

Final Report from PIT-UN Grantee, the Center for Serve-Learn-Sustain at Georgia Tech:
Community of Practice: Technology and Experiential Education for Public Good (2020-2021)

Goals: With PIT-UN funding, Georgia Tech’s Center for Serve-Learn-Sustain sought to establish a Community of Practice (CoP) comprising engineering faculty, students from three of our largest engineering schools, grassroots partners, and Georgia Tech’s Diversity, Equity, and Inclusion office (IDEI) and its Career Center. The objectives of the CoP were to establish a PIT career pipeline program in collaboration with IDEI and the Career Centers, with a special focus on underrepresented students, and to build relationships between our engineering schools and our grassroots partners that result in greater PIT-project capacity for both.

Outcomes: We successfully recruited a dynamic cohort of 10 engineering students (90% students of color, 70% URM students, surpassing our goal of 50%) who participated in a spring co-learning and project-development-focused Community of Practice (CoP) with five community partners and four engineering faculty members. We hosted five professional development boot camps tailored to students’ majors (100% participation), helping them hone their cover letters and interview strategies, with a special focus on how to articulate the importance of engineering project work with community partners. We engaged all 10 students in summer internships with five community partners and supported them through a PIT cohort group of their own in SLS’s Summer Internship Seminar program, focused on equity, social innovation and the UN Sustainable Development Goals. One student fellow—who interned with a neighborhood revitalization organization—penned a short reflection, shared below, on his experience as a PIT Student Fellow and how the programs’ structure and emphases affected his career aspirations:

“Starting off my Summer 2021 internship, I had a very good idea of the work I was going to be doing with the Grove Park Foundation. The Public Interest Technology Fellowship weekly meetings we had during the Spring semester introduced me to a world of sustainable innovation with the consumer, the future of the project, longevity and the UN SDGs in mind. We identified a common problem in the Grove Park Neighborhood: Food Insecurity. To hit the ground running, we found ways to deeply understand food insecurity in this community, identifying the impact gaps, planning our work, and breaking it into three areas of core focus: Cost Effective and Efficient Food Box Delivery and Cold Storage system, Storm and Rainwater Capturing System tied to Garden Boxes and a Healthy Food Dashboard for the Grove Park Community. From these objectives, my focus was creating an efficient and cost-saving framework for the implementation of a food box delivery system working in conjunction with various NGOs providing food boxes to the community and modeling a storm and rainwater collection system that would allow urban agriculture in the neighborhood. From these projects, I got to interact with community members and NGOs focused on improving livelihoods in a community ravaged by long term effects of years of dis[investment], inequality and above all, located in a food desert with no grocery store and a myriad of disparities including poor access to health services. It broke my heart to see how the story of a black child is the same anywhere you go in the world: characterized by inequalities, discrimination, generational trauma, and poverty. I come from poverty, so I know how it feels to wonder where your next meal is going to come from, especially as a child. I had to do more than just donating food and clothes to those

who needed them the most, but to be at the forefront of a Food-Energy-Water system framework that will empower this community and help them get out of the dire situation they are in. This experience made me realize how vital non-profits like the Grove Park Foundation are to the revitalization of such burdened communities and informed my desire to venture into such work at one point in my future . . . with Asset-Based-Community-Development, Public Interest Technology, Servant-Leadership, and Progress and Service at the forefront of my work.”

Lessons Learned: An important takeaway from this pilot initiative was that a different approach to engineering project development is required. Understanding that engineering students experience capstone or senior design as a formative learning experience – and too often are only exposed to project opportunities with industry and corporate partners – we sought to support partners and students in developing *engineering* PIT projects. These projects, in our vision, would be undertaken by PIT Student Fellows in concert with their community partners during the summer internship period and then would segue into capstone design programs the following fall with the support of the faculty mentor. For example, the students working with a mechanical engineering faculty mentor would engage that faculty members help in transitioning the project – begun by the student fellows – into the mechanical engineering capstone program. In practice, we learned that a few key factors made this difficult: most importantly, despite a semester of workshops together, community partners were underprepared to co-develop projects that leveraged disciplinarily specific engineering skills. Such a request requires, we saw, much more extensive support for the partner, in the form of a deeper dive into the subdiscipline (such as mechanical engineering). It also requires intensive support from an engineering faculty mentor in developing a mission-aligned project for the partner that undergraduates can begin in the summer and can finish executing—within the rigid structure of senior or capstone design—during the fall. For the cohort of PIT student fellows, the reality of these many demands manifested as projects that were powerful learning experiences, but not as closely connected to their technical skills as we had initially hoped. However, as we learned through reflections like the one quoted above, and through our end-of program survey, students were still able to gain path-shaping experience working with a community partner and understanding social and historical context in ways that will positively impact their PIT career aspirations.

