

Final Report

Grant Information: *NVF-PITUN-Trustees Of Columbia University In The City Of New York-Subgrant-009258- 2020-01-01*

Proposal Title: Rethinking Human Computer Interaction: New Design Principles for Public Interest Technology

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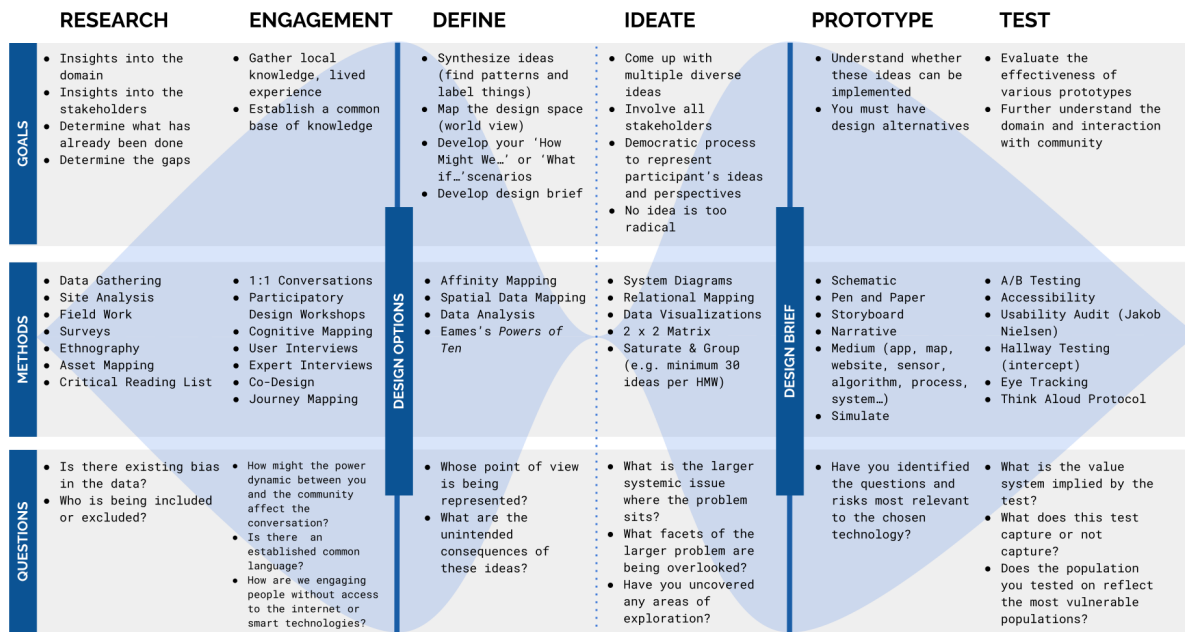
Project Summary: As more of our lives are represented by data, technologies based in computation are reshaping systems of power and inequality in the world. In response, we propose a new curriculum for technology design, one that rethinks Human Computer Interaction and that specifically promotes Public Interest Technology.

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1. Report:

As this grant completes, we are happy to report the progress made towards our goal of rethinking human computer interaction (HCI) and introducing design principles for public interest technology. The main contribution we have made is to augment the “double diamond” process chart which is used in HCI and design classes around the world to include “PIT questions” at every stage of the process that help steer the design process towards a more just, fair, and equitable process and outcomes.

Public Interest Technology Design Process



Lydia Chilton, Mark Hansen, Laura Kurgan, Celeste Layne

This information is publicly available at our website: <https://www.columbia-pit.com/>

This chart was developed and tested with faculty and interdisciplinary students during a 3-week summer lab, and used during our semester-long Fall 2019 class.

In this document we detail the educational activities, impact and the PIT-UN network, and broad impact in terms of both the spread of PIT knowledge and deploying PIT projects.

a) Educational Activities

As promised, during the course of the grant period, we taught two PIT classes: a 3-week “summer lab” and a semester-length class taught during Fall 2020.

Summer Lab. The summer lab was run in July of 2020. Eighteen students participated full time (40 hours a week) for 3 weeks. Due to COVID, it was conducted fully remotely. Every day there were 4 hours of zoom time together and 4 hours of teamwork. We paid students to participate in a prototype of the fall class to learn what works and what doesn't. Doing interdisciplinary work is challenging because of the different assumptions, experiences and talents of students. But it is

ultimately more rewarding. We suggested a panel on conducting interdisciplinary classes and projects for Public Interest Technology University Network 2020 Virtual Convening in November of 2020. The suggestion was accepted and Lydia Chilton spoke about our experiences during that panel.

