Intentional Inclusion:
Promoting Diversity in Graduate Study of Music Technology

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Abstract

A lack of diversity among faculty and students in graduate programs that focus on music technology and computer music may unwittingly discourage participation by certain segments of the population, and thus may hinder the development of a potentially wide variety of ideas and aesthetics. Graduate student numbers of women and minorities in the field are proportionally low. In the absence of any concerted plan of action to diversify such programs, this state of affairs is not likely to change. What can be done to increase diversity among people succeeding in the academic fields of music technology, in the interest of hybrid vigor and social justice? By pursuing a conscientious policy of intentional inclusivity, some progress may be made toward rectifying imbalances, thus enhancing diversity of scholarship and creative work. This article makes an assessment of demographic imbalances and proposes some concrete steps faculty may be able to take toward improvement.

Why Diversity?

There is no inherent biological reason why academic programs in music technology should be overwhelmingly dominated by, or notably lacking in, any particular demographic of gender or ethnicity. There are cultural and political reasons, to be sure, and there are various possible ways of addressing them. In this article, we will discuss some of those reasons, and we will recount some of the activities we have undertaken to address the issue of diversity in the graduate program in Music at the University of California, Irvine (UCI).

Does diversity matter? Should one be concerned by a lack of diversity among a particular population such as university faculty or graduate students? To us, the answer is clear, but we recognize that there are differing views on this fundamental question. We posit as true that diversity of scholarship, diversity of experiences, diversity of values, and by extension diversity of population are desirable goals in any academic environment. We will not expend many paragraphs debating that truism, as we feel such a debate exceeds the scope of this article, and it is not our goal to resolve that debate here, nor to convince others to agree with us. But we will devote a few words to explaining why we consider diversity in academia to be important.

We believe the single best reason to promote diversity, independent of a concern for social justice, is the principle of heterosis, also known as “hybrid vigor”. In biology this refers to improved variety and robustness of offspring due to diverse genetic contributions of the parents. That improved variety and robustness makes the offspring more adaptable and better able to survive in the face of unpredictable and unforeseen circumstances. Conversely, inbreeding generally leads to excessive homogeneity and eventual reduction in healthy variation.

In the areas of scholarship and creativity, diversity of intellectual input stands to lead to more vigorous and healthier interaction of ideas, resulting in greater variety and robustness of output and better preparing the offspring (the students) who will eventually become parents (faculty) to be adaptable to the unpredictable and unforeseen cultural, economic, and academic environment. Nothing is more deadly to the development of new ideas than a roomful of like-minded people reinforcing—even ossifying—each other's established assumptions. Dialog among a heterogeneous group of people with different backgrounds, experiences, and viewpoints tends to challenge established, conventional assumptions that may exist in an homogenous group of scholars or artists. The quest for intellectual hybrid vigor can often be uncomfortable—requiring faculty to welcome the presence of ideas and beliefs that conflict with their own—and it may run counter to what seems most natural and comfortable, which is to populate your world, insofar as possible, with people who are like you and think as you do. Yet we believe that it is this very variety, in some cases even this very discomfort, that leads to a healthier and more diverse array of ideas, be they in scholarship or in art.

Often a group is formed by a common interest, and the demographics and concerns of the people who hold that common interest will not always be representative of the general population. Is that problematic, or simply a reasonable and inevitable fact of life? It probably goes without saying that if an organization exists explicitly because of a distinguishing inherent characteristic of its membership, its membership is by definition oriented toward a specific demographic subset of the general population.[1] However, the nation's educational institutions are based upon departments—fields of study—that ostensibly have no organizational bias for or against any group of people, and they should therefore be expected to be bastions of equal opportunity. There is nothing inherent in music technology as a field of study that should favor or disfavor participation by any particular demographic. Thus, if gross disproportions are evident in the faculty and student populations in that field, we should rightly question why such disproportion exists, and we should endeavor to rectify egregious imbalances in the interest of inclusivity, equal opportunity, and scholarly/artistic hybrid vigor.[2]

Recruiting is Complicated

The plaint "We just don't get the applicants!" is often uttered by graduate admissions committees and faculty search committees when confronting a lack of diversity in their applicant pool. It's true that it's hard to diversify the faculty or the graduate student body when there's a dearth of qualified women and underrepresented minority (URM) applicants in the pool. But that complaint doesn't end the conversation, it begins it. One may ask oneself why there is insufficient diversity in a pool of applicants. Here we'll point to four possible causes, and will suggest beginning steps toward addressing them.

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[1] The National Society of Black Engineers, for example, has the stated focus of "working toward eliminating disparities in education and achievement in engineering." (http://www.nsbe.org) One would scarcely be surprised by, or find fault with, the fact that the organization's membership is disproportionately weighted toward African-Americans relative to their percentage in the general population.

