

FIAT Justice Scholars @ UC Berkeley Reporting Narrative
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Overview

The FIAT Justice Scholars program at UC Berkeley was designed to create a pipeline into Public Interest Technology careers for students, connecting multiple units across our campus to deliver quality programming including lectures, workshops, and career pathways events. At the onset of our project, we identified two major problems facing students: difficulty in finding intellectual communities and a marked lack of diverse representation in tech fields. Equity in PIT is especially difficult to develop because of these problems, perpetuated by gatekeeping, the centering of whiteness and masculinity, and overemphasis on technical capacity.

We thus carefully and intentionally selected a diverse group of twenty brilliant and energetic students to take part in our inaugural cohort, representing majors in data science, information studies, engineering, social sciences, and more. The FIAT Justice Scholars were tremendous participants, taking forward concepts and connections in PIT into their future studies and careers.

We offered a variety of programming for the FIAT Justice Scholars. We held eighteen formal FIAT Justice events with dozens more events opened to the FIAT Justice Scholars held by our affiliate programs (AFOG, Cal NERDS, and D-Lab), weekly office hours for students, and hosted a space for connection and interaction in the Cal NERDS offices. These opportunities were enriching, as indicated by feedback from the scholars and our speakers. Like others, we had to adapt our programming to meet the shifting needs of the scholars, shifting constraints on physical meetings, and shrinking opportunities for internships during the Covid-19 pandemic.

We found that undergraduate students are eager to learn about career pathways in PIT. We have a strong community of campus organizations and non-profit, public service, and corporate partners to support this programming. Sustaining such a community requires three to five years of funding to evolve our pilot project by solidifying structural arrangements, offering consistent faces and spaces for students to develop their intellectual identities and social bonds, and building regular connections with a set of organizations to regularize PIT internships.

Our program highlighted the challenges of pulling together groups that previously had few strong connections. Our groups worked well together, drawing from our respective expertises to offer a broad slate of programming for the students. Our collaborations were positive and worthwhile, but the short time frame for putting together the programming and building community meant that we only began to realize our combined potential toward the end of the FIAT Justice program. Near the end of our grant period, as we began to work with other groups at UCB, such as the Othering & Belonging Institute, we acknowledged the possibilities of continuing to expand shared spaces and programming—something only achievable with resources and support for long-term work. Future projects can build considerably on our findings, formalizing institutional commitments and offering students co-curricular development across multiple years.

Background and Problems

Main Objectives

The main objective of our program was to build a cohort of diverse undergraduate scholars who identify as part of the public interest technology field and are equipped with the knowledge and

skills to create, use, assess and critique technologies in service of the public interest. Focusing on algorithmic justice this program aimed to develop the interdisciplinary expertise essential to PIT research and practice through interactive skills and critical reflection workshops, interactions with leading academics and practitioners in the field, and opportunities for experiential research and practice in PIT careers. We aimed to support the creation of this diverse cohort of PIT undergraduate scholars through programming that drew on and integrated the diverse expertise and resources of our three partner organizations, and strengthened connections and commitments across the partner organizations and other relevant units within UCB and the Bay Area.

Problems

In our proposal, we acknowledged that marginalized and minoritized communities are often underrepresented in technology work. Equity in PIT is constrained by both implicit and explicit notions of who belongs in the field. We identified harmful gatekeeping practices, particularly revolving around meeting requisite technical capacities to work in PIT-related careers. This centering of technical capacity comes at the expense of incorporating knowledge from a range of fields, including sociology, anthropology, law, criminal justice, and public policy, among others. Critical-focused conversations about justice and equity—such as conversations focusing on racism, sexism, xenophobia, and other “social” issues—are frequently pushed to the periphery. As a result, whiteness and masculinity are often centered, hampering diversity and inclusion efforts.

Among student populations in particular, the development of professional identity relating to PIT is a notable challenge. With PIT work dispersed across multiple majors and disciplines, it can be difficult to shape a consistent professional identity. Identifying career paths and opportunities requires tremendous preparation and practice, especially in such an ambiguous and interdisciplinary field. These issues are compounded by the lack of diverse representation in many parts of the PIT field, offering diverse students few models and mentors for navigating their unique challenges that arise from intersecting identities and career paths.

Partnerships

Our project required concerted efforts across multiple on-campus units and off-campus organizations. On campus, our three organizations combined expertise to serve the program:

The Algorithmic Fairness and Opacity Group (AFOG) is an interdisciplinary group that centers critical perspectives on algorithmic systems and technological power, drawing from work in public health, public policy, education, sociology, anthropology, and other related fields. AFOG’s expertise in interdisciplinary studies of technical systems helped us provide critical reflection workshops for the students as well as public talks and connections to various nonprofits.

