperson, National Society of Black Engineers East Canada Zone*

Benjamin Kwashigah - *Third year, Electrical and Computer Engineering; Former Equity and Diversity Director on EngSoc*

Markus Bussman – *Chair, Department of Mechanical and Industrial Engineering*

Edgar Acosta – *Professor, Department of Chemical Engineering and Applied Chemistry; Chair of the FASE Community Affairs and Gender Issues Committee*

Dimpho Radebe – Alumna, Industrial Engineering (1T4+PEY); Former NSBE U of T President

Wanja Gitari – Associate Professor, The Transitional Year Program & the Department of Curriculum, Teaching, and Learning at OISE/UT

Sandra Carnegie-Douglas - Anti-Racism & Cultural Diversity Officer, Anti-Racism & Cultural Diversity Office

Aisha Raja – Program Coordinator, Anti-Racism & Cultural Diversity Office

//It must be noted that Sandra and Aisha are no longer a part of the BISC as they are no longer employed by the University. Sandra and Aisha’s contributions to the BISC were invaluable and as a committee, we will miss having them as part of this process.//

Alina Constantin-Hockmann - FASE Academic HR coordinator; BISC Recording Secretary

Chelsea John-Williams - Third year, Industrial Engineering; BISC Student Research Assistant

While we are grateful to all members of BISC for their contributions over the lifespan of the committee, a special thanks to Chioma, Dimpho, Emma, Markus and Dawn for their high level of engagement throughout the process.

Interim Report Recommendation Progress

The BISC Interim Report, provided eight (8) initial recommendations in November 2018, to the Dean to begin to address Black representation and inclusivity within the Faculty. Over the following six months, these recommendations had been championed and pushed forward due to parallel efforts of members of BISC and other individuals/groups such as (but not limited to) the Engineering Equity, Diversity and Inclusion Action Group (EEDIAG), the Engineering Student Outreach Office, the Office of the Vice-Dean, Graduate Studies the Broad-Based Admission Subcommittee and the previous Dean of FASE (Cristina Amon). The following eight recommendations highlight the progress that has been made within the Faculty in response to the Interim Report recommendations, with further considerations moving forward.

Recommendation #1: Establish a Faculty EDI office

The Interim Report highlighted the value of establishing an EDI-focused office within the Faculty in order to provide consultative guidance and logistical support as the Faculty seeks to further develop and broaden the diverse, inclusive and equitable culture of engineering education within the University of Toronto. This is key as the Faculty builds upon its efforts on gender representation and inclusivity to other historically underrepresented and discriminated identities such as the LGBTQ+, Indigenous and Black communities; and creates an environment where the concept and issues surrounding Blackness within STEM, post-secondary spaces and general society can be discussed.

Due to the efforts of Dean Amon, a new role of Assistant Dean and Director, Diversity, Inclusion and Professionalism (AD-DIP) was established. The goal of this role is to broadly address issues of diversity and inclusion within the Faculty and support the integration of these ideals into the perceived ethos of the professional engineer. In May 2019, [this role was filled by Marisa Sterling](#).

As the AD-DIP familiarizes themselves with key Faculty and Institutional processes and players, the vision, desired objectives and deliverables of the AD-DIP over the next 6 - 12 months should begin to solidify and be shared throughout the Faculty. The BISC hopes that recommendations

highlighted in this report align with the AD-DIP's perspective of key additions/changes required within the Faculty, and that these recommendations are championed by the individual in the role.

Another important next step is the establishment of additional EDI-centric roles within the Faculty. Considering the breadth of EDI considerations within the engineering (and general post-secondary) educational space, the AD-DIP role alone is insufficient to guide, develop and support the required number of EDI considerations for new initiatives and systemic changes within the Faculty. Initial conversations among senior administrators (including then Dean Cristina Amon) prior to hiring of the new AD-DIP suggested that two (2) additional roles be created to support the AD-DIP and EDI initiatives within the Faculty.

This report suggests two possible ways the scope of subsequent EDI roles could be defined:

- I. Faculty-defined priority groups/communities
- II. Operational areas

Faculty-defined priority groups/communities – U of T's Faculty of Medicine has [explicitly identified three priority groups](#) as it reaffirms the ideals of equity and diversity within its future strategic goals: Indigenous Peoples of Canada (First Nations, Inuit, and Métis), People of African ancestry (i.e. Black) and the economically disadvantaged. U of T Engineering has also identified 3 groups of focus (albeit less explicitly) via [its 2017-2022 academic plan](#): Women, the Indigenous community, and the Black community. Future EDI roles could focus on these affinity groups for the Faculty. [The Eagle's Longhouse Blueprint for Action Report](#) has suggested the creation of a permanent role focused on Indigenous Initiatives within the Faculty. Similarly, the current temporary role for the Dean's Advisor for Black Inclusion Initiatives could be reimagined as a permanent role to implement new initiatives targeting the Black community and lead conversations on Blackness within the Faculty.

Operational areas – The operational scope of EDI-centric roles could be roughly clustered into three major groups: 1) Access and Community Partnerships; 2) On-campus Inclusivity; 3) Industry and Professional Development. The first dealing with EDI considerations that impact pathways to post-secondary engineering education; the second working upon the on-campus

experience and the latter defining EDI considerations at the bridge of the professional and academic realms.

Regardless of how the roles may be ultimately defined, the intersection of these areas and groups must be considered in order to positively highlight and drive Black representation and inclusion within the Faculty.

Recommendation #2: Collect race-based data

The collection of race-based data [has been advocated for](#) by various groups within the institution for a number of years, in particular Black advocacy groups. It is difficult to adequately define the scope of the representation gap, disaggregate data representative of the various aspects of the students/faculty/staff experience, determine barriers and measure the efficacy of programming to address these issues without the collection of race-based data. The collection of race-based data can roughly occur at the following stages:

- During the application process
- Upon admission/hiring
- During climate or experiential surveys

With regards to students:

- **During the application process:** Although the centralized OUAC application for Ontario-based universities does ask a question on gender identity and indigenous status, there is no question to self-identify race/ethnicity. After review of the Interim Report, the previous Dean (Cristina Amon) supported in principle the integration of an optional race self-identification question into the application process but expressed the justifiable concern surrounding clearly messaging the purpose of such a question to prospective applicants and what the data would be used for. In the case of student applicants, collecting such race-based data would facilitate:
 - An understanding of who is applying to our Faculty in order to provide a benchmark to measure the efficacy of our outreach/recruitment efforts

- Linking students to support resources and communities during the application process and within the Faculty and institution (once accepted) to help foster belonging

Work would need to be done through the Registrar's office to craft this messaging. If the Faculty sought to integrate a racial identity question, it could do so utilizing the supplemental application form that students applying to U of T Engineering must complete. In terms of how the question could be structured, the race/identity question is currently leveraged within the 1st year welcome survey (which in turn was drafted based on [the Voice of the Resident](#) survey created by the Faculty of Medicine). Alternatively, the question as structured by the employment equity survey (for staff/faculty) could be utilized.

Example (from 1st year welcome survey)

Which of the following best describes your race/ethnic background? (Check up to 4)

- Black
- Caucasian/White
- Chinese
- Filipino
- Indigenous/ Aboriginal person from any country, excluding North America
- Latina / Latino / Hispanic
- Middle Eastern
- Central Asian (Kazakh, Afghan, Tajik, Uzbek, Caucasus, etc.)
- East Asian, excluding Chinese (Japanese, Korean, etc.)
- South Asian (Indian, Pakistani, Sri Lankan, East Indian from Guyana, etc.)
- Southeast Asian (Cambodian, Indonesian, Laotian, Vietnamese, Thai, etc.)
- West Asian (Iranian, Iraqi, Persian, etc.)
- Other (please specify)

- **Upon admission:** Once accepted, new 1st year students have the opportunity to answer a welcome survey. This survey does include a question that allows students to self-identify their race/ethnicity (as previously mentioned) and this data has been collected over the last few years. In 2018, of the 33% of incoming 1st year class who answered the question, 3% identified as Black; with over 50% of them having completed high school in Ontario. As a reference, the *population of the GTA is roughly 8.5% Black* ([2016 Census Data](#)). There is indeed a representation gap that still needs to be addressed. Thus, the collection of this data is critical and needs to continue.
- **Climate or experiential surveys:** Over the last couple of years, the Community Affairs and Gender Issues (CAGI) Standing Committee has been attempting to draft a “diversity climate” survey that would not only give a snapshot of diversity at all levels of the Faculty, but would gather information on experience/perspective of respondents on aspects of institutional culture. Leveraging the research scientist responsible for the “[Voice of the Resident](#)” survey project within the Faculty of Medicine, a “Voice of the Engineer” survey was drafted and disseminated between March and May, 2019. Findings from this survey were shared in a report to the CAGI at the end of the summer 2019. BISC membership is hopeful that the “Voice of the Engineer” will be accessible to the FASE community in the near future.

