

Public Interest Technology University Network Challenge
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Institution: Franklin W. Olin College of Engineering
Project: Olin Public Interest Technology Clinic
Dates: 9/1/2019–11/30/2021
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Narrative Report

The Olin Public Interest Technology Clinic "PInT" is PInT is a student-led effort to cultivate pathways and opportunities for Olin's students, faculty, and staff to be creators, engineers, designers, artists, and activists who leverage and deepen their powerful technical and creative skills for justice, equity, inclusion, and doing good in the world. As part of PInT's effort to create strong career pathways for engineering students to make the world better, we run initiatives like our summer fellowship and consulting clinic, and organize several PIT-related events on campus each semester.

We were generously awarded a 2019 PIT-UN challenge grant to launch PInT and a 2020 continuing grant to renew and expand our Summer Fellowship program. The grants, like this narrative report, were co-authored by the undergraduate student organizers, who have developed, executed, and evaluated all of PInT's activities over the past 26 months. The students were also in charge of managing their budget and represented PInT and Olin's public interest technology work to the Olin community, the PIT-UN, and the wider public on multiple occasions. As PInT's faculty advisor and Olin's PIT-UN designee, I—Erhardt—am extremely proud of what we have accomplished during this time and beyond impressed by the abilities of our student organizers to own a project and budget of this magnitude.

Goals and Objectives

These grants addressed the PIT-UN's priority areas of educational offerings, career pipeline/placement, and faculty and institution building, with the largest emphasis on career pipeline/placement. We envisioned our core programs as helping students engage in practical, extra-curricular public interest technology work with community stakeholders and outside organizations.

Our 2019 challenge grant proposed three new initiatives with three overarching objectives to be pursued by a Public Interest Technology Clinic at Olin:

- Initiatives:
 - Well-scoped engineering projects executed by students with outside public interest organizations and support from faculty mentors.
 - A summer fellowship program that pays and mentors three students (~1% of students at Olin) to work on PIT projects with organizations and communities.

- A school year of community events and conversations about engineering, policy, society, and our responsibility as engineers.
- Objectives
 - Our core objective was to provide new opportunities for practical education in PIT for Olin students.
 - Our secondary objectives are to generate awareness of PIT career paths and to strengthen connections between the PIT community and Olin.
 - Our tertiary objective is to extend this work to our peer institutions in the Greater Boston area.

We successfully launched each of these initiatives in fall 2019, although the activities were significantly transformed by the pandemic arriving in the U.S. in spring 2020. We were very successful with our core and secondary objectives. Our third objective was unrealized. We invited folks from our neighboring institutions Babson College and Wellesley College to some of our events. However, the pandemic and the realization that we needed to iterate and refine our model for engaging undergraduates in public interest technology at Olin before we could responsibly expand beyond led us to focus on serving our unique community at Olin throughout the duration of the grant.

Our 2020 continuing grant proposed enhancing and expanding one of our PInT's signature initiatives by offering summer fellowships to five students for in-depth, PIT work with partner organizations and communities

- Objectives
 - Our core objective was to provide new opportunities for practical education and identity development in PIT for Olin students through a second, larger iteration of our summer fellowship program.
 - Our second objective was to generate further awareness of PIT career paths at Olin.
 - Our third objective was to share our approach with peer institutions.

We successfully ran a second year of our summer fellowship program during the 2020–2021 school year, and we achieved all of our objectives by expanding the program, engaging more of the Olin community in PInT programming—fellowship and otherwise, and sharing our work to peer institutions through PIT-UN channels and in dialogue with student groups at other institutions.

Results by Initiative/Program

See the [Appendix](#) for links to publications, conference presentations, press releases, and other artifacts from the activities mentioned below.

Consulting Clinic

We've run three rounds of our student-led consulting clinic, collaborating with a total of nine nonprofits and supporting internal projects involving ethics in engineering curriculum and hydroponics. Some of the external nonprofits we've worked with include Crotched Mountain, EDGI, Out Maine, and Micro Museums. The focus of these projects range from building web apps to designing educational museum kits for elementary students. Students get a chance to develop and apply technical skills while learning to work in a public interest context alongside a group of peers. All of these projects are completely student led. Over the course of the past three years, we've had over 40 different students participate in a consulting clinic or internal project.