Cal NERDS is a campus center that represents STEM students from non-dominant backgrounds including LGBTQ, low-income, first-generation, underrepresented, student parents, transfer, re-entry, disabled, foster, undocumented, system-impacted, and women. Cal NERDS offered a tremendous community for the students, including physical space in Stephens Hall, a food pantry, STEMInist workshops, mentorship, intro to data science workshops, and social events.

D-Lab is an interdisciplinary research accelerator, equipping scholars with the necessary knowledge, skills, and tools for cutting edge research with an emphasis on co-constructing expansive communities of practice. D-Lab helps scholars across campus engage with complex research questions and produce answers that benefit academic colleagues, policymakers, and the

public. D-Lab provided crucial technical training, such as Python-focused workshops that centered pressing, real-world examples.

Beyond our direct collaborators, we connected with other groups both on and off campus. On campus, we partnered with the Othering & Belonging Institute to hold a Symposium on Surveillance and Education that included participants from academia, nonprofits, and industry. Throughout the year, we partnered with individuals from Google, the ACLU of Northern California, Great Schools, and the San Francisco Estuary Institute to provide workshops and career pathways lunches.

Diversity, Equity, and Inclusion

The most important markers of DEI came in our selection of the Scholars. Cal NERDS took the lead on selecting our cohort of students. We focused on recruiting a diverse group of students spanning a variety of ethnicities, socioeconomic backgrounds, gender identities, and life stages. Recruitment information was sent to various student networks using the STAR.berkeley.edu database of over 150 STEM programs and resources. Scholars filled out an online application, participated in virtual interviews involving our three partners, and were scored using an interview rubric. In June a roster of twenty scholars was finalized, including students from various underrepresented ethnic groups (including Latinx, Black, Asian American, Middle Eastern, and others), low-income backgrounds, recent immigrant families, system-impacted backgrounds, first-generation, and differing age ranges.

We also sought to create broad representation across the programming we offered for students, which included lectures, career pathways speakers, and workshops. This meant selecting speakers and topics that spanned a variety of identities and backgrounds. Our speakers represented a broad range of backgrounds across races and ethnicities, gender and sexual identities, socioeconomic conditions, and religious identities. Our speakers and workshops centered the impacts of algorithms and technical systems on underrepresented identities and communities, such as our lecture “On Race and Technoculture” by Dr. André Brock. By centering diverse speakers offering critical lenses, we helped students see themselves in PIT, promoting diversity through awareness of professional identity and career paths.

Development

Initial Approach

In the Spring 2021 semester, our groups came together to begin forming the project. Given the constraints of the academic year, we decided to spend most of our energy in the spring laying out the shape of the FIAT Justice program and selecting the students. In our spring meetings, we determined the programming each unit would be responsible for and solidified our plans for summer and fall. We decided to select a cohort of students in late spring, offering stipends and mentorship to the students. We agreed that our success would be measured primarily through student development, but that we also wanted to see robust public participation at our events.

Our first public event took place in April 2021, wherein we held our inaugural PIT-UN/FIAT Justice Lecture. The speaker, Tawanna Petty, spoke to her experience in data and social justice and offered ideas for “activating anti-racists in data and digital spaces.” This was a well-attended public event with positive feedback from students, faculty, and community members.

In June 2021, we were able to finalize the hire of our postdoctoral scholar, who was responsible for coordination and mentoring. The hiring process would have ideally concluded much earlier in the spring but institutional policies dictated hiring timelines. The postdoc subsequently organized our meetings, coordinated and scheduled events, and provided weekly office hours for Scholars.

Intended Methods and Processes

Given the student-centric nature of our project, our methods and processes focused on creating environments and programming that would enrich our students' abilities to understand their professional identities in relation to PIT and create valuable connections to forge career pathways for PIT-related work. Our methods for measuring success relied primarily on student participation in events as well as direct feedback from students about the programming.

We chose a three-pronged approach for student development. First, public lectures paired with critical reflection workshops would expose students to crucial issues in data, technology, and social justice. Second, technical workshops would help students develop crucial skills in data work, primarily through learning about Python and/or R. Finally, career pathways lunches would introduce students to various people working in PIT fields and give students a glimpse into the career opportunities available to them, and to the intersections of identities and the PIT field.

Our other methodological focus was on institution building. Our goal was to bring together organizations with overlapping priorities and complementary skills. Early in the program we emphasized planning as a way of exploring the needs and capabilities of each organization, using shared meetings and event planning as a way of building long-term relationships.