Ultimately, collection of this data would highlight where barriers/issues exist making it easier to determine where efforts and resources should be allocated to address these concerns. For example, as gender data is collected, we know how many women applied to study at our Faculty and how many were accepted. Roughly 20% of the application pool are women while roughly 40% of incoming 1st year students are women. This highlights that as we continue to strive for increased gender representation in the Faculty, the barriers that need to be addressed at this stage reside more in building our prospective female applicant pool compared to how female applicants are assessed in the admission process. Without race-based data, no similar assessment could be done for our prospective Black students.

With regard to staff/faculty:

- **During the application process:** Prospective staff and faculty who apply for any position within the faculty are able to self-identify during the application process. This data is managed centrally by the Office of the Vice-President, Human Resources & Equity (for staff) and the Office of the Vice-President, Faculty and Academic Life (for faculty) and is available by request from the Manager of the FASE Human Resources office. ***Current data shows that 7% of applicants for staff positions within Engineering self-identify as Black.***
- **Upon hiring:** Newly hired faculty and staff are able to self-identify their race (and other aspects of identity) via the Employment Equity Survey that is accessible via their Employee Self-Service Portal. This data is also managed by the Office of the Vice-President, Human Resources & Equity. ***Current data shows that 3% of employed staff who filled the survey self-identify as Black, with no faculty identifying as Black.*** This highlights a clear representation gap.
- **Climate or experiential surveys:** Two versions of the previously mentioned “Voice of the Engineer” survey were initially drafted, one for students and one for staff/faculty. While the one for students was disseminated, the CAGI was notified by the Office of the Vice-President, Human Resources & Equity that the staff/faculty version could not be distributed at that time without their approval. It is currently unclear if the staff/faculty version of the report is still awaiting central review and edit or if the survey has been completely cancelled.

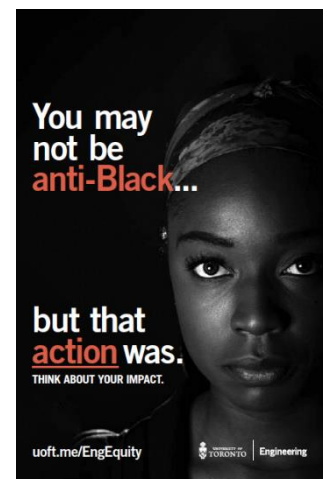
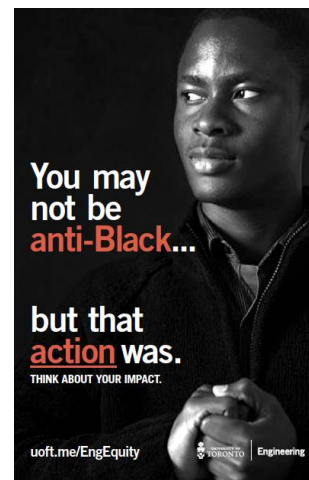
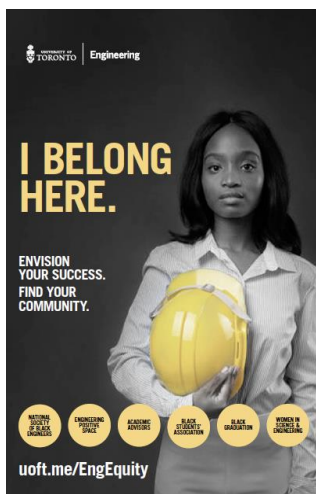
Recommendation #3: Acknowledge and support Black History Month

Resulting from recommendations within the Interim Report, a committee known as the Against Black Racism Campaign (ABRC) Committee was formed to create content to be launched during Black History Month 2019 in order to promote Black Inclusivity and combat anti-Black racism within our Faculty and the wider institution. Membership included self-identified Black students

and staff, allies from other initiatives (i.e. Engineering Positive Space) and Engineering StratComm.

Through discussions within ABRC membership as well as consultations with a former Director of the Anti-Racism and Cultural Diversity Office, the following content was created:

- A knowledge quiz (called “Know your Black leaders in STEM”)
- An [online piece](#) profiling various Black students and alumni of U of T Engineering to display the variety of experience and perspective of the Black community within Engineering
- A poster series promoting inclusivity and addressing the notion of anti-Black racism (see below)



While the ABRC has now dissolved (as its initial mandate has been completed), it is critical for the Faculty to maintain this effort in messaging Black inclusivity year round and continue to offer special acknowledgment during Black History Month . Some suggestions include building upon campaign materials for the next year (buttons, cards); inclusion of a symbol of Black inclusivity within future Frosh kits; bringing in a speaker to talk about the intersection of the Black experience and Engineering Education and Leadership and collaborate with the National

Society of Black Engineers U of T Chapter on programming.

Recommendation #4: Enhance and streamline communication to advertise and build inclusivity efforts

As addressed in the Interim Report, communication is a key component of any equity work and it is a breakdown in communication that led to the mobilization and frustration of some Black student groups against the Faculty two years ago. Channels of communication must be highlighted, Faculty processes must be transparent, and initiatives/education/work in the EDI space must be celebrated in order to help build community and assuage fears of isolation and powerlessness.

Since the Interim Report, [the Faculty has created an EDI webpage](#) to address the values of Equity, Diversity & Inclusion within the Faculty, which consist of the following:

- A statement from the previous Dean (Cristina Amon) on the shared values of Equity, Diversity & Inclusivity within the Faculty
- Links to EDI relevant groups/committees/offices both specific to U of T FASE and the institution as a whole
- A U of T FASE EDI suggestion/feedback form
- A highlight of the U of T Engineering Outreach “barrier breaking” programming
- A highlight of community-based student groups including the Black Student Association (BSA) and the National Society of Black Engineers (NSBE) U of T Chapter

Further work can be done to continue to build upon these significant efforts. Dean Yip and the current Engineering Society (Eng Soc) President Laura Berneaga have already co-released a renewed statement on “Our Shared Values of Diversity, Equity, and Inclusivity”, building upon former Dean Amon’s messaging. Another important development is that the Office of the Vice-Provost, Students [has developed a webpage](#) to highlight the institutional procedures and steps for students who wish to lodge complaints pertaining to potential prohibitory discrimination, [including creating an accessible flowchart to highlight the five major steps in this process](#). This

information must be made accessible via the EDI webpage and Chairs & Directors must be made aware of their institutionally defined role in this process. Then, via the collaborative efforts of the Dean, AD-DIP, CAGI committee and the EEDIAG, a Faculty-level protocol on how complaints are to be handled should be drafted...

Recommendation #5: Have Black representation at departmental and Faculty seminar/lecture series

Representation of Black academics within engineering and engineering education in our learning spaces is important to create a more inclusive and inspirational environment to our prospective and current Black students interested in pursuing post-graduate scholarship. While increased (or frankly any) representation of Black scholars within the Faculty's professoriate is key to this goal, there is also an opportunity for the various departments and institutes to display scholarship of Black academics via their seminar or lecture series. The co-chairs of BISC brought this proposal forward to Chairs and Directors in March 2019. It is the understanding of BISC that many departments form their search/selection committees for seminar series early in the academic year (September/October) to find prospective candidates for the following year. It would be critical that the Dean reinforce the importance of diversity to departments as they start this search. BISC recognizes that finding a diverse pool of scholars within the different engineering fields would require additional work in order to also meet the other goals and interests of the seminar series. While EDI-centric roles within the Faculty could assist in this search, it is important that the drive to find diverse speakers is departmentally driven.

Recommendation #6: Have targeted Black undergraduate student recruitment

Although our collection of race-based data is limited, our 1st year welcome survey data does show a representation gap of Black students entering our Faculty (3% in Faculty vs. 8.5% in the GTA population). The U of T Engineering Recruitment Office produced a plan for "Increasing Black and Indigenous Student Enrollment" in Spring 2017. This plan highlighted steps including:

1. Creation of an ambassadorial program
2. Development of relationships with schools identified with high Black populations within the GTA

3. Recruitment collaboration with NSBE U of T Chapter via specific events
4. Investigation of further recruitment opportunities in African and Caribbean nations
5. Creation of a dedicated scholarship for Black and/or first-generation students

Between Spring 2017 and the drafting of the Interim Report, some work was done to develop steps 2, 3, and 4. The Recruitment office sought to expand an annual 1-day experience called Engineer for a Day (E4AD), to target traditionally underrepresented students from identified schools and invite them on campus for a day of programming. The recruitment office has delivered recruitment presentations at the NSBE U of T high-school conference and has seen an increase in recruitment in the Caribbean nation of Trinidad & Tobago.