[2] "[D]ifference must be not merely tolerated, but seen as a fund of necessary polarities between which our creativity can spark like a dialectic." (Lorde, 1983)

The Pipeline Problem

The problem doesn't start at graduate school. From an early age, girls (and often Black and Latino boys) are subtly and not-so-subtly steered away from mathematical, scientific, and technical topics, and also away from building and engineering ("tinkering") pursuits.[3] Undergraduate programs in music technology and computer music often focus primarily on the technical aspects of the field much more than on aesthetic and humanistic study, thus tending to exclude participation by those less versed in or less interested in technology, who have already been pre-filtered by stereotyping and by the primary and secondary education systems. A shortage of female and URM mentors and role models in these fields, at every stage of the education system but especially at the post-secondary level, further reinforces the message to young women and minority students that these fields are not intended for them.

It's therefore no wonder that a great many students have been filtered out of the field entirely by the graduate school level, and indeed generally even by undergraduate school. The filtering starts almost from birth, continues at all levels of education, and culminates in the academic job market. The detriment of this "cascade of filters" effect in the field of computer music has been bemoaned for decades, and "consequently, those few females that pass through the series of filters, escape only to find that their signal strength has been attenuated by 3 dBs."[4] Or, to use a related metaphor, the pipeline through which potential women and minority applicants may get to graduate programs is constricted at many stages along the way, allowing only a trickle to reach the destination.

What you can do: It may seem that, at the graduate school level, it's too late to address the pipeline problem, and in some ways that's true; you can't change someone's past. However, women and minority professionals who are successful almost invariably cite the importance of their mentors and role models, especially ones in whom they could see their future self, i.e., ones who looked like them. By taking steps yourself to mentor women and minority graduate students, helping them to become professors, mentors, and role models for the next generation of students, you make a valuable contribution to that cycle simply by doing your job. It is also possible to leverage your institutional position, and the infrastructure and services that your institution provides, to offer educational outreach service to younger students, as we will discuss later.

Implicit Bias[5]

Traditionally, white males have held an overwhelming majority of academic faculty positions in the United States. In recent years, disproportions of gender and race have narrowed considerably but they still exist, especially at the upper tenured ranks and at "prestigious" Tier I research institutions.[6] This faculty dominance is even greater in technical fields such as

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[3] e.g. (Bayer, 2010)

[4] (Simoni, 1995)

[5] A website of information resources on the topic of implicit bias, compiled by author Dobrian, exists at http://music.arts.uci.edu/dobrian/advance/equityadvisor/implicitbiasreferences.htm

[6] As of fall 2013, the ratio of males to females among all fulltime faculty at all post-secondary institutions nationwide was approximately 21:20, which can be traced as a vast and steady improvement from a 7:2 ratio in the late 1950s. However, among full professor ranks nationwide the male:female ratio in 2013 was 7:3. (NCES, 2016) At Stanford University as of fall 2016 the entire faculty was 73% male, well above the 51% nationwide figure, and only 2% African-American. (Stanford, 2017) At the authors' home institution,

computer science and engineering, and in the music subdisciplines of composition and computer music. Thus, "white" and "male" are still indubitably the implicit archetypes of the norm for a professor or graduate student in these fields, and their interests and aesthetics thus form a standard to which all others are routinely compared.

Multiple studies[7] have shown a statistical discrepancy in the terminology used to describe different categories of applicants in professional letters of reference. Males are more commonly praised for their creativity and accomplishments, while women are more commonly cited for effort and potential. Males receive a significantly greater proportion of superlative descriptors, with women's descriptors being less enthusiastically complimentary. For example, a male applicant may be referred to as "a brilliant emerging scholar" whereas a female applicant is termed a "bright young woman". In this example, clearly "brilliant" is a stronger luminary characteristic than "bright", "emerging" is more energetic and promising and less diminutive than "young", and "scholar" is a term of respect and accomplishment whereas "woman" is gendered and is still non-normative with respect to the existing (unbalanced) statistics of academia. These sorts of differences in terminology, which can occur unintentionally even in letters written by very well-meaning recommenders, may subtly influence you as an evaluator on an admissions committee or a job search committee. Knowing that such implicit biases exist can help you to recognize them when you encounter them.

What you can do: Implicit bias is, by definition, based on assumptions and unconscious cognitive processes, which is precisely what makes it difficult to avoid. Acknowledging that it exists is the first step, and being on the lookout for it in ourselves and in others actually helps recognize it and correct it. Monitor yourself to ensure that you're treating students equitably in terms of grading, support, references, and opportunities. As an evaluator on an admissions committee or a job search committee, give yourself adequate time to consider all applications fully and fairly; implicit bias tends to take over when one is in a hurry. Take some time to inform yourself about the ways implicit biases are known to influence professors' actions in academia.