Project Changes

Thanks to an extension of our grant term, we were able to make a substantial change and offer programming in Spring and Summer 2022. Our initial plan was to phase out activities after the fall to align with our grant terms, but students were excited to continue the program into the spring. We thus offered further career pathways lunches, a career day, and a co-sponsored Symposium on Surveillance and Education with the Othering & Belonging Institute.

Our project took place during the global Covid-19 pandemic, so adaptation was crucial for creating a successful program. The largest changes in the project had to do with modality: our summer orientation needed to be held virtually, as did our public lectures and our technical workshops. Overall, these changes were modest and did not affect the core programming.

A key goal of our programming was developing a sense of shared identity and community among the FIAT Justice scholars and other PIT-minded students and the organizations that partnered to support them through this grant. This goal was hampered by the conditions of the pandemic. We were able to hold lunches outside, thanks in part to the temperate weather of Berkeley, but we had to rethink many other community building practices and structures. We did not want to encourage risky behavior around Covid-19, so we always asked students to mask and socially distance at events. Our public lectures were held remotely to avoid packing large, often poorly ventilated rooms. D-Lab continued operating remotely throughout the 2021-2022 academic year, so each of their events was held on Zoom. Our postdoc generally held office hours virtually. Despite all of these changes, we produced consistent programming for students and provided them with meaningful opportunities to engage with the PIT field.

Challenges

Expected Challenges

We expected that coordinating across three groups would be difficult. Each organization is busy and two of the organizations (AFOG and D-Lab) had changes in leadership and staff over the course of the year. Maintaining effective communication was bound to be a challenge with an ambitious institution-building project. We worked through the challenges of coordination and communication by filtering most of our conversations through our postdoc, who served as a liaison among our groups. We met together each month, setting a clear agenda for each meeting and communicating asynchronously between our meetings. These strategies helped us set shared goals and methods for fulfilling our responsibilities.

Unexpected Challenges

The most pressing of our unexpected challenges arose from the uncertainty surrounding Covid-19. Students had varying levels of comfort with meeting on campus, campus policies for Covid-19 changed frequently, and our organizations had varying modalities for engagement with students and the campus community. Covid-19 certainly played a role in the unexpected challenge of having low student attendance at events. Out of our twenty scholars, around half participated regularly in the events, with many students missing multiple consecutive events and one student leaving the program after the fall semester.

We also had an unexpected spatial limitation in the loss of Cal NERDS' physical space after the fall semester. Stephens Hall was closed down suddenly for repairs and renovations, hampering Cal NERDS' ability to host in-person events and maintain its food pantry. The FIAT Justice Scholars participated actively in Cal NERDS events and regularly worked and socialized in the space, so the loss of Stephens Hall severely restricted the program's community building.

We adapted as best as we could by hosting events in different modalities and providing students multiple paths for engagement. Scholar participation remained lower than anticipated throughout the spring semester, pointing to possible fatigue, burnout, and busyness on the part of students; however over the year and a half as news spread about the programming other undergraduates interested in PIT appeared. The physical support for community provided by Stephens Hall was impossible to replace, given the space constraints across our campus. As we were unable to offer the same services to students, we adjusted our budget to support students in different ways, including supporting student travel to conferences and funding summer research projects.

Diversity, Equity, and Inclusion Challenges

Our primary challenge with DEI was that students from underserved and underrepresented communities often face extra burdens, making their participation in our program more difficult. At the onset of the program, we chose to offer stipends for student participation in the program, tying their attendance at events to funding they would receive. We set those stipends to come in the fall, so the students did not receive financial support in the spring. We know that many of our students had significant outside responsibilities, such as multiple jobs, caretaking responsibilities, and other family obligations. These obligations—especially in the absence of a financial incentive to participate—likely contributed to the lower attendance we saw in the spring.

Our response to these challenges was to be flexible, supportive, and lenient with attendance requirements. Our initial plan was to tie each event to a \$100 stipend, but given students'

schedules and obligations, we offered full stipends to students who participated in FIAT and FIAT-adjacent events regularly, even if they missed a few events. By providing multiple paths and flexibility in receiving the stipends promised to them, we helped students avoid choosing between participating in our program and fulfilling their other responsibilities and needs.

Partner Challenges

Our internal and external partners faced challenges through our grant period, including the aforementioned Covid-19 challenges. One particular issue with our external partners was that fewer internships were available for our students than we expected, especially since our students were eager to do in-person internships. As a result, the component of our project that involved setting up students with internships needed adjustment.