Since the Interim Report, a 2-year pilot initiative known as Engineering Leadership to Inspire Further Education (EngLIFE) was drafted and approved for funding via the Dean's Strategic Fund 2019 and the Access Program University Fund 2019. This pilot initiative seeks to highlight, develop and support pathways for prospective post-secondary Black students to engage in science, technology, engineering and mathematics (STEM) curriculum. This initiative will consist of two distinct components: a Summer Engineering Leadership Experience and a Student Ambassador Program. The Summer Engineering Leadership Experience will provide 25 Black grade 11 students the opportunity to come to the U of T campus to engage in STEM education programming for 4 weeks over the month of July and earn an Ontario high-school level credit. The Student Ambassador Program will engage, establish and build on existing and new relationships that FASE at U of T has cultivated specifically with schools and/or organizations well represented by the Black community. The 1st iteration of the Summer Engineering Leadership Experience was recently completed and initial feedback has already revealed some strengths as well as a required re-envisioning of the summer aspect of the program as it develops further into its 2nd year. Other aspects of the initiative such as the Student Ambassador Program and a Saturday Mentoring Program should commence in the later Fall 2019. A report outlining operation of 1st year of EngLIFE should be expected by mid 2020.

Recommendation #7: Increase involvement at the NSBE National Convention

Both concurrent to and since the drafting of the Interim Report, there has been increased Faculty involvement at NSBE [National](#) and [Region 1](#) conferences relative to previous years (Note: NSBE as an international organization is split into 6 regions; Eastern Canada resides in Region 1). After consulting with the NSBE Region 1 Academic Excellence Chair, it was suggested that the Office of the Vice-Dean, Graduate Studies offer support for potential graduate student recruitment and brand building at the Region 1 Conference. The Vice-Dean, Graduate Studies provided a scholarship for up to three graduate students to attend the Region 1 Conference and sponsored a U of T recruitment booth at the conference.

Similarly, the Vice-Dean, Undergraduate supported increased Faculty presence at the 45th Annual NSBE National Convention, by both facilitating U of T Engineering academic sponsorship for the convention and funding the presence of a U of T Engineering recruitment booth. As a result of this support, University of Toronto became the first known Canadian university sponsor of this convention, which hosts over 10,000 attendees annually. Additionally, the Vice-Dean, the Dean's Advisor on Black Inclusivity Initiatives, a senior recruiter and graduate representative all attended the conference to participate in recruitment activities and to learn about the engagement efforts of other institutions.

Many conference attendees, including U of T alumni now based in the US, truly appreciated the presence of the U of T Canadian institution at the event as our presence signified the level of value we as an institution have placed on improving Black representation and contributions within the engineering and engineering education realms; a conversation not as explicitly broached within the Canadian context.

While the Faculty has supported the presence of undergraduate students at the National convention for a number of years, this intentional increased presence of our institution at NSBE conferences **must** be maintained in order to facilitate the building of a cohesive U of T presence as a destination for further education, research and teaching opportunities within Black academic and professional circles.

Recommendation #8: Build formal relationships with GTA Black community focused and professional organizations

The Engineering Student Outreach Office continues to build and grow its relationship with community based organizations such as Visions of Science, offering collaborative programming to high-school students, many of them typically underrepresented identities within the STEM space.

However, the Faculty should continue to consider other groups/organizations/committees to confer with, in order to learn more about opportunities for growth, successes to build upon, and hopefully build collaborative partnerships for current and new initiatives as we continue to combat a prevailing social narrative that U of T is not a university “conducive to the Black experience.”

Final Report Recommendations

Building upon further consultations and discussions completed by the BISC since the completion of the Interim Report, an additional eighteen (18) recommendations will be put forward to the Faculty for consideration. These recommendations will be generally grouped by the primary target stakeholder as follows:

- Prospective and Current Undergraduate Students
- Prospective and Current Graduate Students
- Prospective and Current Faculty
- Prospective and Current Staff
- Other/General

Prospective and Current Undergraduate Students

Recommendation #1: Continual review of broad-based admission goals and procedures to further enhance the equitable and inclusive nature of general admissions

Along with the general Ontario Universities' Application Centre (OUAC) application that collects basic and academic information, U of T FASE also has a supplemental application form in which students provide additional information including:

- Their extracurricular involvement, which is scored via weighted metrics that includes type of activity, rank/position, level of competition/recognition, number of hours, number/diversity of activities
- A personal profile created via the answering of three questions that provide the Faculty with a “more holistic” picture of the applicant that may not be apparent in grades and extracurricular activities alone. The profile is scored via a rubric utilized by members of a pool of volunteer alumni.

In this regard, U of T FASE, which received approximately 13,000 applications for the 2018-19 academic year, is ahead of other first-entry divisions such as U of T Faculty of Arts & Science, in considering aspects other than grades to determine the reciprocal benefit for both the

prospective student and the Faculty for the student to study here. This is something that needs to be recognized and celebrated. That said, there are aspects of this and the overall admissions process that should be constantly reviewed and seen as areas for growth and improvement. With regard to extracurricular and personal profile scoring, how equitable is this process? How do we value community based vs. technical/academic vs. athletic activities? What if a student has limited time for extracurriculars as they are an assistive care-taker for their household -- have we created an avenue for this to be acknowledged and accounted for accordingly? How are alumni chosen and trained to review personal profiles? Are they the only stakeholder “voice” that should be accounted for in the review of personal profiles? These are all examples of potential questions for consideration during any review of the admissions process.

Ultimately, as one reviews admissions procedures, one must consider the following:

- What factors are assessed when considering a prospective student?
- How are these factors considered within the admissions process?
- What data/information are we collecting to inform/refine the aforementioned considerations?

Incoming grades are still a primary factor in considering admission. They are used to filter applications prior to departmental consideration, and are considered by departmental assessors to be a critical piece in determining the ability of a student to adapt to the rigor of their program and Engineering in general. While this may be true, there is opportunity for departmental assessors via the admissions committee to better define how various factors are considered and weighted relative to each other.

Additionally, the question of how explicitly does or should diversity come into play as a weighting factor for admissions should be addressed. The previous Dean championed gender diversity at all levels of the Faculty as a major goal of theirs and was vocal about it. This clear vision from Faculty leadership, combined with defined aspirational targets, was filtered into the admissions process leading to a near doubling of the percentage of female admissions ([currently at over 40% women](#)) in over a decade in order to bridge the representation gap ([women represent over 50% of the GTA population](#)). There was intentionality to this process,

which yielded substantial results. Similar data and intentionality would be required to double Black representation at the undergraduate level (for example from 3% to 6% over the next decade).

Recommendation #2: Develop alternative, gap-spanning admission and/or access pathways into U of T Engineering

A major delineation between equality and equity is based on what is considered fair treatment. Equality-based model of operations work on the premise that everyone should be treated and judged the same irrespective of their positionality and experiences within their home, community, society, etc. Equity-based models of operation acknowledge that social, cultural, identity and financial factors may impede or enhance one's perceived and/or real ability to perform/succeed/progress relative to another and that this must be accounted for within any decision-making process.

Admissions is typically perceived to operate within an equality framework. If you have two applicants, one has an 88% average and the other has a 90% average then, with all other factors considered equal, the 90% average should be viewed as "more deserving" of an admission spot. An equity model for admission would have a framework to assess potential barriers each applicant may have faced in attaining those grades and weigh that into the selection process. To some degree, U of T Engineering already applies an equity-based model to its admission process, acknowledging and accounting for the impact of high-level extracurricular activities, as well as flagging potential special cases.

As highlighted by the previous recommendation, the equitable and inclusive nature of the general admission pathway can and should always be reviewed for areas of enhancement. That said, there are cases in which the barriers that individuals have faced led to large gaps in their educational preparation for a future post-secondary education in Engineering or many university-based programs. These situational barriers often disproportionately impact groups who are typically underrepresented within University programs (such as Black and Indigenous students). Our University acknowledges and seeks to address the existence of these barriers and gaps in preparation that some individuals who wish to study at our institution have faced

via the existence of two current programs: the [Transitional Year Program \(TYP\)](#) and the [Millie Rotman Shime College Academic Bridging Program \(ABP\) within Woodsworth College](#).

The Transitional Year Program is an 8-month full-time program that provides prospective students with an opportunity to experience the university environment and services, has seven courses specific to TYP geared towards developing university experience and an academic skill-set, while also providing personalized guidance/support/counselling on the academic process and supplementary course/grade upgrading for science and mathematics (completed outside of the institution). At the end of the program, a graduating student can earn up to 2.5 transferable credits and be eligible for admission into the Faculty of Arts and Science. It is important to note that TYP explicitly encourages applications from traditionally marginalized communities and has historical emphasis on providing pathways for Black and Indigenous students.

The Millie Rotman Shime Academic Bridging Program, housed within Woodsworth College and the Faculty of Arts and Science (unlike TYP which operates independently), also provides university exposure, services and academic supports to prospective students. ABP offers six courses which students can take on a part-time (one course in an academic year) or full-time (four courses in an academic year) basis. Upon successful completion of one ABP course, a student will be eligible to start a Bachelor of Arts (BA) degree in the Faculty of Arts and Science the following year (either part-time or full-time) with up to 2.0 transferable credits.