The Myth of Objective Excellence

We all hope to fill our graduate programs with excellent students. It's important to remember that "excellent" is a qualitative adjective, and as such its precise definition is subjective, susceptible to a person's implicit and explicit biases and preferences. In addition, excellence is often a composite of multiple qualities, and it is relative to the goal(s) one seeks to achieve. As an evaluator, question whether your goal is to find people who most resemble you, or people who will add breadth to your program because of their differences. Those differences may at times prove challenging, but that very challenge can yield greater strength. For students and faculty alike, being in a situation where one has to explain one's ideas—even defend them when need be—requires considering those beliefs more deeply, ultimately leading to more sophisticated understanding. A mind that is open to confronting differing ideas is likely to grow by incorporating new viewpoints, whereas an environment in which one's ideas are never challenged fosters (possibly unjustified) complacency.

Some people hold the implicit or explicit belief that excellence and diversity are incompatible objectives, that achieving a diverse student body necessarily implies compromising quality. While we feel strongly that that belief is misguided, we are aware of some of the assumptions or

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University of California, Irvine, the male:female ratio among tenure-line faculty in fall 2014 was 2:1 (of whom 2% were African-American), and among full professors it was 3:1. (UCI, 2015).

[7] e.g. (Madera, 2009), (Trix, 2003)

experiences that can lead to that belief. For example, an unsophisticated effort to achieve diversity at any cost can potentially lead to making poor admissions decisions, giving too much weight to diversity in one's considerations while overlooking mitigating factors or giving short shrift to other important considerations. Admitting a student only because s/he helps to achieve statistical balance of gender or race potentially sets that student up for failure if s/he lacks proper qualifications to survive in a program. Furthermore, such erroneous efforts to enforce statistical diversity can have the unwanted effect of discrediting affirmative action, thus reinforcing the all-too-oft-held stereotype that women and minority students are "only there because of affirmative action" and must therefore be inferior in quality. This can in turn create a vicious circle whereby implicit or explicit biases take over and lead to the belief that diversity is incompatible with excellence. At the same time, though, it's important to remember that everyone has deficiencies, and those deficiencies are precisely what education seeks to remedy. Evaluators should consider which of a student's deficiencies can be remedied within the program, as one of the criteria for deciding on an applicant's suitability.

Not only are the criteria of excellence open to subjective evaluation, the criteria themselves can and do vary from one program to another. However, ideally the criteria themselves, the considerations that will be used to evaluate applicants, should not vary from one evaluator to another. The criteria should be thoroughly discussed among the admissions committee, even if each evaluator might weight the criteria subjectively. As we have pointed out, diversity of viewpoints, experiences, aesthetics, styles, and values all add hybrid vigor to a program. For that reason, it's clear that what a person brings to the program, in terms of breadth of inquiry and uniqueness of voice, should be an important criterion for determining excellence of fit.

What you can do: Members of admissions committees, and indeed entire departments, should carefully discuss and define their programmatic goals. Once the goals have been established, specific criteria of evaluation should be established and used to guide evaluators in their determinations of what makes an applicant an excellent fit for the program. Diversity can, and we believe should, be included as a component consideration in evaluating how a candidate will contribute to the goals of the program.

Lack of Focused Recruiting

Federal law prohibits public universities from establishing specific numerical quotas for admissions based solely on race.[8] However, federal affirmative action regulations do allow race and gender to be used among other factors for consideration in achieving an institution's educational goals, including the goals of equal opportunity and diversity. Universities may decide to consider such characteristics as "income level, first generation to attend college, neighborhood or community circumstances, disadvantages overcome, low-performing secondary school attended, and the impact of an applicant's background and experiences on academic achievement. Selection for scholarships or employment may include consideration of factors such as ability to contribute to a diverse educational or working environment and/or potential for leadership in increasing equitable access to higher education."[9] In order to achieve the desired diversity and equity of opportunity, race and gender—along with class and other criteria—can, and we believe should, be important considerations for an admissions committee.

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[8] The U.S. Supreme Court decision *Regents of the University of California v. Bakke*, 438 U.S. 265 (1978) held that the strict numerical quotas based solely on race violated the Equal Protection Clause of the Fourteenth Amendment and Title VI of the Civil Rights Act of 1964.

[9] (Office of the General Counsel, 2015)

Recruiting efforts can be targeted to reach particular groups, provided that the same opportunities are not withheld from other groups.