Summer Fellowship

We ran two rounds of our student-led summer fellowship, supporting eight fellows to pursue summer internships at public interest tech organizations. Over the course of 8 weeks, fellows work on an engineering or design project with a public interest tech organization of their choice, and get to explore what a serious career in a PIT field might look like. Some of the organizations that fellows have been placed at include Kyaro Assistive Tech, Access SOS, and Boston Civic Connect. We have located the minimal amount of funding necessary to run a third fellowship round this coming summer, and are in the process of establishing a sustainable source of funding to run this program annually.

Speakers, panels, and media screenings

We've invited dozens of speakers and panelists to share their experiences in public interest tech, including guests from Code for America, Recidiviz, and Accelerate Wind. In addition to external guests, we also invited faculty, alumni, and students to speak about their experience working in public interest tech. We've also hosted media screening and current event discussions open to the entire college campus. In October, we hosted a screening of Frances Haugen's 60 minute interview and opening statements to Congress, followed by a discussion of tech in ethics afterwards. In November, we hosted a screening of a documentary about racial bias in AI algorithms called Coded Bias.

Connecting with other student PIT groups

We connected with other institutions with active PIT groups such as Stanford about the potential to collaborate and build an informal network of student PIT groups. We also connected with students at University of Massachusetts to discuss the process of starting a PIT student group. One of our ongoing projects is to create a guidebook for new student PIT groups to learn how to establish themselves and find resources and support at their respective universities.

Additional direct impacts at Olin

- PInT's "civic engagement" subteam worked on integrating a focus on ethics into one of Olin's foundational courses that every student takes at our college. This course now requires students to view and discuss the film *Coded Bias* when studying facial recognition algorithms.
- We designed, renovated, and bought furniture for PInT's meeting space on campus. Not only does this provide a welcoming and comfortable physical space for PInT to host meetings, but it also establishes and legitimizes our presence as a student organization. Having a gathering space dedicated to doing PInT work makes it easier for students to meet, build and store projects, and host deeper conversations about PIT.
- In fall 2021, we worked with our college's post graduate planning office—whom we have been working with since the beginning to co-sponsor activities with alumni—to advertise and increase attendance for a virtual PIT career fair on campus. Through our physical and digital presence on campus, we also send out announcements about PIT internship and job opportunities with the goal of making it easier for students to access and learn about a career in PIT.

Sharing our work across the PIT-UN

We have shared PInT's work at numerous PIT-UN-related events including: 2021 & 2020 PIT-UN Convenings, the 2020 IEEE International Symposium on Technology and Society, the 2020 Public Interest Technology Undergraduate Informatics Education Conference, and A Better Tech Public Interest Technology Convention and Career Fair. Details and links available in the [Appendix](#).

Challenges Encountered & Lessons Learned

Bringing the community together during COVID: While COVID made it difficult to create a sense of community since we couldn't meet in person, we did our best to leverage technologies we had access to to build a welcoming and engaging team culture. Besides meeting regularly over Zoom, we used websites such as gather.town to find new ways to meet online. As more organizations moved online and learned to connect virtually, the pandemic actually opened up the opportunity to work with external stakeholder groups in both our clinic and fellowship programs that weren't in the geographic vicinity of Olin or the communities our fellows were located in.

Providing meaningful undergraduate experiences in public interest technology: It was challenging to find well-scoped, semester-long projects with external stakeholder groups. It was especially challenging to support incoming first year students who had little to no experience working with external stakeholders and had trouble navigating the uncertainties inherent to public interest technology work. We learned a lot about how to scope a technical project with an outside organization and had many conversations about balancing fruitful learning experiences with meaningful and substantial impact. In some of our projects, student teams had a lot of

creative freedom in deciding what the final deliverables would look like, but a lack of structure and clarity made it difficult to understand what the goal of the project was. Many consulting project teams ended up spending a majority of their time talking with stakeholders and learning to ask the right questions to understand user needs and the best ways to address those needs. These learning experiences could be powerful, but the uncertainty and poor communication from many community partners was frustrating and demotivating for students. Ultimately, we're continuing to iterate on the structure and support systems for external consulting projects in order to provide more meaningful PIT experiences for students.