Both programs provide potential access pathways for students who otherwise do not meet academic requirements for admission to the University of Toronto, allowing these students to enter into degree programs. These include (but are not limited to) prospective students who may:

- Have not completed any or the required senior high-school courses
- Have completed high-school but do not have competitive grades for traditional admission
- Be mature students who have been out of school for an extended period of time
- Be refugees

While the impact of these alternative pathway programs is impressive, they are limited in scope as they only provide a potential pathway into the Faculty of Arts and Science and with either major or exclusive emphasis on a BA. The pathway for these populations of students to gain access to any STEM program, let alone Engineering, via TYP or ABP is minimal to non-existent. However, conversations with administrators within both programs has revealed that there is interest in engineering among both TYP and ABP cohorts.

As a Faculty, we have placed great emphasis on the global scope and impact of engineering and engineering education. If the Faculty was to invest in the creation of alternative pathways for admission into a Bachelor of Applied Science (BASc) program, the potential long-term community level impact within disproportionately marginalized populations within the GTA and nation-wide could be profound. That said, the academic prerequisites (i.e. proficiency in academic stream equivalent high-school math, physics, chemistry and English) and the rigor of a typical engineering first-year program (30+ hours of instruction per week) make the formulation of such a transition or access program non-trivial. The Faculty **must** invest resources in the ideation, development, execution and maintenance of such a program. Some potential ideas could include:

1. Collaborating with the existing alternative pathway programs
 - a. TYP – TYP has a number of its own faculty members who are responsible for course delivery and providing academic support. These faculty members are often cross-appointed from departments in other Divisions. A new hire ISTEP faculty member could be cross-appointed with TYP and be responsible for the development, teaching and content that could assist in academic preparedness and perhaps offer an engineering design course equivalent. It would be difficult to do this within the 8 month structure of TYP, however a number of TYP students often spread the existing program over 2 years. A 2-year option could be leveraged to fit in additional programming.
 - b. ABP – ABP is already in the process of expanding its access pathways. ABP now has a diploma to degree program. Through partnership with three college

institutions (George Brown, Humber, Seneca) a college student could obtain up to 6 transfer credits from their 2-year college diploma towards their BA degree at U of T. Studies such as [the Black Experience Project](#) show that the percentage of non-Black populations in the GTA that have a university degree as the height of their educational attainment is double that of their Black counterparts (31% vs 15%). However, the percentage of the Black population with a college diploma as their terminal-level education is greater than non-Black populations (37% vs 27%). This suggests a greater Black representation within colleges and a potential pool for prospective students. Colleges such as [Seneca](#) and [George Brown](#) offer a number of Engineering Technician diplomas and advanced diplomas in a number of disciplines. Whether it be through ABP or via articulation agreements with these colleges, a collaborative effort between engaged faculty within specific departments, faculty at the partner colleges, and the accreditation board is needed to define potential college to university pathways that would enhance access to our Faculty. It is important to note that other top Canadian engineering Faculties such as in the University of British Columbia [have an established transfer program and bridging program to allow specific college graduates entry into UBC 2nd and even 3rd year engineering programs](#). Complement gap spanning programs or assessments to address areas of concern for college engineering transfers, such as math proficiency, would also have to be developed.

Additionally, the ABP is now developing a science stream that would allow successful candidates entry into Bachelor of Science degree programs. Again, the development of new, or utilization of existing, suites of gap-spanning classes in academic prerequisites plus an engineering design course equivalent could be integrated into this developing structure to allow for entry into Engineering.

2. Creating a new Faculty-housed alternative pathway program – Considering the unique structure and requirements of Engineering relative to most Arts and Science programs, the Faculty could develop its own transitional/alternative pathway into a BAsC program. One model could involve offering a combination of academic preparatory courses in key subject areas (e.g. math, physics, chemistry, English) with the 1st year engineering curriculum spread over two years. Such a model is utilized within the [University of Manitoba's Engineering Access Program \(ENGAP\)](#) which provides an alternative access pathway for Indigenous students to enrol into the second year of an engineering degree after the 2-year program. A combination of sessional instructors, faculty members and school board teachers teach the course material. The current Director of the ENGAP program has noted that the program has provided students who did not have grade 11 level courses in the natural sciences the ability to successfully graduate with an engineering degree. This highlights the impact of structured gap-spanning programming in addressing academic proficiency. While resources would be required to determine the operational logistics of such a programme, leveraging the flexibility offered by existing structures such as the [Faculty's T-program](#) could ease some implementation barriers.

Other forms of access programming may not provide a direct alternative admission pathway, however they still serve critical functions of exposing students to a university environment, tackling imposter syndrome, enriching the student learning experience, and building a bridge between students and future mutual consideration to post-secondary education at our (or any) university. The Faculty's new EngLIFE program is one such program that can continue to be developed and enhanced as it seeks to serve this function.

Recommendation #3: Develop a centralized peer mentorship initiative

[Studies](#) have shown that mentoring programs improve metrics of student success/inclusion such as GPA, retention, and reported satisfaction within universities. While there is value to having staff/faculty act as mentors to students, peer-to-peer mentorship as an avenue to

student success provides its own inherent advantages ([highlighted by this study](#)):

- Peer mentorships not only provides support to mentee students but it can also provide financial, cognitive, social and personal benefits to the peer mentor students
- As peers, their ability to leverage empathy to student situations and understand on-ground potential issues may be greater
- More cost-efficient than staff mentors
- Larger selection pool of potential mentors

Peer mentorship within our Faculty is currently student-driven. Our students do an astounding job through different departmental clubs, cultural/identity centric clubs and interest groups to provide an avenue for peer mentorship. However, one limitation of this structure is that this makes peer mentorship within FASE decentralized. Because there is no direct Faculty involvement or support in these peer mentorship initiatives, there is no mechanism for the Faculty to track the current state, number or impact of peer mentorship programs in the Faculty. Additionally, due to the common problem of student transition and turnover, the ability of student clubs to execute a consistent peer mentor program is often compromised. Finally, individual student group mentoring programs may not have (nor should be expected to have) the flexibility, resources or strict allegiance to the Faculty's Academic Plan to address gaps in student success and experience. This highlights the opportunity for the Faculty to create and help facilitate a centralized peer-to-peer mentorship program. Other Engineering Faculties in Ontario-based institutions have seen success in the implementation of such Faculty-driven peer-to-peer mentorship programs. Programs such as [Ryerson's First-Year Ambassador program](#) and [Guelph's Peer Helper program](#) provide peer support for students seeking guidance on issues from learning strategies, to course selection, how to reach out to instructors, and even ways to build community and friendships as a commuter or international student. The students who act as mentors in these programs are often intentionally selected to cover a diverse range of personalities, disciplines, ethnic/racial identities and interests to provide students a range of options to seek assistance based on their defined positionality and area of

emphasis within the Faculty. All of the Faculty's students, including our incoming and current Black student population, would benefit from an accessible and diverse resource that students could leverage for their success and enhance community building at the beginning of the academic year in September and beyond.

It is important to note that as this report is being drafted, a new centralized peer-to-peer initiative has recently been funded for development with its pilot year starting in September 2019. The Engineering Campus Experience Officer (Eng CEO) program, is a new centralized peer-to-peer mentorship initiative that seeks to provide support for students and address some of the gaps in existing mentorship opportunities, such as the lack of targeted mentoring for upper-year students and community building initiatives post-September. Also, to ensure the long-term viability of such initiatives, it is important that there is a dedicated staff member to provide logistical support and institutional permanence.

Recommendation #4: Create infrastructure to increase faculty engagement in Outreach

Several research based grants such as the [NSERC CREATE Program](#), the [Ontario Research Fund \(ORF\)](#) and the [Early Researcher Award \(ERA\)](#) have components in which having a defined relevant STEM outreach plan is a necessary requirement to be considered for funding. There is opportunity to leverage this increased need to develop outreach opportunities from primary investigators (PIs) for community engagement with traditionally underrepresented communities within our Faculty, including Black pre-collegiate students.

While some individual faculty members with outreach requirements reach out to the Director of the Outreach Office for potential collaboration, assistance and/or infrastructure for outreach programming, there is room to develop a more formalized structure for this process. The Office of the Vice-Dean, Research, the Office of the Vice-President, Research and the Engineering Student Outreach Office should collaborate to develop a framework and resource that all faculty members interested in or required to develop outreach programming can and should use. These faculty members could connect with the Engineering Student Outreach Office for assistance in leveraging potential funding and human resources from grant funding for ideation, proposal drafting and content creation of outreach initiatives. Such a formalized framework

could assist in guiding faculty-driven outreach to be in line with goals within the FASE academic plan including increasing engagement with and representation of specific traditionally underrepresented groups in the Faculty such as women, Black and Indigenous communities.

Recommendation #5: Increase access to financial aid and scholarships

As a first-entry degree, the tuition for an Engineering program is significantly higher than many other fields. For a domestic student, the undergraduate tuition for enrollment in U of T FASE is \$14,180 for the 2019-2020 academic year; compared to the \$6,100 cost for enrollment in U of T Faculty of Arts and Science Programs. This disparity may act as a barrier for those who may have otherwise considered Engineering as an educational pathway, particularly for racialized people [who have less disposable income than their white counterparts](#).

