Embodied AI and Collective Power

Designing Democratic Generative Things

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GENERATIVE THINGS

The State of Responsible Tech 2025

THINGS

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The State of Responsible Technology 2025

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Note: The portrait images are AI-generated based on the original images as an experiment thematically inspired by ‘Generative Things’. They were created with Chat GPT 4o. Prompt: “Black and white vector illustration, full portrait: head, hair, shoulders, arms visible, strong lines, clear contrast, white background, white clothing, format: 50 × 75 mm, 300 dpi (printable)”. The results may not correspond to the original. The designers apologise for the AI.

AI and society

Embodied AI and collective power: designing democratic generative things

Kars Alfrink

Introduction: generative things, Big Tech, and designer power

The emergence of generative things as a new class of physical objects that embed AI confronts designers with questions about how to relate to the dominance of Big Tech companies in the GenAI space and the resulting constraints on the design of embodied AI.

Generative things are physical objects embedded with AI capabilities that can autonomously create, make decisions, and adapt based on context. Unlike traditional digital AI, these objects exist in the physical world, merging computational generativity with material presence. They extend the functions of generative AI beyond screens into our homes and public spaces. These objects move beyond executing set programs to generating new responses, transforming how objects interact with humans and environments. Examples include wearables and future urban infrastructure designed to respond to citizens' needs and changing conditions.

The GenAI field that generative things rely on is dominated by Big Tech, partly because the main way of doing AI—requiring vast amounts of data, compute, and specialized labor—can only be executed by companies of extraordinary size. If and when generative things are built on top of the most prominent GenAI stacks, they further entrench Big Tech's power. Because these stacks prioritize particular qualities in their outputs (e.g., a specific style of language that is optimized for persuasiveness, or images that adopt visual aesthetics popular on web-based image boards), they inevitably limit the scope of what kinds of things can be made intelligent, in what ways, and towards which ends. By contrast, "alternative ways of doing AI" (Luitse & Denkena, 2021) include approaches designed around different values such as sustainability, decentralization, transparency, and accessibility. Without a doubt, these approaches come with their own limitations. Still, for those who would prefer not to contribute to the increasing dominance of a small set of companies in this space, such alternative approaches are worth seriously considering.

This brief sketch of the current moment raises the question of how much agency individual designers have to confront the power of Big Tech. In response to this question, I usually wheel out talking points about the need to democratize the workplace (e.g., Wolff, 2012) and socialize the data centers (e.g., Morozov, 2015). These days, I am not entirely satisfied with that response. Yes, the challenges posed by Big Tech dominance call for structural, collective responses that

are political and economic. This suggests that focusing on individual moral responsibility may be insufficient to address what, in my view, are primarily systemic issues. If this is correct, cultivating good intentions in individuals will be at best an inadequate means of effecting change. Instead, designers should consider organizing and acting as part of collectives. And yes, a critical leverage point for change is the ownership and control of the machinery that tech platforms rely on (e.g., data centers).

However, what I find less satisfying about my response is that it does not address design specifically as a discipline. So, in what follows, I want to work through a few points: First, I want to discuss how I think about the problem of Big Tech dominance. Then, because we want to develop specific prescriptions for what design can do, we need to have a model of what this 'design doing' consists of. So I offer that next. Following this, I talk about how this model of 'design doing' maps onto the agenda of democratizing tech towards public interests. I note some concrete challenges that design could focus on, particularly human-computer interaction design, when working on democratic generative things. And fifth and finally, I talk about how we could be doing all of this, not as individual designers but together with others in collectives.

The problem of Big Tech hegemony

I draw on James Muldoon (2022) to analyze the problem of Big Tech hegemony. For Muldoon, the issue lies not solely in surveillance or data collection but instead in the fact that social activities that were previously non-monetized are now commodified through data extraction. Big Tech companies profit from having the data, while users perform the work that generates it. The resulting wealth is concentrated among a small group of platform owners, who also control the infrastructure that platforms run on, without compensating the people and giving them a say in the continued development and operation of platforms.

To illustrate this point, take the Humane Pin and Rabbit r1, both examples of the initial wave of generative AI devices aimed at data extraction and profit. The Humane Pin, despite failing commercially by 2025, attempted to create user dependency through a $24 monthly subscription. Meanwhile, the Rabbit r1 gathers user interactions to enhance its "Large Action Model" for app use. Both devices commodify everyday moments, turning them into marketable data points and fostering dependence on corporate infrastructure.

Instead of better regulation or consumer protections, by focusing on the work that goes into data production, the distribution of the profits from it, and the control over the systems that enable the data production, Muldoon's analysis points to the case for collective ownership and control of technology. In this way, technologies are less likely to be built and operated exclusively according to private profit considerations rather than broader social goals.

Muldoon suggests a three-pronged approach for transitioning to democratically owned and controlled tech: resisting, regulating, and

recoding. Resisting involves empowering tech workers through organizing, strikes, and collective action, which can generate support for regulatory reforms while showcasing democratic alternatives to corporate control. Regulating entails using state power to impose stronger worker protections, pursue antitrust actions, and promote public utility designations; however, this is limited by corporate influence over regulators. Recoding means creating democratic alternatives to corporate platforms by developing new infrastructures within capitalism's "cracks," thereby embedding egalitarian values into the digital economy, in line with Erik Olin Wright's concept of interstitial transformation (2010).

The three strategies are meant to work together by having worker resistance build power for reforms, regulation create space for alternatives, and recoding provide concrete democratic models—collectively shifting control of the digital economy from corporate platforms to democratic institutions.