In response to these challenges, we sought other ways to provide exposure to the PIT field. Brainstorming among the partner organizations and the FIAT justice scholars we identified three ways to meet our goals: 1) we facilitated a range of speaker-events and training workshops, such as a Career Day featuring speakers from Google and the San Francisco Estuary Institute 2) we provided funding to students' research projects and volunteer work related to PIT; 3) we funded students' travel to PIT-related conferences to connect with PIT researchers and practitioners.

Program Summary

Our program offered a wide variety of events including:

- Three public lectures averaging over 100 audience members each from:
 - Tawana Petty, National Organizing Director for Data for Black Lives
 - Dr. Latanya Sweeney, Daniel Paul Professor of the Practice of Government and Technology at the Harvard Kennedy School
 - Dr. André Brock, Associate Professor of Media Studies at Georgia Tech
- Two critical reflection workshops paired with public lectures from Drs. Latanya Sweeney and André Brock concerning justice in digital systems and constructions of race online, averaging 7-8 students in attendance
- Four career pathways lunches, averaging ~10 students in attendance
- Two data workshops, averaging 8 students
- Weekly office hours hosted by our postdoc
- The Symposium on Surveillance & Education, co-sponsored with the Othering & Belonging Institute, with three sessions averaging ~30 participants
- A Career and Research Day with speakers from the San Francisco Estuary Institute, Google, and the UCB I School, with 5 students in attendance
- A variety of social events including a summer welcome and orientation, a welcome-back-to-campus event, and a send-off lunch

FIAT scholars were also invited to a wide range of complementary programming offered by our constitutive organizations. Events students attended included:

- Four additional Python workshops, many co-led by two FIAT Justice student leaders
- Two STEM/STEMinist workshops
- A full stack web development workshop
- Social events such as dancing workshops, scavenger hunts, and celebration dinners

In addition, Cal NERDS lent significant material support to the students including:

- Four grants for professional clothes
- Six grants for professional/conference travel to San Juan, Puerto Rico to attend the Society for the Advancement of Chicanos/Latinos and Native Americans in Science's annual diversity STEM conference with 6,000 attendees.
- A graduate school reimbursement to cover application costs
- Regular use of the pantry for food and supplies

Measuring Program Success

Students from the program indicated appreciation for the events and opportunities presented through FIAT Justice Scholars. Students regularly identified the career pathways lunches and career day as the most valuable parts of the program, as they were able to hear from and talk with people working in the PIT field, connect with speakers, and envision themselves in similar roles.

Students consistently praised the community we cultivated, especially through Cal NERDS, noting that they regularly used the food pantry and attended lunches like Taco Tuesday. They indicated a sense of belonging and inclusion that came with FIAT Justice, noting, for example, that “I felt a sense of belonging because everyone was very friendly and supportive” and “I felt a sense of belonging and inclusion within the FIAT Justice community, which quickly generated a smile on my face when I would see my peers at events, and knew that it would be an engaging moment to listen, understand and respect their opinions.”

Following the conclusion of the program, multiple students pointed to the role of PIT-UN in shaping their career aspirations. One student, for example, consistently pointed to Dr. Sweeney’s talk as inspiration for bringing PIT work into their career interest in city planning and infrastructure. Another student decided to pursue a PhD in Mechanical Engineering with the hope of bringing Public Interest Technologies to the engineering landscape. Another is pursuing a PhD in Information Studies in a top-ranked program and plans to extend her work in PIT. Others are applying to law school, creating start-ups, or pursuing work in nonprofits.

In an anonymous post-program survey, students remarked that the program:

- “solidified my intent to attend graduate school; it reignited my passion for helping others, and reminded me that that is possible in higher education.”
- “Helped me understand possible career options, especially with social justice.”
- “gave me the confidence to network and start my own company.”
- “encouraged me to pursue further education and showed me there are many different paths to get to my goals.”

The program also helped graduate students and postdocs better interface with Public Interest Technologies. MA and PhD students involved with each member organization (AFOG, D-Lab, and Cal NERDS) were able to hone their pedagogical skills, work with engaging students, and learn from the workshops and lectures. The postdoc hired to help run the program gained valuable experience in mentoring undergraduate students, connecting to industry practitioners, and developing programming in PIT.

Next Steps

The formal FIAT Justice Scholars program is ending, but we will continue to grow the connections among our organizations. We are also supporting the student group FIAT @ Berkeley, which is now a formal student organization at Berkeley established by one of our FIAT

Justice Scholars. Through Fall 2022, the group has used funding to hold regular meetings and host events including workshops and speakers.