The Faculty currently offers avenues for financial aid through the [University of Toronto Financial Aid \(UTAPS\) program](#) and [Faculty Grants](#) to provide supplemental support for students struggling to cover educational costs with provincial loans alone. FASE should focus on facilitating targeted advertising of these already existing supports to populations traditionally underrepresented in Engineering.

Additionally, the Faculty should create more financial aid and scholarship opportunities that target the traditionally disenfranchised or underrepresented within STEM and post-secondary education. FASE already has identity-based admission scholarships that target Indigenous, mature and Polish students; hence the Faculty should focus similar efforts on the Black community. Such a targeted admission scholarship, whether developed internally or in collaboration with community/industry partners, would increase access for Black domestic students considering engineering.

Other institutions in the province have taken steps to be a leader in minimizing financial barriers to the traditionally underrepresented in post-secondary education. [Laurentian University has approved a new initiative](#) that would allow any youth who is or had been in extended society care (i.e. crown wards) to qualify for full tuition waiver. As [40.8% of children](#)

[in Ontario child welfare programs are of Afro-Canadian heritage](#), such programs could have a lasting impact on Black representation in the post-secondary space.

Prospective and Current Graduate Students

Recommendation #6: Develop targeted workshop series to promote graduate school and support current graduate students

Previously, the limited conversations on Black student access, representation and inclusivity within the Faculty tended to focus on the undergraduate student population. While work within this student population is still critically needed, it is also imperative to broaden the conversation to our prospective and current graduate student base. While the lack of disaggregated data makes it difficult to empirically prove, it is commonly perceived that the representation gap within our graduate programs is even starker than their undergraduate counterparts.

Student-run initiatives, such as [Black Researchers' Initiative to Empower \(BRITE\)](#), were established to address the limited Black representation in STEM and particularly within STEM research. Such groups have highlighted a major barrier to prospective graduate students who wish to enter a STEM graduate program at U of T is a "lack of information." They noted that many Black students have expressed that, due to limited representation in the space, prospective students lack the informal connections, mentors and resources in the space that other better represented student populations have within graduate school. This acts as a barrier to access and success that disproportionately impacts traditionally underrepresented students. Organizations such as BRITE seek to bridge this gap through a series of workshops and having mentors that address common areas of interest and concern such as:

- The variety and type of graduate school programmes and their value
- How to apply to graduate school
- How to reach out to and connect with potential supervisors
- How to plan for committee meetings

Such workshops and programs have had buy-in not only by Black undergraduate students at U of T who may be considering graduate school, but also by many students outside of U of T who are utilizing a budding U of T student group to learn about how best to access U of T graduate studies. This highlights the value of designing and delivering such workshops and the Faculty's Office of Graduate Studies should work in collaboration with student groups such as BRITE and NSBE U of T Chapter in order to provide both the information students desire and the support they may need as they consider the next step in their educational journey. Also, an integration of the mentorship role that BRITE members perform for current and prospective Black graduate students in STEM in any collaborative initiative would be key as many students continue to seek guidance on the value and pathways generated by graduate studies and how to navigate that journey.

Recommendation #7: Create targeted undergraduate research opportunities

Providing undergraduate research opportunities for students to expose them to a lab environment and the research process has been an established means within our Faculty to grow and foster future interest in graduate research. Utilization of departmental [NSERC Undergraduate Student Research Awards](#) and the First Year Office's Research Scholarships are examples of this. While these opportunities are great, target populations for these initiatives are typically those who are already interested in research. They are not usually advertised or leveraged as tools to engage those who may not have contemplated research-based work (for a variety of reasons) as a pathway to consider during their academic (and perhaps professional) future.

One of the BISC co-chairs has engaged members of NSBE U of T Chapter for a number of years and has noticed a general lack of consideration of graduate studies as a post-baccalaureate option. Of the small number who do consider graduate studies, the majority of those opt for the MEng option which is a professional (vs. research) based graduate degree. This may be in part due to the lack of targeted messaging highlighting the value of research and a lack of exposure to research groups. The creation and advertising of undergraduate research opportunities targeted for populations traditionally underrepresented in STEM research spaces

could over time serve to demystify the research community and practice and increase interest in pursuing research-based graduate programs.

Recommendation #8: Continue to develop targeted recruitment strategies

Recruitment is typically observed as an active process for our Faculty's undergraduate programs compared to our graduate programs. For example, the target group for the Faculty's Recruitment Office is primarily pre-collegiate students hoping to start an undergraduate program. Therefore the office's resources, budget and multiple staff members are leveraged towards recruiting this general population with the Director of the office reporting to the Vice-Dean, First-Year. Conversely, the Office of the Vice-Dean, Graduate Studies has no dedicated recruitment officer or office, limiting the number of graduate studies recruitment engagements our Faculty is involved in. While this imbalance in investment of recruitment resources and proactive efforts between the undergraduate and graduate levels could primarily be attributed to the disparity in direct revenue generation between the two program levels, other factors such as the required identified supervisor upon acceptance (for research-based graduate programs) may impact where and how graduate opportunities are advertised. This difference in how recruitment is positioned disproportionately impacts efforts to increase the presence of traditionally underrepresented communities in graduate studies.

Explicit efforts to build meaningful relationships with specific communities requires an intentionality and resources not typically associated with our graduate school recruitment. Black STEM graduate students have alluded to feeling that recruitment and access to opportunities for graduate student positions in labs is therefore heavily influenced by the representation within those spaces. Being able to speak to experience, knowing various supervisors and which labs have funding opportunities for students are all ways in which our current graduate students, research associates, etc., act as pseudo-recruitment resources for our graduate programs. However as the Black community is often underrepresented in these spaces, access to this "recruitment information" is limited.

If increased Black representation within our Graduate programs over time is a goal, more direct and targeted relationship building and recruitment efforts must be developed. The Vice-Dean,

Graduate Studies has already started this process by investing in graduate recruitment and student presence at the NSBE Fall Region 1 Conference. It is important to build upon these efforts, finding more opportunities within the GTA to engage the Black community, and be present in spaces or at events that celebrate and highlight Black excellence within STEM.

Prospective and Current Faculty

Recommendation #9: Intentional utilization of Provost Office diversity-driven initiatives

While a lack of proportional Black representation is a perceived issue at all levels of our Faculty, it is most concerning within our faculty population. Engineering has over 260 faculty members, and based on available information (such as the employment equity survey data), there is not one self-identified Black faculty member currently employed within the Division. Furthermore, it is commonly believed that there has been at most only one Black faculty member throughout the Engineering Faculty's 146 year history. This lack of representation within the highest academic positions of the Faculty is absolutely devastating and clearly emphasizes limitations in the Faculty's ability to highlight pathways to the professoriate for our existing Black undergraduate and doctoral alumni, as well as how FASE recruits its prospective faculty.

While the lack of Black faculty within Engineering is extreme, there is concern institution-wide about the limited number of Black and Indigenous faculty members throughout the various Divisions at U of T. In order to address this need for increased representation within the professoriate, the Office of the Provost has recently established two new initiatives: [the Provost's Postdoctorate Fellowship Program](#) and a New Faculty Funding Program. The Provost's Postdoctorate Fellowship Program provides funding to increase opportunities for hiring postdoctoral fellows from underrepresented groups, specifically Black and Indigenous researchers. The New Faculty Funding Program provides 50% funding of the salary of a new faculty hire if this new hire is a member of a priority target group (e.g., a member of the Black or Indigenous communities). These initiatives were created with the hope "to help the University compete with peer institutions for top-tier candidates, and to support the University in meeting its institutional goal of fostering increased diversity and representation at all levels

of teaching, learning and research.” Other Faculties within our university have made use of these initiatives but it is unclear if there has been any such buy-in by departments within our Faculty even though Chairs and Directors have been notified of these programs.

Acknowledgement and very intentional utilization of these Provostial opportunities is an important step in increasing Black representation within the professoriate and a message that should be reinforced by senior administration within the Faculty.

Recommendation #10: Broaden and reinforce emphasis on framework to facilitate diverse candidate pool formulation and consideration

The previous Dean, Cristina Amon, championed increased representation of women not only within the student population but within the professoriate of our Faculty. Over the last 14 years, the Faculty has [increased the percent of women Faculty members from 9.5% to 21.5%](#). While there is still much work to be done in terms of gender representation, this observed progress required an intentionality and defined strategies in the recruitment and hiring process for new faculty. These strides that Engineering made in increasing gender diversity within its professoriate in part informed a document drafted by the Office of the Vice-Provost, Faculty & Academic Life entitled: [“Strategies for Recruiting an Excellent & Diverse Faculty Complement: A guide for enhancing the diversity of applicant pools and minimizing the impact of unconscious bias in assessing candidates.”](#) This document highlights a number of strategies that if properly and intentionally implemented could facilitate the hiring of the first Black faculty members within the FASE community. Some of the identified strategies included:

- Considering diverse representation within search committees to minimize or counterbalance the impact of affinity bias
- Search committees formulating and discussing specific diversity goals and implementing strategies to increase representation - An important note made in the document was that while human rights law does prohibit one from setting required qualifications based on protected characteristics such as race, it does not forbid framing an advertisement in a way that would provide candidates with the option to self-identify

nor does it prevent an employer from considering information provided via self-identification as part of the strategy for increasing diversity within a department/unit.

