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Statement of Promoting Diversity

-- Danny Dig --

Dear Faculty Search Committee,

"It's easy to pick the 'best and brightest' who look like us, act like us, and learn like us. The challenge is to identify the students who are even brighter and better than us, but don't look like us, act like us, or learn like us". [Mark Guzdial, CACM Vol. 52(12)]

I am pro-actively looking for opportunities to broaden the diversity of my group and of our undergrad and grad programs. As a Jazz musician, I know very well that creativity comes from cultivating diversity.

Past Accomplishments

I have a strong track record for involving minorities and other under-represented groups. Since I have been supervising my own group of students, I worked with **four racial-minority students, six females, and one student with a physical disability**. I continue to broaden the diversity of my group, and tap into the pool of different resources like the McNair Scholars Program offered through the Office for Minority Students.

I also readily involve undergrads in my research. To date I have involved **22 undergrads as researchers**, and I have published with 16 of them. I inspired 9 of them to continue their education through graduate school.

I am **proactive and intentional on creating an inclusive classroom** environment. I use several of the evidence-based resources from NCWIT. In my classes I show each individual student that I care about their success and I encourage them to grow. When I give them feedback I emphasize an **incremental view of intelligence**: that it takes some time for most people to acquire the skills, but practicing with this will make them better [NCWIT 2013 – Talk About Stereotype Threat]. I also give students data that lets them *accurately* assess how they are doing (instead of incorrectly assuming they are worse than other people) [NCWIT 2008 – How do Stereotype Threats affect retention?]. As I use clickers to ask several questions each lecture, I immediately show the results so that they can see when many other students are struggling with understanding difficult concepts. In my classes I **deemphasize threatened social identities**, for example by not pointing out someone's gender as in "good job young lady". Moreover, during lectures I use in-class group activities; these opportunities for cooperation **increase feelings of belonging** to the "crowd" [NCWIT-2014]. When I ask questions (before and during class), I learn their names so that I can make a more personal connection with them throughout the term.

I will describe below a few activities I led to increase participation of minorities and females in CS, beyond my own group, or my classrooms. In 2014, I organized **Inspirations@OOSPLA**. This event was collocated with the SPLASH'14/OOPSLA'14 conference, which is a premiere conference in the field of Programming Languages and Software Engineering. The purpose of Inspirations was to give promising undergraduate students considering pursuing a graduate degree in this field, or new graduate students looking to get a leg up, an overview of what

research in this field looks like, and how to get into and succeed in graduate school. In other words, a combination whirlwind tour of this research area, networking opportunity, and how-to-succeed guide. Inspirations was held over two days. Participation was by invitation only, based on nominations from faculty at U of Washington, U of Oregon, Oregon State, and Portland State. **30% of our student attendees were females and minorities.**

As a graduate student, in 2006 I was fortunate to be the winner of the prestigious ACM competition for graduate students in Computer Science: the Grand Finals at the ACM Student Research Competition (SRC). In the Grand Finals, the finalists from the SRCs of all ACM flagship conferences compete. I have been a judge at several SRCs, but also coached and mentored graduate students who were competing. My most recent mentee for the SRC, Lu Xiao, a **female PhD student from Drexel University, won the Grand Finals** at the ACM SRC in 2015.

In the last two years, **I have interviewed in my classes several successful women in STEM** (such as alumna Molly O'Hearn – cofounder and VP of security firm IOvation) to find out what are the key elements that contributed to their success. Among others, I found out that having strong role models was one of the common factors for these successful women in STEM. Thus, I have been featuring them as guest speakers in my classes, either in person or via video-conferencing. Two years ago I brought a public event at CU with Angela Ahrendts, the former senior VP of Retail and Apple, and I invited Frannie Matthews, the CEO of the Colorado Technology Association to moderate the discussion as she brings many valuable insights as a woman leading in technology. This semester, I have featured in my class a licensed presentation by Valorie Burton, a successful business coach and the founder of the Positive Psychology Institute, as she talked about self-coaching and resilience.

Last year I taught an extra-curricular, not-for-credit **6-week leadership development course for grad students** in the CS department at CU Boulder. Our seminar-style group met weekly for one hour, and I encouraged students to reflect and apply principles from the Change Your World curriculum, providing an accountability group so that students get to share the results they committed to. Our seminar covered equity and diversity-focused content, and provided mentoring for students from underrepresented communities.

For my large undergrad course that I taught at CU last year, **I chose a lead TA from an underrepresented community** (African-American). I provided weekly mentoring sessions for my TA, and I also met with the TA long after the course finished in order to provide career mentoring and support. In my class, I also offered 3 group mentoring sessions for women and other underrepresented groups, during 90-120 minute group sessions. To inspire the women and underrepresented groups in my class, I invited Rebecca Wirfs-Brock, a pioneer and leading author in the field of Agile Software Development and OO Software Design for a live interview in my class. During the interview, I asked questions to discover principles for how to be successful as a woman choosing an engineering career.