Finding a sustainable source of funding: Since PInT is a new organization at a relatively new institution, we lack a large alumni support network. One of the main challenges we ran into is finding a sustainable source of funding for our consulting clinic projects, campus initiatives, and fellowship program. We're in the process of locating a corporate sponsor who can help support PInT every year. In the meantime, we ran a fundraising campaign in November 2021 to support next semester's clinic projects, and will set up a fundraising page that people can donate to throughout the year.

Conclusion

PInT's student organizing team is constantly thinking of ways to refine and experiment with the consulting clinic and fellowship. Looking ahead, we are eager to continue building a culture around public interest technology and the broader idea of responsible, community-engaged design among Olin's students. Cultural organizing has been hard because of the pandemic and the diversity of projects working in different domains with different user groups. We are also considering ways to provide greater support to first years and sophomores as they grapple for the first time with uncomfortable technically and contextually complex challenges. During the past two years, PInT's organizing team has learned a lot about what works and perhaps more about what doesn't work. We thank the Public Interest Technology University Network, New Venture Fund, New America, and the generous funders of the challenge grant program for the funding necessary to let us explore these possibilities, grow in our leadership capacities, and help many Olin students develop pathways into public interest technology careers.

Certification

As stated in Section VII(B) of the Agreement, we certify: All Franklin W. Olin College of Engineering activities conducted with the Grant funds were and are consistent with charitable purposes as set forth in Section 501(c)(3) of the Internal Revenue Code, and Franklin W. Olin College of Engineering complied with all provisions and restrictions contained in this Agreement, including, for example, and without limitation, those provisions related to lobbying and political activity.

Intellectual Property and Assets

No intellectual property or assets were produced or procured as a result of these projects.

Appendix: Publications and Media Generated by the Project

PlnT's website: <http://pint.olin.edu/>

- Strategic plan for PlnT in Academic Year 2020-21:
<https://github.com/sdaitzman/Olin-PIT-site/blob/strategic-plan-2020/Strategic%20Plan%202020.md>

Research Papers and Conference Presentations

- Peer-reviewed paper by PlnT's founding organizers about creating the clinic for the IEEE International Symposium on Technology and Society (ISTAS):
 - Citation: S. Chowdhary, S. Daitzman, R. Eisenbud, E. Pan and E. Graeff, "Care and Liberation in Creating a Student-Led Public Interest Technology Clinic," 2020 IEEE International Symposium on Technology and Society (ISTAS), 2020, pp. 164-175, doi: 10.1109/ISTAS50296.2020.9462188.
 - URL:
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9462188&isnumber=9462166>
- Magazine-length version of the IEEE ISTAS paper for Technology and Society magazine:
 - Citation: S. Chowdhary, S. Daitzman, R. Eisenbud, E. Pan and E. Graeff, "Care and Liberation in Creating a Student-Led Public Interest Technology Clinic," in IEEE Technology and Society Magazine, vol. 40, no. 3, pp. 50-52, Sept. 2021, doi: 10.1109/MTS.2021.3101915.
 - URL:
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9527371&isnumber=9527337>
- PlnT Organizers presented their model for a student-run PIT Clinic at the PIT Undergraduate Informatics Education Conference at University of Texas.
 - Citation: S. Chowdhary, E. Pan, S. Daitzman and E. Graeff. 2020. "Launching a Student-Run Public Interest Tech Initiative." Public Interest Technology Undergraduate Informatics Education Conference, University of Texas, Austin, TX, Mar 3–4.
 - Presentation materials:
<https://www.facebook.com/pintatolin/posts/293587312037614>
- COVID-19 PPE project "Pneumask" from Stanford's Prakash Lab, which PlnT students Kyle Combes, Emma Pan, Khang Vu, and Kelly Yen contributed to:
 - Project page: <https://www.pneumask.org/>
 - Peer-reviewed paper citation: Kroo L, Kothari A, Hannebelle M, Herring G, Pollina T, et al. (2021) Modified full-face snorkel masks as reusable personal

protective equipment for hospital personnel. PLOS ONE 16(1): e0244422.
<https://doi.org/10.1371/journal.pone.0244422>