- Formulating job ads that highlight interdisciplinary focus that may be more highly represented by faculty within specific populations; also emphasizing criteria such as contributions to diversity, or experience working with diverse populations
- Broadening and diversifying networks where job postings are advertised
- Defining and weighing selection criteria prior to application review
- Utilizing inclusion versus exclusion principles in making selection decisions; noting the presence/absence of underrepresented groups in the formed longlist/shortlist

While these strategies do exist on paper, a question that must be asked is how explicit are the efforts of departmental search and selection committees in implementing these strategies within the Faculty. If the lack of Black representation within the professoriate is truly a problem the Faculty wishes to address, utilization of these strategies, empowered by a clear mandate from the Dean and other senior administration, is key.

Recommendation #11: Define the means to value and incentivize EDI and mentoring work for faculty

A number of Black faculty members affiliated with other Divisions within our university have expressed that by being so sparsely represented within the professoriate, they often have disproportionate and unacknowledged additional workload in mentoring students, staff and junior faculty, providing support, and advocating for issues impacting these groups compared to their white counterparts. For many Black students, these faculty members are the “only professor like them” that they have seen or have access to which often means these students request more of the faculty member’s time for guidance and mentorship. For Black staff, tenured Black faculty members represent a group of individuals with job security and in positions of power within the institutional hierarchy who may be able to advocate for issues upon their behalf. For example, last year (2018) Black staff throughout the institution had reached out to Black faculty to address issues surrounding racialized women staff members in equity portfolios.

Via the [Workload Policy & Procedures](#) and the [Progress Through the Ranks \(PTR\)](#) processes, there is theoretically mechanisms for which faculty members' work in this realm could be acknowledged, accounted for and compensated. That said, there are questions on whether these mechanisms provide a pathway for such labour to be accounted for within a faculty member's service component of their work/contributions. One Black faculty member from another Division noted that they would never put identity-driven mentoring or support work on their PTR forms as they felt it would not get counted for merit pay or counted as contributed hours. As FASE seeks to further increase the diverse representation of its faculty, it is imperative that it clearly defines a means for work within an EDI and mentoring space; which racialized and underrepresented minority identities within the professoriate often disproportionately take-on. Whether work and engagement in this realm is intentional via their natural interest or unintentional but present by virtue of their identity and positionality in the space, it should be acknowledged and incoming faculty will feel empowered and supported by such acknowledgement.

Prospective and Current Staff

Recommendation #12: Develop avenues for formal mentorship

In consulting with a number of staff within FASE who self-identify as Black, one service that many staff expressed a limitation in was access to explicit avenues for formal mentorship. While informal mentorship has value, the presence of a formal mentorship program/structure supported and championed by the institution empowers potential mentors to offer particular advice and help potential mentees address challenges specific to the organization and their positionality. While access to such mentorship is beneficial to all staff, it is of particular value to those members of staff who may feel professionally isolated or impacted by the effects of habitus incongruence (feeling like "a fish out of water"). Staff would appreciate opportunities to both give and receive counsel from other Black U of T employees, who may appreciate the nuances of being Black at U of T, how that may or may not impact their work experience and with better insight on their context, how best to develop their careers.

Mentorship programs such as the [ODLC Rose Patten Leadership Program](#) do exist, but staff have highlighted their concern on the lack of definition on formed mentor/mentee pairings and pay band minimum requirement. The Faculty should consider the development of a Faculty-driven staff mentorship program, that enables individuals to sign-up as mentors, create a diverse mentor pool, then allow potential mentees to pair with a mentor based on reasons of their mutual choosing (identity, department, job position, etc.). Faculty support for the program could include empowering mentors/mentees to take 2-3 hrs a month for mentoring development. Considering the limited number of Black staff, there may be value in collaborating with Divisions such as the Faculty of Medicine for such a mentorship program.

Recommendation #13: Highlight opportunities for affinity group community building

Within industry, the concept of network/affinity/resource groups is a fairly common one. These groups allow individuals who either align or ally with a certain cause/characteristic to come together to build community, network and/or advise senior administration. The groups do not only provide staff with a resource for building a sense of belonging, connection and potentially means to influence policy, they can also help organizations continue to revamp their EDI vision, build connection with external communities and recruit new, diverse talent.

A BISC consultative meeting with Black Engineering staff members was also leveraged as a casual get-together to bring staff members who rarely interact with one another, providing an opportunity to connect. Several staff members noted how they enjoyed the opportunity to come together, to share their experiences (both positive and negative) and provide insight to the Faculty via the meeting. They also indicated that such a meeting is something that they would like to happen again independent of the function of BISC.

[Connections and Conversations](#) is an affinity group for racialized U of T staff and their supporters that has a St. George campus Chapter. However, a number of staff had unfortunately never heard of the group. Human Resources at a Faculty level could highlight this resource during the onboarding process of new staff. Connections and Conversations provides opportunities throughout the year for racialized staff to attend a number of networking, community building and professional development events. However, the focus group raised

concerns that staff and their managers may be unaware that if operationally feasible, attendance at these events **is** supported by the Faculty. It is recommended that this message is periodically shared with staff and managers (academic and non-academic) by U of T Human Resources, FASE HR, and the FASE office of Diversity, Inclusion and Professionalism.

Additionally, based on the shared sentiments raised by consulted staff, the Faculty could also formally provide the opportunity for FASE Black staff to meet once a semester to build community and if they so choose, provide the Faculty feedback based on their positionality within FASE.

It is also important to consider ways to acknowledge and engage the staff who, while not employed directly by the Faculty, service the Faculty on a continual basis (e.g. Facilities and Services staff) as these employees tend to be disproportionately racialized within the institution.

Recommendation #14: Improve access to secondment and professional development opportunities

Many staff members are interested in more and new opportunities for professional development and experiential learning. Black staff are no exception. While offices such as the [Organizational Development and Learning Centre \(ODLC\)](#) provide a centralized resource for areas of professional development, there were some raised concerns about the accessibility (based on scheduling) of some of these resources and their impact on career progression. Additionally, there seems to be a lack of clarity on what employment opportunities can also operate as secondments. HR should continue to highlight professional development pathways for career progression (either via the ODLC or its own programming) and clarify with all staff the means to gain access to secondments for professional development and experiential learning.

Other/General

Recommendation #15: Integrate broader EDI considerations into Alumni and Advancement office operations

The [FASE Office of Advancement, Alumni Relations](#) plays a critical role in engaging alumni and fund-raising for specific initiatives within the Faculty. Such community engagement and fund-raising infrastructure could be leveraged in order to further the EDI-based goals of the Faculty's Academic Plan including increased engagement and representation of the Black community.

For example, the Advancement office, via mechanisms such as [U of T Engineering Connect](#) and U of T Engineering Alumni Chapters, could intentionally and continually engage Black alumni with the goal of creating a Black alumni network. Such a network could be leveraged to highlight pathways to the professoriate and senior administration for Black alumni to return to their Alma Mater, to fundraise for targeted scholarships and initiatives, and to act as a conduit to engage the wider Black community within the GTA, nationally and internationally.

Recommendation #16: Develop and/or highlight more equitable and accessible modes of financial reimbursement and invoice generation

It has been noted by some members of BISC that aspects of the current modes of financial reimbursement and invoice generation are inequitable or obscure, warranting attention as they can act as a barrier for engagement. For example, as the target demographic of the EngLIFE program is Black highschool students, it was felt that elements such as motivational speakers and days of catered food that were integrated into the program should leverage Black businesses within the GTA. However, in order to accept an invoice for payment, the current system requires the business to have a registered business number. Not all identified parties of interest had a business number (as they were self-employed or a sole-proprietor), reducing the pool of potential businesses that one could engage. This could be problematic if the Faculty wishes to build a connection with the community via engaging Black small business owners.

The FASE Financial Office should make concerted efforts to review all financial reimbursement options, catalogue and advertise existing options that already seek to minimize reimbursement

or invoicing barriers (e.g. cash advances for casual employees for work expenses), and assess new potential mechanisms for reimbursement.

Recommendation #17: Offer and incentivize more equity and cultural competency training for staff/faculty

For many, training in cultural competency, unconscious bias and general EDI principles should be necessary during one's employment within an academic institution striving to be global and diverse in its talent and impact. The [Engineering Equity, Diversity, and Inclusion Action Group \(EEDIAG\)](#) has been doing great work over the past year offering opportunities for "Open Discussion" on EDI issues as well as a Teaching Inclusive Practice Series (TIPS) covering a number of topics, including impostor syndrome and creating inclusive classrooms. That said, there is still opportunity for the Faculty to further integrate training and EDI learning within its operational infrastructure. For new staff hires, a set training module on EDI principles during onboarding could be developed. Collaborating with central services such as [Centre for International Experience](#) to develop a cultural competency training module for new faculty would be useful, as these faculty members will now be engaging with a diverse cohort of students from a variety of communities and cultures from across Canada and internationally. Finally, there needs to be a serious discussion with senior administration and faculty council about a requirement of annual unconscious bias training prior to membership for any faculty search, hiring, promotion, PTR or standing committees. It is critical for members of these committees to appreciate how unconscious bias can impact decision-making and how such acknowledgement and subsequent training can go a long way in facilitating equitable practice.