Lessons Learned

Summary of Insights

Our project highlighted the interest of students in the Public Interest Technology field. Students across multiple disciplines identified with and showed investment in PIT as a field. Our students were particularly interested in public infrastructures, social media, equitable access to technology, and the relationship between technology and social justice in the areas of environmental protection and health. Students drew from their developing disciplinary expertises in computer science, mechanical engineering, civil engineering, journalism, environmental sciences, law, and information studies, among other majors. The students grew immensely and developed their professional identities in PIT. While students began the program generally unaware of work in PIT, they concluded the program knowledgeable and excited about the field.

We learned that getting consistent student engagement is difficult even with a cohort of eager undergraduate students. The challenges of Covid-19 undoubtedly contributed to the lower than expected turnout at some of our events. We considered whether being stricter about attendance requirements for earning stipends would have bolstered attendance. While that may have worked, we would caution others working on similar projects that underserved and underrepresented students often need to make difficult choices about how to allocate their time. By being flexible about incentives, we helped our students during a time of great challenge and modeled the supportive community necessary for a more diverse and equitable field.

Specific Advice

Future projects working with undergraduate populations may be able to leverage institutional structures to increase student participation. For example, many of our students had time conflicts with class periods, labs, jobs, and other student organizations. In retrospect, we would recommend creating a one or two-credit course as an anchor for the scholar cohort.

We sought to foster a sense of community through a set of FIAT Justice scholar only events. The scholars who attended appreciated the intimate scale and the access this afforded to guest speakers. However, opening these events to the broader undergraduate community surely would have bolstered attendance. Our public lectures, which were open to all, each attracted over 100 audience members, with one lecture exceeding 140 viewers. After the lectures we held critical reflection workshops led by our postdoc and open only to our FIAT Justice scholars. This model of pairing a public lecture with a cohort-specific event was a fruitful mix, generating a large audience and building community while supporting bonding among the smaller cohort.

Departmental and Institutional Changes

To most effectively build career pathways in PIT, we suggest multi-year work that institutionalizes a program like the FIAT Justice Scholars. In our experience, the first year of bringing our groups together to support the programming, despite prior discussions and grant planning, required significant discussion about our individual and shared goals, experiences, and expertises. With multiple years of funding and institutional infrastructure, similar projects could make lasting impacts in establishing pipelines to PIT.

Possibilities to Replicate

Our program can serve as a pilot for nearly any college or university interested in creating a pipeline for PIT. However, colleges and universities should have existing programmatic resources—like those provided by AFOG, Cal NERDS, and D-Lab—to build on. Assuming such institutional infrastructure, our model is adjustable, but at base would require:

- Selecting a cohort of undergraduates, likely between 5-20 students
- Offering skills-based workshops for students not versed in coding
- Offering critical workshops focusing on social justice, public advocacy, and equity
- Offering public lectures from internal or external experts
- Offering formal and informal opportunities for students to interface with PIT researchers and practitioners through events such as lunches and job shadowing

We advise organizers of future projects to be flexible and empathetic as they work to bring underserved and underrepresented students into PIT career pathways. One key lesson we learned was to listen to the students: we held multiple sessions with the students to gauge their interests and solicit feedback on programming. The students were generally supportive of the programming we organized, but there were a few opportunities for which they expressed minimal interest, such as participating in intensive summer research with graduate students or postdocs. Maintaining flexibility and humility in adjusting to different student needs will be crucial for establishing successful follow-up projects replicating our program.

We would advise future projects to continue focusing on collaborations across disciplines. More integrated work with departments and organizations across a campus would likely bolster the efforts of similar programs. Future programs may even choose to collaborate across campuses, bringing together different organizations, more faculty and staff, and more students.

In total, we would advocate that others replicate and extend our project, and that the Network provide ample resources for multi-year projects like FIAT Justice Scholars.

Publicly Available Online Materials Reflecting Grant Activities

[Announcing Algorithmic Justice at UC-Berkeley: Cultivating Public Interest Technology Scholars and Career Pathways programming](#)

[Public Interest Technology University Network Lectures at the I School](#)

[The 2022 Symposium on Surveillance and Education](#)

[CalNERD's STEMinist bootcamp](#)

General Information

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Current State of the Project

Our program is not continuing in its initial form, but many of its components will continue into the future. Our organizational connections among AFOG, Cal NERDS, D-Lab, Othering & Belonging Institute, and other contacts will continue because of the work we started under our

grant. We will provide ongoing support to our community through lectures, training, research and educational opportunities. We are especially eager to work with the new FIAT @ Berkeley student group, which will continue the community building we started.

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