What you can do: In publicity materials devoted to graduate student recruitment, choices of wording can have an encouraging or discouraging effect on certain readers. When composing such texts, the authors should carefully consider which aspects of their program will be encouraging and inviting for a diverse range of students. Admissions goals should be thoughtfully discussed, and recruitment materials should be targeted toward achieving those goals. If a program is unable to present itself in a way that encourages a full range of prospective students, its faculty should question and evaluate whether that program is adequately addressing the institutional goals and the population it's dedicated to serve.

Students want to attend programs where they find resonance and compatibility with the aesthetic and stylistic orientations of the faculty. Therefore, in addition to producing targeted recruiting materials, faculty should make an effort to give presentations and performances at undergraduate schools that have a diverse student population, including women's colleges and historically black colleges and universities, and should engage invitingly with students there.

Institutional Support for Diversity

In the Music Department at UCI, in an effort to create a unique and forward-looking graduate program, we devised an MFA emphasis—now a PhD program—in Integrated Composition, Improvisation, and Technology (ICIT) instead of more conventionally designed separate emphases in Composition, Technology, and Jazz. One of the main goals of the new program is to focus on hybrid music making as it's occurring today, and to diversify the range of musics studied. It was our hope that this program would attract students who were looking for something different from most graduate programs in composition or computer music, and our hope was largely fulfilled. In our well-intentioned efforts to make a program that explores a broader range of musical styles and genres, however, we neglected to consider that the three focal topics we chose for the program—composition, [jazz and free] improvisation, and technology—are three very male-dominated ones. As a result, the new ICIT program has had the same gender imbalance in its pool of applicants as we saw in the more traditional composition, technology, and jazz emphases. In the interest of equal opportunity and hybrid vigor, the faculty in ICIT at UCI strive for diversity of ideas and experiences among the faculty and the graduate student body. For that reason, we have taken steps to address the issue of diversity in our program.

It doesn't happen by itself. One has to make an intentional effort to effect change. If one has the time and inclination to do that, how should one get started? We will describe some of our experiences and lessons learned.

Support for Diversity at UC Irvine

Most colleges and universities have at least one established office expressly dealing with inclusion and diversity. Such an office can provide like-minded colleagues, a structure of policies and practices, and programs that might be of assistance to faculty looking to improve diversity in their programs. In some cases, the office may have funding available to support its goals.

In 2001 the National Science Foundation implemented a funding program called ADVANCE to increase the participation and advancement of women in academic science and engineering careers.[10] UC Irvine was one of the funded institutions, and it founded the UCI ADVANCE Program for Equity and Diversity, the primary function of which is to promote inclusivity and equity among faculty. As an extension of its ADVANCE program, UCI applied for and received a FIPSE grant to start a comparable program for its graduate students, called DECADE (Diverse Educational Community and Doctoral Experience). The DECADE program has now become an integral part of the UCI ADVANCE program.

The author (Dobrian) volunteered for the pro bono service task of DECADE faculty mentor for the Music Department. A benefit of assuming the position of DECADE mentor is that it qualifies the faculty member to apply for special funding to employ graduate students in support of "activities that improve recruitment, climate, academic progress and career success for a diverse student population in Ph.D or M.F.A programs." This has the double benefit of promoting pro-diversity activities and paying graduate students to do so. In 2012 Dobrian applied for and received a grant to pay graduate students to support an international ICIT Symposium: *New Directions in Graduate Music Programs*.

Lessons learned: Look for sources of pro-diversity funding. Situate yourself to apply for that funding. Devise a programmatic idea that fits with—or can successfully be expressed as fitting with—the funding criteria.

Serving as a DECADE faculty mentor gave Dobrian the experience needed to propose another successful grant idea to his successor. In direct response to the perceived dearth of female applicants in ICIT, Dobrian first polled the current graduate students in ICIT to gauge their interest in applying for DECADE funding to, in effect, pay themselves to undertake a pro-diversity activity the following year. The students immediately responded favorably, both to the idea of the activity and the idea of making more money themselves. So Dobrian organized a brainstorming and grant writing (and beer drinking) session in his home, where the graduate students (including author Jones) prepared a grant idea and wrote up the proposal to be submitted by the current DECADE mentor. This proposal, which was successful, was to host an ICIT Symposium on *New Expressions: Women in Music Technology*.

Lessons learned: Even if you're not yourself in a position to apply for funding, you can inspire others to do so and/or can pass the completed application on to them to submit on your behalf. You don't have to do all the work yourself; involve your graduate students. Your actions and enthusiasm are educational models for your students. The students themselves are usually already aware of diversity issues and welcome the opportunity to have a positive influence. Involving them in planning, grant-writing, organizing, and running proactive programs gives them valuable experience, a greater sense of investment in the institution, and a sense of accomplishment and making a difference.