Recommendation #18: Establish hard targets for representation at all Faculty levels

A common theme raised both within BISC discussions and with various consulted parties was the desire to see increased Black representation at all levels of the FASE infrastructure (undergraduate, graduate, staff, faculty). However, for any attempts at increasing representation to be meaningful, there must be clearly defined targets/goals that the Faculty consistently strives to attain through its initiatives and systemic changes. Over the next 3 to 4

months, it is critical for the Faculty to define its aspirational goals with regards to representation and how to assess its progress towards said goals.

There are different perspectives on how such goals should be characterized. One commonly defined goal is to strive toward representation reflective of the general population at all levels of the Faculty. However, there can be debates on how to define the benchmark. For some, U of T as a national level institution should aim to ensure that its diverse population is representative of the national distribution (Canada's population is 3.5% Black). Others, including several members of the BISC committee, believe that U of T and FASE should view itself as an institution woven into the fabric of the GTA community and should aspire to be reflective of the community in which it resides (GTA population is 8.5% Black).

In terms of assessing progress, it is important to further support and develop the collection of race-based data and set progressive targets over time. One potential comparative benchmark may be to model the progress made with gender representation within the Faculty in recent years. Over the last 5 years, there has been an increase of over 50% in the number of incoming female first-year students [from 25.5% in 2013-14 to 40.2% in 2017-18](#). Assuming (via previous first-year surveys) that the incoming first-year cohort is currently 3% Black, a similar trend would place the incoming first-year cohorts at 4.5% Black within the next 5 years. This could be considered the minimal baseline.

With regard to faculty diversity, over a decade period (2008 to 2018) the FASE professoriate went from 11.5% women (~20% representative of the general population) to 21.5% women (~40% representative of the general population). ***FASE should strive to increase from zero Black faculty members to 4 or 5 Black faculty members over the next 3 to 5 years, which would represent ~1.5% of the professoriate (~20% representative of the general GTA population or ~50% representative of the general national population).*** At the time of drafting this report, it is the understanding of the committee that the chemical engineering department has hired a new faculty member who self-identifies as Black to start January 2020.

Next Steps

The insight, perspective and information that the Black Inclusion Steering Committee was able to attain through its several consultations and discussions was invaluable. A number of these conversations highlighted elements of the frustration that some Black students, staff and faculty have with our institution. Other discussions highlighted some barriers in our current practice that limit the ability to see progress in representation and inclusivity. The message is clear: programmatic and systemic changes are required if we truly hope to see Black inclusivity within FASE at the level of excellence that as an institution we have always strived for.

While BISC will be formally dissolved upon the submission and review of this report, as a committee we believe it is of critical importance for the Faculty to heed the recommendations provided within this report and take actionable steps towards addressing them. The Associate Dean - Director, Diversity, Inclusivity and Professionalism and/or other key roles (both existing and new) within the Faculty should drive the implementation of these recommendations and track annual progress.

Appendix: University Programming to Improve Black Representation and Inclusivity - A Student Review

The following sub-report is a review of various university initiatives created with the intention of improving Black and racialized representation within Engineering programs. This sub-report was drafted by the BISC student research assistant, Chelsea John-Williams in order to provide a student perspective on existing and potential programming that FASE could leverage. Thank you Chelsea for your insight and work on behalf of BISC.

INTRODUCTION

The priorities of the 2017-2022 academic plan of the Faculty of Applied Science and Engineering (FASE) include, *“Inspire and influence education and learning in science, technology, engineering and math (STEM) for K-12, while enhancing the student experience for undergraduate and graduate students.”* and *“Emphasize diversity and cross-disciplinary strategic research themes when recruiting faculty and become a magnet for world-class talent.”* In keeping with this mandate, analysis was conducted on the programs that focus on outreach, recruitment and retention of Black or underrepresented minorities at some of the top 15 universities across North America. These programs span through many levels starting from those targeting K-12 to undergraduate, graduate and faculty members at the university itself. The programs chosen at each level targeted either specifically Black students or in general, underrepresented minorities.

Currently, there is a lack of structured engineering programming that targets self-identified Black students at U of T. Research into these programs, assessed by their limitations and benefits will be used as a launch pad for STEM programming at U of T with a focus on Black students at all levels of education. At earlier levels (K-12) the programming should act as a pipeline to encourage students to attend U of T thereby increasing the diversity and cultural perspectives within the engineering student population [2]. At the undergraduate level, the programming should act as structured support for students after they have been accepted into

FASE programs. Targeted graduate programming has the potential to act as a transition into professoriate and staff. They should be safe spaces geared towards **their** holistic success [1].

DISCUSSION AND DESCRIPTION OF FINDINGS

K-12 Programs

The eighteen K-12 programs in the table below represent those outreach programs with a focus on learning in STEM, while specifically targeting either Black students or underrepresented minorities.

Name of Program	School
Catalyst Academy	Cornell
FIRST Lego League (FLL)	Dalhousie
After School	Dalhousie
Virtual School Program	Dalhousie
College of Engineering Champions	Georgia Tech
MIT Online Science, Technology and Engineering Community	MIT
Minority Introduction to Engineering	MIT
Pre-College Math Institute	Stanford
Summer Math and Science Honours	Stanford
Science Mathematics Achievement and Research Training for Students (SMARTS)	UCLA
Summer Math and Science Honours	UCLA
MSP	UCLA
Summer College Engineering Exposure Program	University of Michigan

Thinkabit Lab	University of Michigan
U-M Detroit Area Pre-College Engineering Program (DAPCEP) Spring Programs	University of Michigan
My Introduction to Engineering (MITE)	University of Texas at Austin
Summer Engineering Workshops	Purdue
Ryerson University Now	Ryerson University

Most of the K-12 programs researched aim to address the most common issues of underrepresentation of Black students in STEM. They address access to the programming/education required to gain admission into top tier universities. They also aim to address the lack of interest in STEM education within these communities.

K-12 programs that target high school juniors and seniors tend to be residential ranging from 1 week to 6 weeks during the summer. The most common type of program focuses on educating students about the field of engineering and prepping them for courses they would take in their first year of undergraduate studies at the hosting university. The focus is also on exposure to campus via tours, building a peer network, and integrating students into the university's engineering culture. Although, programs of this nature already exist at the University of Toronto, ones that specifically target Black students, like ENGLife, are still in their infancy stages. Additionally, these programs have been seen to have a high retention rate. The Catalyst Academy at Cornell, which targets high school juniors and seniors reports that 90% of participants pursued engineering at Cornell or otherwise [4]. The MITES program at MIT, which targets high school seniors, found that 45% of participants attended MIT, 70.3% pursued a STEM education, 50% said their decision was influenced by the MITES program [5].

However, there are programs whose structure are unlike any pre-existing outreach program at U of T that are easily implementable. For example, the Imhotep Legacy Academy at Dalhousie University is a program that targets high school students at all levels. It utilizes Black students at

the university who act as mentors and tutors to students in this program. Participants study science, biology and math and are tutored both online and on campus. They also participate in workshops and other fun activities. This experience serves to build a community between Black STEM students at Dalhousie [6]. At the end of this program, participants have showed improved study habits, increased their participation in school and performed better in school overall. This program also gives students the opportunity to win scholarships to study science at Dalhousie.

Programs that target younger grade levels, provide more of a focus on science and math education, critical thinking and problem solving, rather than exposure to campus life and engineering culture. Some of these programs have the added aspect of partnering with a middle school or high school. The U of T Engineering ENGage program currently in place, encompasses all of the aforementioned benefits but could be taken a step further. For example, Stanford's Pre-college Math Institute places 6th, 7th and 8th grade minority students from a school in close proximity to the university into an intensive math program. This fosters a relationship between schools and the university. This would be critical to our mission as a relationship of this nature can act as a pathway to engineering undergraduate studies from schools in Toronto. This can also help to eliminate the idea that the University of Toronto is out of reach or unattainable to Black high school and middle school students in Toronto.

Undergraduate Programs

Listed in the table below are nineteen undergraduate engineering outreach programs for either Black students or underrepresented minorities, provided by some of the top universities in North America.

