

Increasing Black Diversity in ECE: 2020 Summary

This document is a response by Electrical and Computer Engineering to information requested by the Graduate Society of Black Engineers and Scientists (GSBES) of the Department of Electrical Engineering and Computer Science. The response by Computer Science and Engineering is [found here](#).

As stated in our open letter to the community, [EECS Stands Against Racism](#), and reaffirmed in the article, [ECE Stands with Black Lives Matter](#), we recognize the continuing role of systemic anti-Black racism in America, and are actively striving to reduce racial inequalities. We realize that more work needs to be done and are committed to that action.

This document provides answers to specific questions directed to the Department by GSBES in 2020. The complete letter from GSBES can be found [here](#).

GSBES: The EECS Department recruits from a set of schools that implicitly ignores many talented black students.

Programs such as UM-PUMP (a College of Engineering initiative run by the Office of Student Affairs) and the EMERGE Weekend frequently target only the “peer institutions” of the University of Michigan. This fixation on “peer institutions” implicitly screens out many talented students that might be from HBCUs or smaller teaching-oriented colleges and universities.

ECE: Student Recruiting

ECE does not participate in college activities (such as UM-PUMP or EMERGE) and instead conducts its own recruiting and programming. Indeed our main focus in recruiting talented black students has not been on peer institutions. A list of venues and schools we’ve visited in the last few years is given below; we are working to establish partnerships with many schools on this list.

We have also been working to build a sustaining pipeline through the following activities:

Recruiting at Professional Society and Other Conventions:

Big Ten Expo
Society of Women Engineers - Graduate Fair
Tau Beta Pi Graduate School Fair
SHPE Convention - Graduate School Fair
NSBE Convention - Graduate School Fair
Region IV NSBE Conference
National Society of Black Physicists Annual Meeting

Recruiting at School Career Fairs:

Rose-Hulman Graduate School Fair
Illinois Graduate and Professional School Fair
Atlanta University Center Consortium (AUCC) Graduate, Professional and Engineering Fair
University Arizona Graduate School Fair

Recruiting at area schools:

Morehouse
Clark Atlanta
Rose-Hulman Institute of Technology
Bucknell University
Milwaukee School of Engineering
Lafayette College
Kettering University
Valparaiso University
Swarthmore College
Bradley University
Purdue University--Northwest
Miami University--Oxford
Ohio Northern University
Pennsylvania State University--Erie, The Behrend College
University of St. Thomas
Notre Dame
Purdue
Ohio State University
Michigan State University

Outreach:

ECE's summer camp, known as Electrify, is open to all students, but we have made a concerted effort to have a diverse group of high school students. One year, thanks to a special donation, we were able to bring in a full cohort of students from a high school in Detroit. In 2019, Electrify held its first Detroit Tech Camp at the Michigan Engineering

Zone. It is our hope that many students that attend Electrify will become an ECE undergraduate student.

In addition, we are beginning to visit middle schools in Detroit to get them excited about a future career in engineering. We have also brought teachers to campus to expose them to ECE at Michigan.

Other Recruiting Efforts

We have developed relationships with the Atlanta University Center Consortium and Prairie View A&M University.

We also participate in the Recruit at Home Program, where Michigan students return to their alma mater to recruit for Michigan.

These efforts notwithstanding, we recognize that there remains a lot more that we can do, including:

1. Adding more schools and conventions to the list, such as University of Maryland, Baltimore County (where M-STEM originated).
2. Involving more ECE faculty in recruiting efforts so that we can cover a larger number of schools.
3. Engaging to a greater degree our current black students, especially among the leadership of GSBES, in recruiting efforts, such as inviting them to visit their UG institutions. However, we also need to be cognizant of the additional demands this would place on our black students.
4. Improving our efforts to retain our own black UG students for graduate studies. We will work to find out the main barrier(s) to programs such as SUGS and 3.4.

These efforts may take years to bear fruit, so we need to ensure sustained engagement and investment. ECE is fully committed to this.

GSBES: During recruitment events, the College of Engineering prevents black students from seeing that there is a thriving community of black students that would embrace them on campus.