Example of a Diversity Activity: The ICIT Symposium on Women in Music Technology

Universities and departments have significant infrastructures in place which can be leveraged in support of new ventures. In this particular case, the UCI Music Department already has suitable venues, its electronic music studios have a substantial collection of support equipment, and the university's information technology office provides website hosting. For purposes of soliciting funding, all of those can be listed as "in-kind" support, showing the department's and the

[10] https://www.nsf.gov/crssprgm/advance/

institution's commitment to the venture. Getting even a very small commitment of funding from people with limited discretionary funds—such as department chairs and school deans—shows that an influential team, rather than an individual, supports the venture. For the DECADE diversity award proposal, small commitments from chair and dean, along with in-kind funding estimates, showed existing support, which contributed to the application's success. The grant funded the student labor to organize and run the symposium on Women in Music Technology, but there are many other costs in running such an event, including publicity, curation of submissions, venue and equipment rental, hospitality and food, and honoraria for keynote speakers. Once we had received the DECADE grant, we were able to approach other granting organizations and funding sources for the additional support needed, and were able to say, "We're almost there, if only you'll help us get the rest of the way there." The well-defined symposium plan, and the show of support from administrators and other campus agencies, enabled us to obtain an ADVANCE program Inclusive Excellence "Spirit" Award to pay for travel, lodging, and honoraria for our proposed keynote speakers.

Lessons learned: Funding helps beget funding. In our experience, there is a snowball effect that begins with a show of commitment. A small commitment from local administrators, combined with a show of in-kind support, led to successful receipt of the initial grant, which in turn led to success in the next grant application, and so on. There is good will among many people in universities to support diversity initiatives. Showing them that they will be part of a determined team encourages them to participate.

The ultimate goal of the DECADE grant project was to improve gender equity in the ICIT program. The underlying strategy was to increase the number of female applicants to the program, thus increasing the likelihood of accepting more female students. The ICIT symposium *New Expressions: Women in Music Technology* provided an interesting and unusual academic event and enriched the artistic and intellectual activities of UC Irvine; at the same time, it served to make a public statement that we in the ICIT program are concerned with the role and the work of women in the field and we welcome them in our program. It was our hope that establishing this reputation would lead to an improved female:male ratio in the applicant pool and the matriculating students of ICIT in future years. These events, focusing on a particular underrepresented group, served to improve the diversity of ideas and works circulating in the program, and simultaneously made a statement about their importance.

Lessons learned: Ideally there should be no incompatibility between a program's activities and its recruiting goals. Demonstrating that a program treats minority groups' interests intentionally and seriously serves to create a welcoming environment for those students, and is, in its own right, good publicity for recruiting diverse membership.

Considerations and Challenges of Hosting a Diversity Event

We intended that the symposium should not focus on the work of a few well known historical "elder stateswomen" of electronic music,[11] and instead would focus primarily on newer musical

[11] It was our view that the women whose work is commonly cited in music technology courses, such as Bebe Barron, Pauline Oliveros, Maryanne Amacher, and Wendy Carlos, while certainly noteworthy for the quality and innovation of their work, are representative of an earlier generation of electronic musicians. As such, their work has already received considerable attention in academia. For the purpose of this symposium and its goals, we decided to emphasize the work of currently active musicians and newer artistic practices, on the premise that such work would be deemed more relevant by those women who would potentially be interested in the ICIT PhD program.

expressions by women currently active in the field, and would amplify the work of emerging innovative artists whose aesthetics may even lie outside of the academic mainstream. Thus, the title of the symposium and the wording of the call for proposals[12] were carefully considered to emphasize contemporary work. The title's prefix "New Expressions" evokes current work and aesthetics. The wording in the call for proposals alludes to "today's generation", "innovative approaches", and "the current and future female leaders in this field." We were careful not to exclude anyone on the basis of age, and the age range of the symposium participants was very broad, yet it skewed toward younger women. There was an interesting range of non-traditional forms such as technology-backed singer-songwriter, performance art, and DJing, and inclusion of unusual technologies ranging from modern wearable interfaces to amplified balloons.

Lessons learned: The wording of a call for proposals—or a job advertisement, or description of a graduate program—is by no means neutral and should not be composed *pro forma*. Instead, any document that is an invitation for participation should be carefully considered in order to optimally attract the full range of potential applicants. Words carry both denotation and connotation, and might have (possibly unintended) encouraging or discouraging effects.

Diversity of aesthetics, age, race, location of residence, institutional affiliation, and status within the field were considered in calling for submissions and selecting among them. The call was intentionally worded openly to encourage a wide range of styles, although we recognized that a call for submissions to a conference hosted by an academic institution already implicitly welcomes some people more than others. While the symposium focused on women in music technology, there was certainly no suggestion that men were not welcome as participants. The call was distributed via professional organizations, listservs, the coordinators' email contacts, Facebook, Twitter, and word of mouth. We did not ask for information regarding proposers' gender, age, or race; we were only able to discern this information when artists mentioned it in their bios or the descriptions of their work.

