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EXPLORING THE CURRENT LANDSCAPE OF TRANS TECHNOLOGY DESIGN

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Exploring the Current Landscape of Trans Technology Design

Transgender people face substantial challenges in the world, such as discrimination, harassment, and lack of access to basic resources. Some of these challenges can be addressed to some extent with technology. This paper examines the world of trans technologies: apps, health resources, art, games, and other types of technology designed to help address some of the challenges transgender people face in the world, and to create spaces for trans communities and individuals. Trans technologies included in the study include Solace (described in detail below), Trans Lifeline, a peer support tool to help trans people in crisis, Transgender Media Portal, a web resource making trans films and audiovisual works available to the public (and whose creators explicitly consider it a trans technology (Horak, 2020)), and a wide selection of trans games and art, voice apps, augmented reality and virtual reality systems, surgical procedures, prosthetics, and many more.

By examining and analyzing trans technology creators' experiences, I argue that trans tech design can be empowering for creators yet is sometimes isolating and potentially exclusionary. I describe trans technology design processes and instances when they do and do not include and account for trans communities and multiply marginalized trans people.

What "trans technology" is, and what it means for technology design, is an important conversation that impacts how technological innovation may improve trans lives and wellbeing. Prior work defined "trans technology" as technology that "allow[s] trans users the changeability, network separation, and identity realness, along with the queer aspects of multiplicity, fluidity, and ambiguity, needed for gender transition" (Haimson et al., 2019). In later participatory design work (Haimson et al., 2020), "trans technology" expanded to mean technology designed with and for trans communities to address challenges trans people and communities face. These definitions do not conflict, but

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their differences signal the need to better define the problem space and identify areas for innovation.

In this work I address the following research questions: What do trans technology design processes look like? To what extent do existing trans technologies meet the needs of trans people and communities? This work makes social and intellectual impact by illuminating the trans technological landscape, the design processes that brought these technologies to life, and the ways trans people often must rely on community to meet their most basic needs and challenges. In this paper, I discuss which trans needs and challenges are currently being addressed by technology, which still need to be addressed, and how creators of trans technologies are accomplishing this work.

Prior research has discussed marginalized groups' experiences with technology (e.g., Ahmed et al., 2021; Costanza-Chock, 2020; Dombrowski et al., 2016; Erete et al., 2018; Harrington et al., 2019; Rankin & Henderson, 2021), but has not specifically focused on trans technologies and the broad trans technological landscape. Trans people are an important marginalized group to study, as they face incredible barriers to existing in the world that are often amplified by technology. This work builds on academic work about gender, identity, and technology by describing technology design for a particularly marginalized gender minority group. Additionally, by illuminating if and how trans people are involved in trans technology design processes, this work contributes to academic conversations about how human-centered design actually works in practice, in contrast to how it *should* work.

I conducted an in-depth interview study with 115 creators of existing trans technologies to understand the world of trans technology design, both its exciting aspects and its limitations. My research team and I used criterion sampling (Maxwell, 2012), an approach in which we selected participants who met a particular predetermined criterion – in this case, being creators, designers, or developers of some type of trans technology. We conducted semi-structured interviews, primarily via Zoom, that lasted approximately sixty minutes. We asked participants about the story of their technology's ideation and creation, their design processes and who was involved, challenges they faced, their conceptions of trans technology, and more. With a semi-structured format, interviews focused on topics most salient to participants. Participants were compensated with a \$100 gift card or check. This study was reviewed and deemed exempt by University of Michigan's Institutional Review Board. For data analysis, I followed an iterative inductive qualitative coding technique drawing from open coding and axial coding techniques (Corbin & Strauss, 2008) and reflexive thematic analysis (Braun & Clarke, 2021) to analyze the interview transcripts and field notes. I was lucky to have the help of several members of my research team – Kai Nham, Aloe DeGuia, and Hibby Thach – who collaborated with me on making sense of the data, creating and revising codes, and generating themes.

Solace, a gender transition tracking app created by a trans woman in Washington, is an example of how trans technologies have recently begun to be both visible and monetized. The app, which enables its users to create a gender transition “to do” list and then provides resources to accomplish those goals, gained widespread attention and notoriety when its leadership announced in 2021 that they had received substantial

venture capital funding to support the app. Solace's monetization was in stark contrast to many trans people's realities, in which they struggle to find basic resources like safety and healthcare, and the app only acknowledges and addresses these types of wellbeing needs to a limited extent. Notably, Solace encourages its users to transition in isolation, with no social or community elements – an unexpected orientation for a population who have historically found support from a community of similar others. Yet its tens of thousands of users signal its importance for a large facet of potentially isolated users. In this research, I discovered how Solace's interface and features reflect its creator's values – a white trans woman who stated in our interview that she chooses not to be part of trans communities. On one hand, the fact that Solace's founder created and gathered funding for an app that allowed many others to mirror her own solitary transition experience could be seen as empowering. At the same time, the design may not fully represent the needs and desires of the larger trans population, particularly trans people of color, those facing economic precarity, and others whose identities sit at the intersection of multiple forms of marginalization. Solace is only the tip of the iceberg when it comes to trans technology – the visible part of a much larger world of technologies designed for, but only sometimes by and with, trans communities. In this paper, I explore that world.

By examining creators of trans technologies' experiences and design processes, I show how trans technology design processes are often deeply personal, and focus on the technology creator's needs and desires. Trans technology design can be empowering because technology creators have agency to create the tools they themselves need to navigate the world. However, when trans communities are not involved in design processes, this can lead to overly individualistic design that speaks primarily to more privileged trans people's needs.

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