At the most recent EMERGE Weekend, an outright invitation from GSBES to the black students in the program could not be made due to the recent Title IX threats of a UM-Flint Professor. GSBES missing out on such meetings can lead visiting students to believe that there is not a thriving black community on campus. This absence of such a community may lead them to believe that they will find it harder to gain the social capital which will make them thrive in the College of Engineering and at Michigan.

ECE:

We agree that this turn of events has been most unfortunate. To provide a bit more context, the same litigation and others similar to this one, using both Title IX and MI Proposition 2 have thrown roadblocks to a number of other initiatives and events over the past couple of years. For instance, ECE cancelled its annual “Female faculty and student mixer” in Fall 2019 due to concern over such lawsuits, and a few of our student groups’ legitimacy, such as the “women in ECE” student group, was under question. Obviously the legal issues are ongoing, so there remains a lack of clear and definitive guidelines on this. Nonetheless, what appears to be a workable model (it may still be contested in court but likely harder to argue against) is to open up these events and group membership to all students, not just those of the key constituent demographics, while making it clear who is sponsoring the events.

In other words, and in the context raised here, what we are recommending is for GSBES to issue an invitation to ALL students visiting on EMERGE weekend, and welcome whoever accepts the invitation; make it clear the invitation is coming from GSBES so there is no ambiguity of the existence of a thriving black community here on campus. (Certainly ECE is following this principle in rethinking its DEI events.) Hopefully visiting black students will take us up on the opportunity, as might some other non-black students genuinely interested in the black community here.

GSBES: The EECS Department is lacking in black faculty members

Improving representation in the department also includes the roles held by leaders in the department. One certain approach is providing support to faculty and staff that have shown to be effective in helping black undergraduate and graduate students. The second is adding talented black professors to the department who will also inspire black graduate students during visits to the university, and contribute to a welcoming environment for them. We believe there are certain initiatives that EECS can undergo to positively impact this point.

ECE:

We completely agree on this observation and will continue to work hard to improve diversity among our faculty. We have supported faculty who are effective in this activity by offering them staff support and supporting special programs initiated by these faculty, such as the Willie Hobbs Moore Distinguished Alumni Lecture. This Lecture is given by ECE alumni from traditionally underrepresented groups in Electrical and Computer Engineering who are leaders in their field and serve as role models for the ECE community through their leadership, impact on society, service to the community, or other contributions.

Michigan Law and Reporting

The next section provides a variety of data related to recruiting of black students and faculty. It is important to keep in mind that we are limited in what we can know about diversity numbers by current law. In 2006, Michigan voters passed Proposal 2, which

bans Michigan schools from using race in college admissions. It was known as the Michigan Civil Rights Initiative. Therefore, all data about race is self-reported, meaning only partially accurate. For example, on average, only 14-17% of applicants to the ECE graduate program chose to disclose their race during the past five years.

GSBES: The number of self-identified black students who have applied to the EECS Master's or PhD programs.

ECE: The following table includes additional information:

Academic Year	Master's (#applied/#offer)	PhD (#applied/#offer)	Overall Masters (#applied/#offer)	Overall PhD (#applied/#offer)
AY2016**	3/2	3/1	1261/537	868/109
AY2017	4/3	9/1	1474/610	999/130
AY2018	10/3	13/4	1497/597	854/190
AY2019	1/1	4/0	1327/647	837/108
AY2020	2/1	7/2	1456/670	862/106
AY2021*	3/2	5/1	1636/881	715/83

* Note that one student applied to both Master's and PhD programs.

** Also note that AY begins the prior fall, so AY20 starts Fall 2019.

GSBES: The number of self-identified black students who have received an offer from EECS Master's or PhD programs.

ECE: Please see the previous table.

GSBES: The home universities of all self-identified black applicants, those who received an offer, and those who were admitted.

ECE: Numbers are shown as #applications if 0 admits, and #applications/#admits/#enrolled if there is an admit.