Last year I was the **faculty group mentoring chair** at the SPLASH'21 conference. Several faculty participants are from under-represented communities in CS, we had LGBTQ+, women, African-American, and other groups. This is the 5th such faculty group mentoring sessions I have organized in the last 4 years at the leading conferences in SE and PL (see SPLASH'21, ICSE'20, ICSE'19, ICSME'19, FSE'18). I am also the faculty mentoring chair in the CS department at CU Boulder, where I facilitate monthly group mentoring sessions.

When I mentor faculty, I share openly about the mistakes I have done over the years, the lessons that I learned from these, the changes that I made, and the improved results. I believe in the power of group mentoring, where like-minded faculty at various stages of their professional development get together and openly share what they struggle with, and what they found is working (or not working) for them.

The format that I have experimented with (Group Mentorship Roundtables) aims to connect junior faculty with more senior mentors, and with peers at similar stage of their career. It is intended to provide a low-pressure atmosphere to foster building one's support group and mentorship. The participants learn from their peers as much as they learn from the mentors.

The expected outcomes of these Faculty Mentorship Roundtables are:

- Increase the feelings of community and belonging among junior faculty through positive interactions with peers and more established faculty
- Exchange peer-best-practices in developing students, along with lessons learned from trial-and-error
- Establish new connections and collaborations between junior and more established faculty
- Grow the roundtable discussion group into a support group that will be a growth and accountability resource long after the Roundtable sessions
- Create a culture of support, growth, and welcoming in the research community.

The Mentorship Roundtables that I ran at conferences were very well received and all attendees (including the mentors) found great value. For example, at ICSE'19, of the 30 junior faculty participants, 13 responded in an anonymous post survey. Among others, 84% rated their experience as outstanding, and 100% of them would recommend this to other faculty. Below are a few of their testimonials:

> *"I felt a bit frustrated about all the challenges I faced last year. When I attended the round tables, I enjoyed discussing my problems with others and learned some strategies to face them. For me,* ***the most important lesson was that I am not alone and these are common problems among academic people****. Now I feel I have a big list of support and advise whom I can refer to whenever required."* - Participant ICSE'19
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> *"I am very encouraged by the discussion with peers knowing that some struggles are not unique to me****. I also feel that the community, especially the senior people I've met in the roundtables, genuinely care about our growth as a faculty****. Furthermore, such growth would be possible regardless of our personality or specific research interests. I am really glad to be part of this community."* - Participant ICSE'19

Current Efforts

For the near future, I am dedicated to offer several programs for **K-12 Outreach.** Early and continued exposure to science and engineering concepts are key to getting and keeping students interested in higher education in STEM fields. This year I have been offering after-school leadership and development programs for children at Valdez Elementary School, a predominantly Hispanic school in Denver. I am partnering on this activity with an organization, Heroes of Impact, which provides after-school enrichment programs to kids from predominantly Hispanic communities in Denver.

This year I have been visiting universities from Latin America. For example, in November I visited the Santo Domingo Institute of Technology in the Dominican Republic, and will visit again in May. This is the third country I visit in Latin America, having been previously in Paraguay and Costa Rica. During such trips, I meet with the President of the country, the Ministers of science/technology/education, deans, department heads, faculty, and students. When I give talks at the university, I present the graduate program in my department to boost applications from Latin America. I am finding that the Computer Science programs in Latin America do not face the diversity crisis we have in the US, and thus could supply with very strong and diverse candidates.

Future Plans and Transition to SoC at Utah

While I am not afraid to be a trailblazer and create new programs, my philosophy is to **leverage the existing Utah tremendous program infrastructure** (administration, marketing, registration, best-practices, etc.) that allows me

to focus on delivering content and connecting with students.

Looking at SoC's programs, I am delighted to see the recently launched Utah Center for Inclusive Computing. I want to join forces and help promote the SoC, both for undergrads and grads, and boost recruiting efforts from underrepresented groups in Computing. In partnership with UCIC, I will continue to proactively reach out to universities in Latin America and here in the US, and to K-12 institutions from predominantly Hispanic schools. I also plan to come along others and help inspire and retain underrepresented students in Computing through the recently announced "Utah Fresh" program by President Randall during his inauguration address.

I will continue to proactively recruit under-represented students through programs such as those offered in the Colleges of Engineering and Science, e.g., ACCESS, MESA/STEP, TRIO, Student Success Advocates. I was happy to see that several such key programs exist at the U for the purpose of recruiting and retaining students from diverse and underserved backgrounds.

My ongoing and future plans are aligned with the key pillars outlined in President Randall's speech "Re-Imagine U: Inspiration, Innovation, and Impact," that builds on the U's foundational principles of equity, diversity, and inclusion. I am also excited to be partnering with the SoC on their ongoing efforts to create an environment where students of all backgrounds feel they deserve to be here, and they belong here.

In summary, I have a strong record of proactively targeting and working with under-represented groups. I continuously learn from my colleagues and mentors about how to be even more effective.

Together We Go Further,
Danny Dig