Fall 2020 class. The Fall 2020 class was entitled “Public Interest Technology: Cities, Design, Code, Reporting”. We accepted 50 students from Computer Science, Architecture, Urban Planning, Journalism, and Public Affairs. The syllabus and final projects are available online: <https://www.columbia-pit.com/> We followed the PIT double diamond model and completed one stage of the design process each week, with PIT reflections and both peer and faculty feedback.

We partners with the Queens Public Library as a source of potential need for “public interest technology.” Public libraries are public goods, and libraries are often a place where the public interact with technology through computers, and getting assistance with digital tools.

b) PIT-UN Network Impact:

During the Summer and Fall classes, we invited many outside speakers to engage with the people and ideas of “Public Interest Technology.” We invited two speakers within the network to speak about their PIT experiences:

Jonelle Bradshaw de Hernandez, Ph.D., the Executive Director of Foundation Relations at UT Austin gave a talk entitled: “The Quest for Balance: Technology, Innovation and the Public Good in Higher Education.”

Erhardt Graeff, an Assistant Professor of Social and Computer Science at Olin College of Engineering gave a talk and answered questions about his PIT work.

Additionally, we invited several high-profile academics to wrestle with PIT questions including:

- **Eric Klinenberg**, Author of “*Palaces for the People: How Social Infrastructure Can Help Fight Inequality, Polarization, and the Decline of Civic Life*”
- **Michael Schudson** author of “Why Journalism Still Matters”
- **Deborah Estrin**, Associate Dean and Robert V. Tishman '37 Professor at CornellTech
- **Greta Byrum**, Director at Community Tech NY and former director of the Resilient Communities program at New America
- **Shannon Matttern**, Professor of Anthropology at The New School for Social Research
- **Karen Fairbanks**, Professional Practice in Architecture and Chair of the Department of Architecture at Barnard College
- **Leah Meisterlin**, Assistant Professor in Urban Planning at Columbia GSAPP

c) Impact

There are two forms of impact we have had: 1) spreading knowledge of PIT ideas and practices and 2) deployed PIT projects.

The PIT teaching materials, including the PIT Double Diamond are freely available online and are currently being used in a new class, “Design Justice” at Columbia, co-taught by Desmond Patton, Harry West, and Lydia Chilton. We’ve presented the results of the class in at least 20 presentations by faculty, students and prospective students.

The class resulted in several successful projects that lived beyond the class. A few we will highlight include:

Qualifying for Government Benefits Quiz

A texting chatbot to help individuals check if they qualify for government benefits in less than 5 minutes. Users such as Merry, a low-income paralegal in Los Angeles, said: "I really like the texting format because it's hard for me to download apps and it takes too much time to make calls. I like this chatbot better than online forms like CalFresh has."

Defne Sonmez, Iliana Cantu, Nava Amalfard, Michelle Quin

Mentor: Lydia Chilton

Power Reclamation through Technology

Enhancing Clearfork’s ad hoc local network to address community needs

Clearfork Valley is currently mitigating the institutional impacts of the long, exploitative history of the mining industry. Despite many challenges, Clearfork remains resilient with a thriving Appalachian culture and hope in the potential of reliable internet access.

The community has improved access to the internet through newly installed Portable Network Kits. This new design not only supports existing community efforts, but also expands on the off-grid applications available on the PNK through an improved user interface and new archiving platform.

Community members and visitors to Clearfork are able to share, preserve and explore the history and culture of Clearfork on a local network with easily navigable functionality. The updates to the PNK is a mechanism for empowerment that looks “beyond the goal of simply connecting people to the internet.”

Regina Alcazar, Dillon Davis, Zuzanna Jarzynska, Karen Lin, Yuanyang Teng, Evan Tilley, Ian Wach, Bonnie Wang

Mentor: Mark Hansen

Culture Buddies

A mutual aid network to bridge cultures while supporting immigrants and non-English speakers in Queens.

Culture Buddies is a program allowing people attending a QPL event to be paired together to stay on after the event to assist each other with a language needs. It is geared towards anyone residing in broader New York City, who would like to attend at least one QPL event, has access to a computer/smartphone and an internet connection, and is willing to meet other members of their community to receive or give language-related assistance.

Paul Berthe, Rupal Gupta, Andrea Molina, Ramisa Murshed

Mentor: Laura Kurgan

Supporting Community Fridges

Knowledge sharing in mutual aid networks

We created a web application that would allow community fridge volunteers and organizers to share information and resources with one another in a centralized and user friendly way. Our product is an example of public interest technology because it aims to assist mutual aid organizers who promote social good in their communities.

Sharon, Pazit, Francesca, Zoe, Rousol

Mentor: Celeste Layne