Institutions	AY15-16	AY16-17	AY17-18	AY18-19	AY19-20	AY20-21
Texas A&M	1/1/1	1	1			
UW Milwaukee	1					
New York Inst Tech	1			1		
UC Berkeley	1		1			
Univ Michigan	2/2/1		2/1/1			1/1/1
Univ Arkansas Fayetteville		1				
Prairie View A&M		1	2			
Suffolk Univ		1/1/0				
NC Agric Tech St U		1				
UMBC		1/1/1				
Univ Missouri Kansas City		1/1/0	1/1/0			
Univ Cheikh Anta Diop Dakar		1				
Kettering		1	1			
Cornell		2				
Wayne State		1				
MIT		1/1/0				
Mercer Univ Macon			1/1/0			
Milwaukee Sch			1			

Engineering						
Florida State			1/1/1			
UMCP			1			
Univ Delaware			1			
Ohio State			1			
Yale			1/1/0			
UMASS			1			
Univ Georgia Athens			1/1/0			
UIUC			1			
USC			1			
Penn State			1			
Wash State			1			
Kennesaw State			1/1/1			
Norfolk State				1		
UCSC				1/1/0		
Univ. Akron				1		
Rochester Inst Tech					1	
Morgan State					1/1/0	
Univ Mississippi					1/1/1	
UT San Antonio					1/1/0	
Univ South Florida					1	
Georgia Inst Tech					1	
Univ Florida					1	
NC State					1	
Rose Hulman Inst						1/1/0

Univ Miami						1/1
Univ Mich Dearborn						1/1/1
Northwestern Univ						1/1/0
Univ Louisiana Lafayette						1/1/0
Howard						1

GSBES: A list of universities that were visited for recruitment efforts.

ECE: See above

GSBES: The number of self-identified black students who matriculate into the EECS Master's or PhD programs.

ECE:

Academic Year	Master's	PhD
AY2012		2
AY2013		1
AY2014	1	
AY2015		
AY2016	2	
AY2017	1	
AY2018	1	2
AY2019		
AY2020		1

GSBES: The completion rate of each cohort by year.

ECE: Numbers presented as #completed/#remaining program

Academic Year	Master's	PhD
AY2012		2/0
AY2013		0/1
AY2014	1/0	
AY2015		
AY2016	2/0	
AY2017	1/0	

GSBES: The post-graduation outcomes from the black students who complete the program.

ECE:

Pursuing further Education - 1 (1 MS)

Employed - 5 (3 MS / 2 PhD)

- Engineer at Ford Motor Company
- Engineer at Johns Hopkins University
- Scientist at Omni Sciences
- Analog Engineer at Intel
- Field Application Engineer at Freescale Semiconductor

All others who matriculated have yet to graduate.

In a subsequent meeting, representatives from GSBES asked additional questions, such as how our black graduates fare in the workplace, how many remain in the profession they were trained in, and how many leave altogether, etc. We have some of this data as it is tracked through the Rackham Surveys and Engineering Career Resource Center, but in fact, only a small percentage of alumni actually respond to these surveys. At this point, ECE has not attempted to track down and interview all known Black alumni to get the answers to these questions.

GSBES: The task of analyzing and presenting this data to the department normally falls upon graduate students like the ones in GSBES, but we believe that this burden leads to inconsistent

evaluation and improvement of the department. For this reason, our last recommendation for graduate students is to define a new role in the EECS administration whose purpose(s) are:

- To prepare the annual report using the data mentioned above.
- To prepare a set of interventions that the department plans to implement in order to positively impact the metrics.

ECE: We agree with the data collection request. As shown above, such data is available in the system, and we do have staff members tracking this data. We agree to prepare an annual report with this data, as well as the list of recruiting activities we conducted; we will also track the yield from such activities.

GSBES: We would request EECS to do the following:

- For every open faculty member position that becomes available, a reasonable effort must be made to interview at least one minority or person of color.
- For each invited interviewee their qualifications and background as well as the criteria of the role must be documented, justifying their interview offer.

ECE:

We make every effort to ensure a diverse interview pool. Here we share with GSBES details of our faculty search process. This is a multi-step and lengthy process. Faculty positions are advertised beginning in August/September, and applications are accepted with a suggested deadline of sometime between November and December, although the application site does not close till the positions are filled.

ECE typically conducts its faculty search in specific research areas and there are usually very few positions open each year (anywhere between 1-3 positions). Faculty within these search areas go through applications and propose candidates for more serious considerations. This often leads to a “long shortlist” of candidates, including 10-12 candidates. Faculty then continue the discussion to reduce it to a shortlist of 3-5 candidates per open slot for on-campus interviews.