A model of design doing

To understand the role of design and designers in these changes, it is necessary first to clarify what design involves. I draw on the tripartite model proposed by Jonas Löwgren and Erik Stolterman (2004), which outlines three key activities in design: (1) framing and reframing the problem, (2) rendering, articulating, and creating or form-giving, and (3) planning or specifying.

In any design project, we repeatedly cycle through these three activities. Initially, we focus on framing the problem effectively. As the project progresses, we generate a variety of tangible artifacts that allow us to evaluate different design ideas. Towards the end, our emphasis shifts to translating concepts into actionable plans. However, it's important to note that these three activities evolve in tandem throughout the design process.

Framing, making, and specifying

If we approach Big Tech hegemony as a design challenge, we can use these three categories to consider what designers can do.

First, designers can develop new frames for thinking about the problem. This involves developing conceptual metaphors that allow thinking about a challenge in terms of something else. In so doing, we make it possible for people to make a particular diagnosis and concomitant prescriptions to address it (cf. Schön, 1993). For example, I have done so myself in the context of public AI, constructing the Arena metaphor to highlight that what I think is lacking in public AI is space for conflict to be surfaced and kept alive (Alfrink et al., 2024). We can use design framing to reconceptualize AI-enhanced objects beyond the dominant narratives of personal assistants or smart devices. We could instead frame them as community infrastructure or public utilities.

Second, we can make artifacts that embody a particular vision of a thing so that it can be sensorily experienced. These sketches and prototypes make up the bread and butter of design practice. They have varying degrees of finish (lofi, hifi) and relations to the future (affirmative, speculative). For example, in my practice, I produced

a concept video of a contestable camera car, so that my audience could imagine what it would be like to have such a vehicle surveil city streets and discuss its implications (Alfrink et al., 2023). We can use design making to create experiential prototypes demonstrating how living with democratic AI objects would feel and work. When these prototypes initiate discussions and question prevailing narratives, they may also serve as 'provotypes' (Mogensen, 1992)—objects designed not to validate or demonstrate, but to encourage reflection, experimentation, and dialogue.

Thirdly, we can put our engineering caps on and draw up plans, specifications, and schematics for building the actual thing. We can use 'design specifying' to develop concrete plans for community-controlled tech infrastructure. I do not hold a linear deterministic view of how design relates to system building. Existing tech systems—generative things included—are continuously designed and redesigned. And this design is performed by groups, not individuals, consisting of people who do not necessarily have formal training in design or identify as designers. In this context, designers become like stewards, and their role is never finished (Dubberly, 2022). As a consequence, traditional specifying changes from the production of a one-off artifact that is delivered for downstream use (the "spec") to an activity of accompanying development in an ongoing manner. This means that we, as designers, should not just be in the business of framing and envisioning. We should be equally interested in projects that seek to build alternative systems practically.

Towards democratic generative things

What things could designers who work in human-computer interaction focus on if they are keen on furthering this vision of publicly controlled tech in general and democratic generative things more specifically? The challenges facing us are legion. Here are two starting points that I see.

First, we could design generative systems with built-in mechanisms for community control, transparency, and contestability. These systems would reveal their inner workings and allow communities to collectively manage their operation, reprogram behavior, or disable them democratically. This shift would transfer decision-making power from corporations and individuals to collective bodies, ensuring AI systems reflect the values and needs of the communities they impact rather than corporate interests.

Second, we could shift from personal AI assistants to generative objects that enhance group experiences and aid collaborative decision-making on community issues. Instead of focusing on community control of AI, these tools would facilitate collective deliberation on public concerns like resource allocation. This approach emphasizes community engagement over personalized convenience, generating communal value rather than private gain and helping to reduce isolation caused by individualized AI interactions.

In all these areas, broad accessibility becomes strategically important. If the goal is creating viable alternatives to corporate-controlled AI, then barriers based on ability, language, or technical literacy

could limit adoption and recreate exclusions that benefit existing power structures. Similarly, participatory design approaches align with the goal of community control by involving people in shaping systems they will live with, while building the collective capacity needed to sustain democratic alternatives over time.

Building collective designer power

You may initiate projects like those I just listed, seek them out to the best of your ability, or subtly steer the work you have been asked to do in these directions. This can be a significant challenge because commercial interests are so dominant in the tech sector. It is particularly challenging to try to achieve on your own.

This is the reason I advocate for member-based organizations because they more effectively empower individuals to create meaningful change. These associations tend to offer structural advantages over non-member civil society organizations: they typically provide genuine democratic participation through voting and ownership rights, maintain accountability to their members instead of external funders, and focus on sustained collective decision-making rather than temporary project cycles that can disrupt long-term efforts (Matthew et al., 2024).

Designers sympathetic to the aims I have laid out here could choose to become members of professional associations, unions, and grassroots networks. For example, the Tech Workers Coalition (TWC), founded in 2014, is a worker-led organization that includes all tech workers, including designers. It emphasizes collective action over individual responsibility, has a democratic structure, offers resources for learning and skill-building, and has an international presence. TWC aligns with the framework of resisting, regulating, and recoding.
Individuals interested in collective approaches may find it challenging to navigate individualism, as it can impede participation in group efforts. Regardless of the organizations we choose to join, we must strike a balance between our personal identities and the demands of collaborating with others.

Concluding remarks

Building democratic alternatives to corporate-controlled generative things will require designers to work together rather than alone. Individual designers have little power to challenge Big Tech's control over AI development, but collective action through unions and member organizations could create real leverage. The technical hurdles are significant. Community-controlled AI systems will likely have fewer resources than corporate platforms. However, the bigger challenge may be organizational, namely, sustaining long-term collaboration among designers who are used to working as individuals. Whether this approach can shift control over AI-embedded objects from private companies to public interests remains an open question. However, it offers a more realistic path than expecting individual designers to solve these problems through good intentions alone.

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