Best Practices for Fostering Diversity and Inclusion in Data Science

A Report from the Berkeley Institute for Data Science's
Best Practices in Data Science Series

R. Stuart Geiger[1†*]**, Orianna DeMasi**[1,10†]**, Aaron Culich**[9‡]**, Andreas Zoglauer**[1,3‡]**, Diya Das**[1,4‡]**, Fernando Hoces de la Guardia**[5‡]**, Kellie Ottoboni**[1,2‡]**, Marsha Fenner**[1‡]**, Nelle Varoquaux**[1,2‡]**, Rebecca Barter**[1,2‡]**, Richard Barnes**[1,8‡]**, Sara Stoudt**[1,2‡]**, Stacey Dorton**[1‡]**, Stéfan van der Walt**[1‡]

*Corresponding author:
stuart@stuartgeiger.com

†These authors contributed
equally to this work

‡These authors contributed
equally to this work, order
is alphabetical

[1] Berkeley Institute for Data Science, University of California, Berkeley
[2] Department of Statistics, University of California, Berkeley
[3] Space Sciences Laboratory, University of California, Berkeley
[4] Department of Molecular and Cell Biology, University of California, Berkeley
[5] Berkeley Initiative for Transparency in the Social Sciences, University of California, Berkeley
[6] School of Social Welfare, University of California, Berkeley
[7] Department of Radiology and Biomedical Imaging, University of California, San Francisco
[8] Energy and Resources Group, University of California, Berkeley
[9] D-Lab, University of California, Berkeley
[10] Department of Electrical Engineering and Computer Sciences, University of California, Berkeley

Abstract:

What actions can we take to foster diverse and inclusive workplaces in the broad fields around data science? This paper reports from a discussion in which researchers from many different disciplines and departments raised questions and shared their experiences with various aspects around diversity, inclusion, and equity. The issues we discuss include fostering inclusive interpersonal and small group dynamics, rules and codes of conduct, increasing diversity in less-representative groups and disciplines, organizing events for diversity and inclusion, and long-term efforts to champion change.

Introduction: What can we do in our spheres of influence?

This post is a summary of a recent BIDS Best Practices lunch, in which we bring people together from across the Berkeley campus and beyond to discuss a particular challenge or issue in doing data-intensive research. The goal of the series is to informally share experiences and ideas across disciplines and contexts on how to do data science well (or at least better), for many different senses of the term (see *Geiger et al. 2018*). The topic for this week was on best practices for achieving diversity and inclusion in data science groups, labs, and teams. This was a joint effort with the BIDS working group on Diversity and Inclusion in Data Science.

In brainstorming and planning for this session, we wanted to acknowledge that issues around diversity and inclusion are complex and multi-faceted. We do not have all the solutions or answers, and we only represented a small slice of the efforts around this topic. There are too many initiatives and efforts around diversity and inclusion to fully detail in a document like this, even if we limited the discussion to what is happening on our campus — which is an excellent problem to have.

Another aspect we discussed was that many of the issues we are concerned about require interventions and initiatives at many different levels, some of which we currently have little direct influence over. Most of us in attendance were not faculty or in senior administration, which is generally the case for our Best Practices meetings. It is important to find ways to involve administrators and faculty in such efforts, particularly around issues like admissions and hiring. However, in this meeting, we chose to focus on what we can do in our own research groups, labs, classes, departments, open-source software projects, and other spheres that we can influence.

Whether we recognize it or not, we all have spheres of influence in our own ways, and we have the responsibility to lead from where we are. Seemingly small actions that we take on a day-to-day basis can collectively have big impacts on a work environment. Having diverse and inclusive workplaces is also crucial when discussing related issues like biases in applications of data science, which can reinforce existing inequalities (*Eubanks, 2018*; *Buolamwini and Gebru, 2018*). We also acknowledged that we came from quite different academic disciplines and departmental cultures, with some fields being more diverse along certain demographic areas than others.

Finally, we began with some definitional work on these terms so that we were all speaking the same language, defining:

- Diversity: Who is in the room? What is the demographic makeup of a group?
- Inclusion: What is the cultural climate of a group? Does everyone feel like they

are a part of the group once they're in the room?
- Equity: Does everyone in the group have the same opportunity to achieve at the same level, no matter where they started?
(see *UC-Berkeley Division of Equity & Inclusion 2009*; *Kapila et al. 2016*)

Fostering inclusive interpersonal dynamics in work environments and communities

One major area that we brainstormed was how to foster inclusive interpersonal dynamics in our various work cultures and environments. A common concern raised was how many of the individual and small group interactions in running meetings, workshops, classes, and talks can be exclusionary, particularly for underrepresented minorities. For example, in meetings, is the responsibility for taking notes and cleaning up equally distributed, or does it typically fall to the same kinds of people? Do a few people tend to dominate the meeting (or a Q&A session), or does everyone generally have the same chance to be heard? Is interrupting or speaking over someone else the 'normal' way people in a group must make themselves heard? We discussed several specific strategies for more inclusively engaging with each other, such as: formally delegating rotating responsibilities around taking notes and cleaning up, having agendas for meetings, or speaking up for someone else when they are trying to speak but finding it hard to cut in.