This list of proposed interview candidates is submitted to the ECE Search committee for deliberation and approval, using the [ECE interview request form](#). This is a form ECE has been using for at least the past 7-8 years. As can be seen, each research area proposing candidates for interview must (1) carefully document the diversity in the pool, the diversity of a much smaller shortlist of candidates, and the diversity among the final list of interview candidates, and (2) carefully argue why each candidate is being proposed for an interview, their qualifications and fit for the position.

This request form is carefully discussed by the ECE Search committee. This is a committee appointed by the ECE Chair each year, typically consisting of 5-7 faculty members representing various research areas. Each faculty serving on the search

committee has to have recently gone through the UM STRIDE faculty recruiting training workshop before they are allowed to serve on this committee. We recognize that the evaluation of a candidate's potential is a matter judgment subject to bias, which is why we participate in STRIDE training; STRIDE training is specifically tailored to mitigating the effects of implicit bias.

Once approved by the Search Committee, the same request is then submitted to the ECE Executive Committee for discussion and approval. This is a committee with five elected members of ECE plus the ECE Chair. Candidates approved by the ECE Executive Committee are then invited for on-campus interviews. Each faculty is encouraged to fill out a pre-interview evaluation as well as a post-interview evaluation. Faculty are also encouraged to participate in the interviews through attending their seminars, meeting with candidates one-on-one, attending their roundtable talks, joining them for meals and other meetings, etc.

On the written post-interview evaluation form, we ask faculty to (1) indicate how well they know the candidate (read their CV, read their scholarship, attended seminar, met with the candidate, etc.), (2) rate the candidate on their potential for scholarly impact, research productivity, research funding, collaboration, fit with department's priorities, ability to contribute to departmental climate, and potential to attract and supervise graduate students, (3) provide an overall area fit rating, (4) provide an overall rating on the strength of candidate, (5) comment on the candidate's scholarship, (6) comment on the candidate's teaching ability, and (7) provide additional comments.

The research area usually leads the discussion on rank-ordering the candidates after all interviews are concluded and on proposing the final candidate for making an offer to; this is then submitted to the Search committee for approval, and then to the Executive committee for consideration and approval. The typical outcome of this process is a final candidate that ECE submits to the College Engineering for approval of making an offer.

What ECE submits to the College is a complete casebook, which includes what the candidate originally submitted during the application process (cover letter, CV, statement of research, statement of teaching, statement of diversity, a set of reference letters, and a set of sample publications), as well as material ECE solicits separately for the candidate if this is a senior hire (additional, independent reference letters, teaching evaluations, internal faculty recommendations, student evaluations).

As part of the casebook, the ECE Chair also submits to the College a request memo that outlines the following aspects of the offer request: (1) Background and Summary, (2) Attributes of the Candidate, (3) Justification: Strategic Plan and Anticipated Impact, (4) Faculty members who might collaborate with the candidate, (5) Teaching ability, (6) Space and startup needs, (7) Potential in contribution to DEI, and (8) Conclusion. This is usually a very substantial 5-8 page document that outlines the qualifications and fit of

the candidate, and not in the least about the candidate’s potential in contributing to ECE’s DEI missions.

Throughout the above process, in each step more material may be requested to support a candidate; occasionally decisions may be reversed. Each step is accompanied by very detailed documentation. While a candidate’s CV is usually public, other parts of an application are generally not. Moving forward we will be happy to work with GSBES to determine how we might be able to share more specific information beyond rough statistics (as shown below).

Fiscal Year	Total Faculty Applicants that disclosed race-ethnicity/Total Faculty Applicants	Black Applicants*	Black Applicants Interviewed
2016	117/296	4	1
2017	37/267		
2018	56/250	1	
2019	25/243		
2020	54/235	1	

*As noted above for student recruiting, this number comes from self-identified individuals only. In addition, while the College of Engineering requests this information as soon as they apply, the department does not get any reported data until the year ends.

GSBES: For the proposed actions we’ve stated above, we request a report be compiled and made publicly available **every June 1st** so these actions items can be revisited.

ECE: Yes, we will do that.

GSBES: We request the EECS chairs to meet with GSBES (and other faculty members) within **21 day(s)** to discuss these proposals. Following, we request a formal response addressing the entire EECS department regarding the stated issues.

ECE: The meeting was held.