As soon as we sent out the call for participation in the symposium, one respondent immediately pointed out to us that, because of women's underrepresentation in academic computer music programs, most women who would choose to participate in such a symposium might lack the institutional funding support that often permits academics to travel to conferences and festivals. This points to the role of economic class as an important factor inhibiting diversity. At times it can be difficult to distinguish whether economic status or other traits are the primary causal factor in a lack of diversity, because differences of gender and race are so often concurrent with differences in economic class. Acknowledging this point that financial incapability to attend the symposium might suppress attendance, we therefore quickly decided that we needed to institute an *ad hoc* need-based fellowship program to provide travel stipends to symposium participants.

As a solution to this problem, we planned to solicit music technology companies for donations to such a fellowship account. However, that plan was never carried out due to lack of time. Faced with the problem of having no money to offer as stipends, three faculty members offered to seed the account using their own research funds. In view of that show of commitment, the dean of the school chipped in with an even larger contribution, allowing us to offer very modest scholarships to many of the symposium's visiting artists and presenters. We were ultimately able to offer small scholarships ranging from $100 to $500 to non-faculty participants who were coming from outside of southern California. These stipends were not sufficient to pay anyone's full travel expenses, but several artists told us that they would not have been able to attend without them, so clearly the financial support was a necessary component in our attempt to invite non-

[12] http://music.arts.uci.edu/icit/symposium16proposals/

academic participants. We did offer a stipend to one faculty presenter who, as an adjunct lecturer, had no access to institutional funding of her own.

Lessons learned: Financial insecurity is a factor that inhibits diversity. Those who have access to institutional funding are statistically more commonly white and male. To help overcome this barrier to diversity, one must account for it in planning the budget, in order to provide need-based support. Here again, a show of concerted commitment by the organizers themselves can inspire others to lend their support. Even a small contribution or a show of in-kind assistance is appreciated, and may beget additional funding.

The curatorial committee we formed to select from among the submissions initially consisted of two professors and two graduate students, of whom two were women and two were men—two people of color and two white people. The overall symposium planning crew of nine included five women and three men—four people of color and five white. Within a couple of months, however, four of the five women had dropped out of planning the symposium. Three of the four women cited family obligations: responsibilities of parenthood or caring for an ailing family member. Women are most often the primary providers of household and familial care in addition to carrying out their academic responsibilities, so situations forcing them to choose between the two are not unusual. It's noteworthy that this double responsibility is more commonly borne by women than by men. That fact leads to women being perceived in academia as "objectively" less productive within their department—whether it be at the level of faculty or graduate student—a perception that can hinder their career advancement as a professor or student. As a result of these obligatory absences, our curatorial committee then consisted of just three people: two men and one woman, two students and one professor, two white people and one person of color.

Success in curating a diverse range of artists or presenters for a festival or conference depends in large measure on the composition of the curatorial committee. It's important to strive for well-balanced representation of gender and ethnicity on the committee, and it's especially crucial to have representation of the diversity of viewpoints the review seeks to promote. A lack of such diversity among the decision makers, in any situation involving selection, hiring, or admissions, is a primary reason why a *status quo* of inequity prevails. In our own diminished and imbalanced curatorial team, one of the remaining men expressed his discomfort with the idea of selecting participants on any basis other than "blind meritocracy." When a member of a selection committee takes on the responsibility to—and believes in her/his own capability to—adjudicate merit blindly and objectively, that is another instance of the myth of objective excellence discussed earlier. Curators are not experts in "objective excellence." Their expertise must be viewed as subjective—which is to say influenced by stated or unstated criteria—and their qualitative evaluation should be applied in service of selecting the best body of work to serve the stated purpose of the event. Having a theme or an agenda is not perforce at odds with excellence; it's often advisable to select a person because their inclusion will lend greater diversity. That decision requires that diversity itself—diversity of ideas, styles, viewpoints, and experiences—must be valued for its own qualities.

Lessons learned: Intentional diversification of a curatorial committee is important in order to achieve a variety of selections. Achieving such diversity has its challenges, not least because underrepresented faculty and students are, by definition, in short supply, and may therefore be more often pressed into service on committees in order to represent diversity. For all committee members, the goals of the event, and the criteria for achieving those goals, should be well established in order to provide stable guidelines for selectivity.

We received 68 submissions from almost as many cities in the U.S., Canada, Germany, and the Netherlands. We selected two creators of installation work, eight lecturers, and ten composers or performers to attend and present their work. We included several presenters who spoke about the challenges of being women of color working with music technology; we included several presenters without academic training in music; we included women and a man who are parents with children at home; we included artists who work in multiple media and a variety of styles. We chose to reject several women professors with prominent reputations in favor of less established participants. Unsurprisingly, a majority of the applicants and selected presenters were white women with academic degrees and no children.