Name of Program	School
Summer Research Scholarships	Dalhousie
Program Research Assistant	Dalhousie
College of Engineering Champions	Georgia Tech

Engineering 180: Minority Engineering Seminar	Purdue
Engineering Academic Bootcamp	Purdue
Transition Foundations Program	Ryerson
Aboriginal Foundations Program	Ryerson
Additional Calculus for Engineers	Stanford
Summer Engineering Academy	Stanford
Summer Session Grants	Stanford
CS Scholars	UC Berkeley
Summer Bridge	UCLA
Orientation Course	UCLA
Academic Excellence Workshops	UCLA
All in Peer Mentoring Program	UMass Amherst
Accelerating Women And underRepresented Entrepreneurs (AWARE)	University of Illinois
MDOT Co-op Program	University of Michigan
M-Engin	University of Michigan
Michigan Louis-Stokes Alliance for Minority Participation	University of Michigan

Undergraduate programs that target underrepresented minorities are primarily focused on retention of students once they are admitted. In this case, it must be noted that although barriers to access to engineering programming are broken, these students must now navigate and thrive in a space where they are a visible minority. A 2016 study of doctoral and engineering students shines a light on the experiences of Black students in spaces such as these [3]. The study showed that Black students often harboured feelings of isolation, tokenism, or

“imposter syndrome.” All of these are commonplace where Black students are underrepresented within their school community. These feelings often lead to students not completing their studies, as they begin to “question their belongingness within their field” [3].

Therefore, it is clear that while focusing on recruitment, as K-12 programs tend to, it is equally as important to support these students throughout their academic career. Throughout the nineteen undergraduate programs researched, all of them provide transitional and academic support, peer mentorship, network and community building. Taking these factors into consideration, the Freshman Retention Programs under the Engineering Center for Excellence in Engineering and Diversity (CEED) at UCLA is an example of how these themes can be integrated into a successful program that spans an entire academic career. It begins with the two-week Summer Bridge Program, which exposes and prepares incoming freshmen to their academic workload. It also allows these students to start building a peer network before their first day of classes. Then in the first semester, all of the CEED students take the Freshman Orientation Course, which helps students with effective studying techniques and fosters a sense of community amongst these students. Additionally, in the first two years of study, CEED students attend Academic Excellence Workshops (AEW), which provides math and science tutoring through collaborative study groups. AEW is also available in upper year courses if students opt to attend. As a result, 76% of CEED students, on average, graduate from UCLA each year. Programs such as these are important for community building as “underrepresented students benefit from having spaces that are racially affirming where they are able to gather” [3].

However, these types of programs are catered to those students that gain admission through the typical route, after completing their post-secondary education. There are students who are unable to gain access to post-secondary education because of gaps in their secondary education or due to under-resourced high schools. These students should also be given the opportunity to be admitted into the engineering program once they have met the requirements. The University of Toronto already has a program similar to this, The Transitional Year Programme (TYP). TYP is an eight month program that gives adults without the traditional qualifications for university, the opportunity to gain university admission. However, this

programme does not act as a direct pipeline into the engineering faculty. Programming similar to TYP but catered to the engineering Faculty would be beneficial but should be taken a step further. The Ryerson University Now (RUN) Program could be viewed as an example. The courses are taught in high schools or community agencies and students can obtain course credits with the use of the libraries and other facilities. The courses are also taught by Ryerson faculty who teach degree students. A program such as this, which is situated within a community, can act as a channel between the University of Toronto and pre-collegiate schools and communities in the GTA, with the potential of increasing admissions of Black students.

Graduate Programs

The nine programs in the table below represent targeted graduate programming from top universities in North America.

Name of Program	School
Cornell Sloan Fellowship	Cornell
Cornell Engineering Colman Fellowship	Cornell
Access	MIT
Graduate Bridge Program	Purdue
Diversity Visitation Program	Purdue
Graduate Professional and Peer Advising	Stanford
BSN-BSC Mentorship Program	UC Berkeley
Accelerating Women And underRepresented Entrepreneurs (AWARE)	University of Illinois
Multicultural Engineering Recruitment for Graduate Education (MERGE)	University of Illinois

Graduate programs that target underrepresented minorities share common themes of retention and peer mentorship with the additional benefit of providing research opportunities. The most popular type of outreach to Black graduate students seems to be in the form of fellowships. The Cornell University Sloan Fellowship and the Engineering Fellowship provides minority graduate students with tuition, health insurance and a stipend. The application process is competitive and requires an essay about their experience as an underrepresented minority overcoming challenges to getting into graduate school. These fellowships are designed to enhance recruitment, enrollment, and retention of first generation college, underrepresented racial and ethnic minority students in doctoral and master's level programs.

Some universities offer research opportunities to minorities that are admitted into their graduate program. Participants in the Graduate Bridge Program at Purdue, are mentored by a former participant in the program and conduct research with a faculty mentor. This shares the same aim as undergraduate programs of this nature, as it focuses on retention and building a network between participants and faculty.

Access at MIT and the Diversity Visitation Program at Purdue are short 2 or 4 day seminars that target prospective underrepresented graduate students in STEM. Both programs expose their participants to possible career paths should they choose to complete a graduate education, provide information on graduate fellowships and network with fellow undergraduate students and faculty. It must be noted that the goal of Access, is to highlight the advantages of pursuing a graduate education, not at MIT specifically, while the Diversity Visitation Program is specific to Purdue. Since both of these programs cover all expenses (travel and accommodation) for their participants, the Diversity Visitation program offers a better potential return on investment. If a program of this nature were to be implemented at the University of Toronto, the Diversity Visitation Program would be a better fit. It should also be noted that while programs of this nature do not guarantee high recruitment, they show that the university recognizes the value of emphasizing inclusivity at all levels of education, not just undergraduate and K-12. This could go a long way in convincing Black undergraduate students that the University of Toronto offers a viable pathway to a graduate career.

Faculty Programs

Listed in the table below are 4 programs at some of the top North American universities for engineering with a focus on Black or underrepresented faculty support and recruitment.

Name of Program	School
GRIOT Employee Resource Group	Georgia Tech
Academic and Research Leadership Network	University of Illinois
NextProf	University of Michigan
Recruitment Inclusive Champions	Virginia Commonwealth University

The Faculty of Engineering currently has no Black faculty. Black representation amongst authority figures helps to decrease the feelings of imposter syndrome and isolation, because students would see someone successful that they can relate to. Of those programs assessed, the structure of NextProf at the University of Michigan, would most benefit the Faculty of Engineering. NextProf is a four day workshop that is held annually to focus on the recruitment of prospective faculty by targeting current doctoral students and postdoctoral trainees. It allows participants to interact with current faculty and make connections. A program like this can highlight the benefits of an academic career at the University of Toronto and encourage Black doctoral academics to join the Faculty of Engineering.

The Recruitment Inclusive Champions Program at the Virginia Commonwealth University offers EDI training as well as education on cognitive errors and implicit bias in the hiring process, promotion, and tenure decisions to high level faculty members in each department. The goal is for these faculty members to share the concepts they have learnt with respect to retention and recruitment with the rest of their department. With this program, Virginia Commonwealth University has had an increase in the number of diverse faculty, but also experienced an increase in attrition. This may have been due to too much emphasis on diversity but not enough

on inclusion. This would be beneficial in the Engineering Faculty as there are currently no Black faculty members. If search committee faculty members are EDI trained, this could lead to an increase in recruitment and retention of Black representation at the University of Toronto.

With respect to Black faculty inclusion and retention, the GRIOT Employee Resource Group at Georgia Tech, provides a good example of this. Similar to student groups like the Black Students' Association (BSA) and the West Indian Students' Association (WISA), GRIOT provides a safe space for employees who self-identify as Black, African, or West Indian to host faculty events, discuss matters of interest to African heritage staff, faculty and their allies. An organization like GRIOT goes a long way to promote inclusivity and provide support, community and resources to Black faculty and staff on campus.

RECOMMENDATIONS

Based on these 50 programs from 15 different universities across North America, I would put forward these recommendations for the Faculty to consider.

1. Programming that partners with primary and secondary schools with a predominantly Black population within the GTA to foster and build a relationship with the Faculty of Applied Science and Engineering at the University of Toronto.
2. Utilize current Black undergraduate/ graduate students in the engineering program to act as ambassadors and mentors to participants in K-12 and undergraduate outreach programs.
3. Collect data on the retention rate of Black students that participate in targeted programming.
4. Programs that target Black undergrads should provide support throughout their entire academic career to facilitate community building and academic success. It should not be limited to the summer before their freshman year, or even their first semester at the university.
5. Similar to the Woodsworth Academic Bridge Program and TYP, there should also be programming that caters to those students that do not take the traditional route to engineering.
6. Not only should there be a focus on recruitment and retention of Black students but also with faculty and staff, in order to increase Black representation within the broader faculty community.

7. Design and deliver workshops that target prospective Black students and faculty specifically and showcase the benefits of completing graduate studies or teaching at the University of Toronto.

CONCLUSION

The introduction of targeted programming for Black students at every level has a multitude of impacts on not only prospective Black U of T students but those already enrolled. K-12 programs can provide pipelines from secondary schools not only internationally, but from the GTA to U of T. From undergraduate to faculty, these programs can offer support throughout their academic years and therefore promote retention, whether it be through mentorships, tutoring or providing safe spaces. These outreach programs which focus on themes of recruitment, retention and inclusion have the potential to take the FASE, and by extension the university, one step closer to becoming more diverse and enhancing the university experience at the undergraduate, graduate and faculty levels.

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