However, our discussion of the ways to be supportive or an ally in the workplace raised the fact that the work of ensuring an inclusive workplace is also a form of work, which is often not equitably distributed (*Ahmed, 2012*). An important question is if people have to do this work independently and without support, or if everyone in the organization shares the responsibility for fostering an inclusive work environment and psychological safety (*Edmondson, 1999*; *Edmondson and Polzer, 2016*). It may be easier for a third-party to point out a problem than it is for the person who was directly impacted, but it is still difficult and risky to point out that your colleagues has acted in a problematic way. This work of being "the mean person" can be quite exhausting, and it can also typically fall to the same kinds of people. We discussed how it was important to share the responsibility of both reporting issues and responding to them. Having multiple points of contact and modes of raising issues in the workplace crucial, as any single person cannot possibly take on the burden of facilitating an inclusive workplace.

Finally, our discussion of reporting problems in the workplace raised the issue of rules for respect and engagement, or codes of conduct. We quickly realized that we could spend days just talking about rules and codes, whether they are for traditional

workplaces like labs, for co-located conferences, or for online communities like open-source software projects. We tabled many of those issues for later, but we felt it was important to have some kind of established ground rules or principles that everyone understands and commits to upholding and enforcing — as opposed to a kind of 'click-through' document that is briefly shown but not enforced. For example, the Social Sciences D-Lab is developing prominent banners in its physical spaces which articulate the "community agreements," based on work by the Anti-Oppression Resource and Training Alliance (*Anti-Oppression Resource and Training Alliance, 2017*) and the East Bay Meditation Center (*East Bay Meditation Center, 2015*).

Increasing diversity, inclusion, and equity in less-representative groups and disciplines

In this conversation about workplace practices, we recognized that the different disciplines we represented were quite different when it came to the existing levels of diversity. For example, in the biological sciences, 51.7% of U.S. Ph.D degrees in 2015-16 were awarded to women, in contrast to 22.8% in engineering and 25.8% in mathematics and computer science (*Okahana and Zhou, 2017*). Fostering inclusion should be an active and intentional process for all groups, but it can be challenging for research groups that have been more homogeneous on some dimensions, but are trying to increase their diversity of perspectives. Some of the people in our meeting asked how to support new members who do have different backgrounds, when they may not have any members of a particular background already in the group.

One approach is to hire a cohort of people from diverse perspectives, as being the only person from an underrepresented group can be difficult. Yet if this is not an option — as it may not be in many relatively small research groups — then working with new members to identify resources for their peer and professional support can be invaluable. Such resources could also include collaborators and co-advisors. We recognized that having open communication channels for both new members and established members to voice issues as the group dynamics evolve is also extremely beneficial. Multiple communication channels and reporting lines to raise and resolve various kinds of issues was also a strong recommendation. We also discussed the value of signaling intention to become a more inclusive environment by committing to help new members find additional outside resources and opening communication channels around such issues — and following through on such commitments.

Organizing and messaging for diversity & inclusion events

We also discussed the many events and initiatives that have emerged to increase inclusive practices on a broader scale than a research group. These have widely ranging intentions, including setting up peer and career mentoring networks, elevating voices of role models, and roundtables or other forums for the discussion of change. Our group expressed much support for such events, but had recommendations to identify a specific and intended goal, then organize and message accordingly. Some of those in our discussion who did not feel they were a part of an underrepresented group — but wanted to work towards diversity and inclusion — expressed uncertainty about whether they ought to attend various "diversity" focused events and initiatives. Because of the different goals of such efforts, it is important to set intentions and audiences clearly, specifying them within advertising and event recruitment.

Events that target participation of individuals from not-underrepresented groups are valuable, but should clearly indicate who their target audience is. However, events that let people from a particular background share vulnerable experiences and receive support from people who are like them are also important. Broader, multiple-day events to increase diversity and inclusion should strongly consider whether to include sessions for members of not-underrepresented groups and how to engage them. Such sessions could be town halls to raise issues for discussion, trainings for challenging implicit bias, training in resources and techniques for supporting members of different backgrounds, mentor mixers, and research talks or poster sessions to raise visibility of research contributions.

Long-term efforts to champion change

Individual efforts to champion diversity, inclusion, and equity are important, but we ultimately felt that it was crucial to normalize communication and reflection about issues and inclusive environments. We felt it was important to mainstream discussions of workplace culture in all-hands events and meetings, going beyond holding individual one-off events that can have the unintentional effect of segmenting out diversity, inclusion, and equity issues. In this way, more individuals, including those who may not be members of under-represented groups, can participate and contribute to positive change. Another tactic we raised was that we should find and elevate good examples of teams, events, and organizations that have made excellent progress in diversity, inclusion, and equity issues and/or have thoughtful procedures or approaches for such issues.

Conclusion

As with many of the best practices discussions, we soon found ourselves at the end of our allotted time, but wanting to discuss far more issues. There are many more issues to raise and strategies to explore in the broad space of diversity, inclusion, and equity in academia. We also briefly raised issues around larger societal structural inequalities — such as that 'free time' is not equitably distributed in society (*Bianchi and Milkie, 2010*) — as well as issues with admissions and hiring. Overall, we felt that the kind of informal lunchtime meeting organized around what we can do in our spheres of influence was a good approach to raising and mainstreaming these issues.

Acknowledgments

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