A post-symposium survey sent to all participants inviting commentary and criticism unfortunately yielded only a few responses. The responses were uniformly positive, but we feel we lack sufficient data to make a reliable assessment of success from any perspective other than our own observations. Anecdotally, during the symposium, attendees frequently verbally expressed their appreciation to us for hosting such an event, and recounted their enjoyment at being around other women with similar experiences and concerns.

Lessons learned: Both inside and outside of academia, women with and without formal music training are composing and performing interesting and novel news works of computer music, and are producing scholarship, providing teaching, and generating new ideas. There are relatively few fora, particularly in university music technology programs, in which they are invited to present their work. University faculty can deliberately decide to promote underrepresented music and ideas, and the sense of community provided by focused events encourages those underrepresented musicians.

Outreach

Providing a Forum for Diversity in the Field

At UC Irvine, author Dobrian founded and produces the Gassmann Electronic Music Series,[13] an annual season of concerts, lectures, panels, and workshops focusing on music and computers. The series is now in its twentieth season.[14] It was originally founded in order to contribute to the scholarly and musical activity of the campus in the field of music technology, and as a form of community outreach to engage the public in the innovative technological research and creative work of the School of the Arts and the Music Department.

Because of the overwhelming predominance of white males in the field of computer music, an insufficiently scrupulous curation of the Gassmann Series could easily have consistently produced an homogenous set of guests, which would have reinforced the stereotype of exclusivity and established that reputation for the program. In order to counteract that tendency, instead of inviting mainly people who are already securely ensconced figures in the academic computer music establishment, the series is curated with intentional inclusion in mind.

The graduate program at UCI strategically decided to emphasize realtime interactive use of computer technology in live performance. The Gassmann Series therefore focuses on musicians and researchers who specialize in interactive computer music and the combination of

[13] http://music.arts.uci.edu/dobrian/gemseries/

[14] http://music.arts.uci.edu/dobrian/gemseries/gemseries16-17.htm

instrumental and computer performance. Another curatorial goal is to provide as much stylistic diversity as possible. This combination of criteria and objectives has, over the years, oriented the series toward a fairly diverse list of guest artists. Additionally, a concerted effort has always been made to emphasize race and gender diversity as a strong consideration in the programming of the series.

Lessons learned: Once again, such diversity doesn't happen by itself; in this field the gravitational pull toward homogeneity is strong. Promoting diversity in the field of computer music requires research to learn of excellent artists who are outside of the mainstream and outside of one's own personal circle of acquaintance, and it requires dedication to diversity of experience as a value in its own right. Through this attitude of intentional inclusion, the series has become a forum for promoting diversity and for showing some different faces of music technology.

Addressing the Pipeline Problem

University faculty who are teaching in a graduate program in music technology are invariably extremely busy with the demands of their job: composing and/or conducting research, running computer music facilities, mentoring student creative and research projects, staying abreast of new developments in a rapidly changing field, and teaching. Even if one has the will to try to ameliorate the pipeline problem discussed earlier, the prospect of taking on new work to do so is discouraging. Reaching younger students requires extra outreach effort.

We recommend leveraging the existing resources of your institution to provide new educational opportunities for younger students. Most colleges and university campuses already have extension programs designed to provide classes, workshops, and special events for unenrolled students. Undergraduate recruiting offices have extensive information on how to reach students and faculty in secondary schools, and how to direct one's efforts toward students in underrepresented populations. Campus outreach programs often exist as well, with the mission to address the pipeline problem explicitly. While these offices might not be focused on graduate programs and may be unaware of music technology, we recommend meeting and brainstorming with leaders of these programs to think of useful outreach efforts, ways—both financial and practical—that their office can support those efforts, and ways that they might employ your graduate students in activities designed to interest and educate youth, especially young women and minority students.

At UCI, the Gassmann Electronic Music Studio and the ICIT graduate program collaborate with the Arts Outreach Office to organize "Saturday Academy" sessions in Digital Music Production, targeted at girls and underprivileged youth. The Outreach staff members take charge of publicity and recruiting by contacting teachers and youth organizations throughout the region, and they provide a stipend for some graduate students of ICIT to lead the sessions. The Gassmann Studio director provides equipment and facilities as an in-kind contribution, advises and coordinates with the Outreach office, and supervises the graduate students' lesson planning.