- Tang Institute at Phillips Andover the ethi{CS} summer project conference panel on "Building our Network to Advance Tech Ethics Education" featuring PInT organizer Sam Daitzman:
<https://tanginstitute.andover.edu/blog/2021/the-ethics-summer-conference-returns>
- A Better Tech: Public Interest Technology Convention and Career Fair IDEAS talk "Design Refusal as Public Interest Technology" by Erhardt Graeff and Shreya Chowdhary

PIT-UN Event Participation

- 2021 PIT-UN Convening
 - [Experiential Opportunities and PIT Competencies](#) panel featured Erhardt Graeff discussing PInT
 - [Student Perspectives on PIT](#) panel featured PInT organizer Arla Sutton
 - [Challenge Award Videos and Discussion: Round 1](#) featured video poster by Olin students and PInT organizers Sam Daitzman and Kelly Yen as well as Erhardt Graeff describing the 2020 Olin College Public Interest Technology Clinic Summer Fellowship Program. Video:
<https://www.youtube.com/watch?v=ib7nBS-ligI>
- 2020 PIT-UN Convening
 - Real World PIT Applications for Students panel featured Erhardt Graeff discussing PInT. Video: <https://www.youtube.com/watch?v=e25IRLENWWA>
 - Real World PIT Applications for Students - 2019 Grantees Poster session featuring PInT video by Erhardt Graeff. Video:
https://www.youtube.com/watch?v=I_VjFNXBWN8
 - Career Pathways in PIT student-focused workshop co-led by PInT organizers Emma Pan, Arla Sutton, and Sam Coleman. Video:
<https://www.youtube.com/watch?v=1h0xJkoJ9cE>
- 2020 PIT-UN Summer Panel on Student Perspectives on PIT Inspirations and Pathways features PInT founding organizer Shreya Chowdhary:
<https://www.newamerica.org/public-interest-technology/events/student-perspectives-pit-inspirations-and-pathways/>. Video: <https://www.youtube.com/watch?v=31pccyFEB2U>

Consulting Clinic and Fellowship Showcase Materials

- Fall 2021 PInT clinic teams project showcase slides:
<https://docs.google.com/presentation/d/110b5fuo7KV5GUsekysLb7ocl8-XICSjp0h9gMraldcc/edit?usp=sharing>
- 2021 PInT Summer Fellows celebration slides:
<https://docs.google.com/presentation/d/1167XsK6ATZxRo4tZQ9zMif6NnMBwL6goWD4yHnaioUk/edit?usp=sharing>

- Spring 2021 PInT end of year project showcase slides:
<https://docs.google.com/presentation/d/1lah3UyfZggnKxTEaGHBv9jx-Lw9KELMrFc66Od9XkkM/edit?usp=sharing>
- Fall 2020 Clinic team that worked on technology to disrupt human trafficking reported on the ethical considerations that led them to stop building their project. Video:
<https://www.facebook.com/pintatolin/posts/212251106837902>

Olin College PInT-related Press Releases

- March 11, 2019 press release features PInT organizer Shreya Chowdhary with first mention of clinic that would become PInT:
<https://www.olin.edu/news-events/2019/olin-college-joins-public-interest-technology-universities-network-charter-member/>
- May 2, 2019 press release about PInT's first party to generate interest for students around PIT: <http://www.olin.edu/the-wire/2019/interest-grows-public-interest/>
- October 30, 2019 press release about PInT's first grant featuring photo of organizer Emma Pan and Erhardt Graeff at Georgetown:
<https://www.olin.edu/news-events/2019/olin-college-awarded-grant-expand-public-interest-work/>
- November 20, 2020 press release about PInT's second grant and including details about our first three summer fellows:
<https://www.olin.edu/news-events/2020/olin-awarded-second-public-interest-technology-grant/>
- October 21, 2021 Olin News post about design refusal research being conducted by Erhardt Graeff and PInT organizer Shreya Chowdhary based on a 2019–2020 consulting clinic project:
<https://www.olin.edu/news-events/2021/the-art-saying-%E2%80%9Cno%E2%80%9D-design-refusal/>