As part of our work to build bonds among the engineering faculty mentors on the project team and learn more from professionals in the equity space, we introduced our PIT work broadly to the national American Talent Initiative, representing GT at their June 2021 “Equity in the Academic Experience Institute. We joined the Institute with a team of 6 GT PIT collaborators from three engineering departments workshopping our Year 2 proposal to identify best ways to support BIPOC and first-generation students. Additionally, through sharing word of our project’s goals and structure through Serve-Learn-Sustain’s sustainability networks, the project influenced RCE Greater Atlanta partners in the submission of a funding proposal to launch a multi-institutional, local-global community science research “collaboratory.” The team of five Atlanta area universities and colleges (including two HBCUs and one MSI), two universities from the Global RCE network (Canada and South Africa), and three Atlanta black-led community organizations includes PIT community partners, which further facilitates continued sharing and learning.

Perhaps most significantly, we leveraged the relationships and momentum from the 2020-2021 PIT-UN project to create a new initiative working with Georgia Tech's Writing and Communication Program. The initiative (which was the focus of our unsuccessful 2021-2022 PIT-UN proposal and was then funded by an internal grant at Georgia Tech) brings together 4 Brittain Fellows in the Writing and Communication Program (WCP), and 4 College of Engineering faculty members from Civil and Environmental Engineering (CEE), Industrial Engineering (IE), Chemical and Biomolecular Engineering (ChBE), and Electrical and Computer Engineering (ECE), respectively. The 4 selected Brittain Fellows –each with different kinds of teaching and research experience at the intersection of technology, equity, and communication—met with College of Engineering faculty partners throughout the 2022 spring term to collaboratively design a PIT- and service-learning-infused syllabus appropriate for all first-years, but of particular interest to CoE students.

Summer 2022 sections of English 1102 are focused on building rapport and trust with partners, as Brittain Fellows immerse themselves more deeply in the partner organization's mission and vision and as the partner comes to better understand the goals of the ENGL 1101 and 1102 (which are, at Georgia Tech, designed as “multimodal” communication courses). For example, one section of ENGL 1102 meeting for the five-week summer session June 2022-July 2022 is focused on a sustainable food social impact business that draws on cutting edge technologies to create edible insect proteins. The partner- a BIWOC entrepreneur – will host the students at all three of her insect farm work sites, and students will create digital deliverables for her that help to tell the story of the company and connect it to social innovation in the food security sector across the globe. This summer iteration of the course partnership will be expanded and deepened for the Fall term, during which the same Brittain Fellow and partner together with the College of Engineering faculty collaborator will create ways to transition summer projects into the fall term or scale up the more modest deliverables of the summer semester. As this example demonstrates, general PIT sections of English 1101 and 1102 for Fall 2022 will include: 1) case studies illustrating how public interest technology projects and careers engage both humanities and engineering skill sets and 2) work on a community partner's real-world public interest technology project, requiring both humanities and engineering skills. If we are able to institute major-specific sections in Spring 2023, those major-specific sections will incorporate case studies reflective of skills and approaches integral to the major and attentive to PIT career opportunities in that engineering field. Over the course of the three semesters that PIT-focused sections are offered (with 4 sections of ENGL 1101/2 in summer, fall, and spring), approximately 200-240 students will be impacted.

Specific to the transformative potential of the PIT-themed sections of ENGL 1101 and ENGL 1102, CoE students want earlier exposure to courses that offer experiential learning and provide them with a robust foundation to develop technology for the public good. A reflection session with SLS's 2020-2021 PIT Student Fellows was notable for their uniform agreement that there should be more and earlier opportunities for students to work with community partners and develop the humanities and technical skill sets that make them successful in doing so. Our new PIT program does just that, by creating the foundation via service learning in first-year composition for a PIT pathway in College of Engineering. Further, an emphasis on public interest technology education is consistent with the Institute's own agenda for transformation; the current strategic plan prioritizes developing “agents of change for the public good and

generat[ing] talent, ideas, and solutions with unmatched impact and scale to help define and address the most critical problems of our time, locally and globally.” PIT-infused courses, projects, and partnerships are positioning Georgia Tech STEM students to contribute their skills, creativity, and energy at the leading edge of social innovation and technology that makes a profoundly positive social impact.

Related Media: Public Interest Technology Student Fellows Program (blog post introducing 2021 program):

<https://serve-learn-sustain.gatech.edu/sls-launches-public-interest-technology-student-fellows-program>

Reflection by 2021 Public Interest Technology Student Fellow (Tuelo Rapotsanyane):

<https://serve-learn-sustain.gatech.edu/sustainable-communities-summer-internship-program-reflections-past-interns>

Public Interest Technology for First Year Engineers (blog post introducing 2022-23 program):

<https://serve-learn-sustain.gatech.edu/public-interest-technology-first-year-engineers>