The Saturday Academy sessions are scheduled to coincide with events of the electronic music series that feature relevant artists. The academy students are invited to attend those events, and those artists are invited to interact with the academy students at the Saturday sessions. The topics of the sessions are chosen so as to coordinate productively with the specialization of the visiting artist and the research interests of the ICIT graduate students, and also so as to attractive to young students. In 2016-2017 the Saturday Academy sessions focused on "Playing Music with Gestures" featuring guest artist Pamela Z, "Making Beats" featuring guest artist Val-

Inc., and “Instruments and Computers” coinciding with premiere performances of new works by ICIT students in the Gassmann Series concert “Chamber Music Meets Technology” by the Now Hear Ensemble. Each session was co-taught by two students of the ICIT PhD program.

Lessons learned: This outreach effort has proven to be an unequivocal win-win undertaking. The Music Department— the ICIT graduate program specifically—serves the goals of the Arts Outreach Office, and vice versa. The ICIT graduate students receive extra employment and teaching experience, high school and middle school students who might otherwise not have a specific reason to come to the university campus have a fun, inspirational, and educational experience, a small step is made toward chipping away at the pipeline problem, and a good time is genuinely had by all who are involved. We hope that these efforts, showing concerted and energetic outreach by the ICIT program, will also contribute to the program’s reputation for promoting diversity, and may be used to inspire institutional and donor funding for similar efforts in the future.

Targeting and reaching girls and underrepresented/underprivileged students is not easy. That’s why it’s important to seek the support and resources of all the offices on campus that are in some way experienced with and devoted to that task. Our program solicited participation by local groups such as Save Our Youth[15] and Girls, Inc.,[16] as well as by local chapters of national organizations such as the Girl Scouts of America.[17] One can also learn a great deal about such outreach by discussing it with the leaders of successful programs such as those, and especially with leaders of programs specifically devoted to early technology training such as Made with Code,[18] Black Girls Code,[19] and Code.org,[20] and music technology organizations such as Women’s Audio Mission[21] and TECHNE.[22] If an organization is relatively unaware of music technology, it may be necessary to devise a program in a way that inclusively addresses their stated goals, and to demonstrate to them how your outreach event is relevant and helpful to those goals. If your outreach doesn’t meet their needs, ask them to suggest ways that *they* think your program could tailor outreach efforts to be relevant to their constituent youth.

Lessons learned: University campus offices and not-for-profit organizations are already in place to help with the development of outreach, youth education, opportunity enhancement, and mentoring. Engage with and learn from those organizations. Graduate students are usually eager colleagues in outreach efforts, they gain valuable experience through their participation, and they learn from the mentorship efforts modeled by faculty.

[15] http://save-our-youth.org/

[16] http://www.girlsinc-oc.org/

[17] https://www.girlscouts.org/

[18] https://www.madewithcode.com/

[19] http://www.blackgirlscode.com/

[20] https://code.org/

[21] http://www.womensaudiomission.org/

[22] https://technesound.org/

Conclusions

- There is a general deficiency of diversity in graduate music technology programs in the U.S.
- Greater diversity is desirable in the interest of social justice and hybrid vigor of ideas.
- Diversity won't happen automatically. Steps to promote intentional inclusion are necessary.
- Faculty who desire greater diversity in their programs must take action themselves.
- Intentionally include, i.e. actively recruit, diverse faculty with diverse ideas.
- Role models are important for recruiting a diverse graduate student body.
- Deliberately strive for diversity and balance among your invited scholars and artists.
- Actively recruit women and underrepresented minority graduate students.
- Lack of funding often hinders women and minorities from participating fully in academia.
- Scholarships and fellowships targeted for achieving diversity help underprivileged students.
- Welcome and encourage diverse backgrounds, styles, and aesthetics, with targeted outreach.
- "Excellence" is not an objective term. It should be based on agreed-upon criteria.
- Include breadth of experiences and ideas as a valued criterion in hiring and admissions.
- Beware of implicit biases favoring academic mainstream ideas, styles, and aesthetics.
- Beware of implicit biases assuming stereotypical characteristics in people of certain groups.
- Bear in mind that letters of recommendation may carry implicit biases.
- Partner with, and seek funding from, campus agencies that exist to promote diversity and a welcoming climate for women and minorities, in order to further those goals in your program.
- Diversity efforts usually cost money. Therefore, faculty must…
- Devise diversity-promoting activities that coincide with available grant opportunities.
- Leverage the backing of sympathetic supporters of your cause to gain further support.
- Women and minorities are often omitted from certain valuable educational opportunities.
- The lack of opportunities at various stages constricts the "pipeline" to graduate programs.
- Leverage the infrastructure and personnel of your campus to address the pipeline problem at other levels, in whatever way is most appropriate for your interests and capabilities.
- Seek guidance from organizations that are experienced in youth outreach and are focused on the pipeline problem.
- Involve current graduate students in the effort.

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