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Discomfort in the making of technologies: (re-) choreographing agency

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Abstract.[1]
We invite CSCW scholars to collaboratively explore *discomfort* in the practices of technology design and production. As technology practitioners, we are often believed to have responsibility for the development of technology, yet building of technology is always a collective enterprise. We are inviting the workshop participants to explore the collective, embodied, experiential and ecological nature of technology production with the help of choreography-inspired techniques. With this complexity in mind, we want to collaboratively reflect over designer's awareness, responsibility, and agency in technology production.

[1] Both first and second authors contributed equally to this research.

The first part of the workshop will be devoted to the sharing of participants' submissions. In the second part, with the help of body-based exercises, we will articulate the discomforts of building and researching technology in the age of surveillance capitalism. The main workshop goal is to facilitate community building among the tech practitioners and researchers, who share the experience of discomfort around topics such as ecological crisis, post-colonialism, and social (in)justice. Our second goal is to explore the limits of individual responsibility in small and large scale technology production. Our third goal is to create a shared data base of methodologies of exploring discomfort and, more broadly, the embodied nature of technology.

Introduction

The goal of this workshop is to facilitate a space to collectively explore 'discomfort' related to the prevalent extractivist technologies that are based on data exploitation, unfair labour conditions, environmental damage, and digital rights violation (Crawford and Joler, 2018). We ask: how can bringing attention to experience of *discomfort* guide an alternative future of technology? We assume that discomforts can be easily *felt* individually, yet articulating them together is needed to build solidarity and resistance. We will use embodied design methods inspired by choreography for making discomfort tangible and shared. Body-based exploration will direct our discussion and frame the hands-on session aimed at rethinking the technologies and algorithmic systems prevalent in our personal and professional lives. This in turn will lay ground for discussing strategies of resisting extractivism, which will foster community building among the participants.

As technology creators, we often believe we carry individual responsibility for building ethical technology (Popova et al., 2024), which implies tackling high scale societal issues, such as data extractivism (Crawford and Joler, 2018). Yet we are limited in the ability to resist as we rely on existing infrastructure, often large-scale data-driven computational systems and their devastating ecological impact (Dourish, 2010). We often have to work with technology whose production relies on supply chains that have embedded histories of oppression and colonialism. Our individual potential to act is limited, when there is no solidarity and co-operation. Developing awareness and the feeling of responsibility without means of action can lead to the feeling of isolation and helplessness (Widder et al., 2023; Popova et al., 2024).

The complexity of agency and related to it problems with responsibility in tech are well studied and well known to CSCW scholars, who have long studied the interplay between individual, organisational and technical (Dourish, 2001; Wulf et al., 2011). These conversations have become even more relevant as problems of extractivist technology, ecological crisis, ethical AI have come into focus. As Wong et. al have shown in relation to ethical toolkits, technical decisions are never 'just technical'—they are taken within organisations and specific collectives of people (Wong et al., 2022). Our workshop connects with the ongoing exploration of ecological underpinnings of CSCW (Light et al., 2023; Rossitto et al., 2023), experiments in descaling (Lampinen et al., 2022), alternative technological futures (Light et al., 2017), and novel practice-based methods of inquiry (Dolejsova et al., 2023). As a novel contribution, we are aiming to draw attention towards the embodied and experiential aspects of practice. We aim to use body-based ideation techniques to collaboratively reflect over the designer's awareness, feelings of responsibilities, and agency within their production and design practices and the role of ethical design.

We will explore agency and responsibility in technology production and design, focusing on the experiences of technology practitioners—specifically the experience of discomfort. Our interest in discomfort comes from feminist theories and feminist interest in the body as source of knowledge (Federici, 2004; Ahmed, 2017; Butler, 2016). By discomfort we understand not-yet-specified sensations of unease, dissatisfaction, a vague feeling of something not being quite right—a sensation that is purposefully open. Discomfort is a pointer to something that has to be attended to and explored, to the injustice for which we may yet not have a conceptual language to claim that it is indeed an ethical issue and/or political injustice. Discomfort is related to the moment of 'affective dissonance' (Hemmings, 2012)—the embodied understanding of injustice, a moment of opportunity, when solidarity and shift towards new values becomes possible. Discomfort is a visceral experience that is lived in the body, perhaps without yet being articulated conceptually.

Discomfort can characterise our experience both as users and developers. For example, Cochior et al. Cochior et al. (2022) look at discomfort in relation to contemporary computational practices, in particular extractivist technologies and techno-solutionism. They describe digital discomfort as the potential to confront, resist, pay attention to, and intervene in the subtle moments of innovation driven by techno-capitalism, the overly simplistic approach to problem-solving, and the seemingly seamless functioning of digital systems. Similar to physical discomfort, digital discomfort can arise from a politicized reorganization of an environment—a deliberate effort to challenge established structures to pave the way for alternative ones to emerge.

We will experiment in combining the agendas of CSCW with techniques from choreography. The choreographic exploration of agency that will be undertaken in this workshop is influenced by the Brazilian theorist André Lepecki's view of choreography as a control mechanism and the need to question how to assert our freedom of movement and agency in societies that are intricately, even if subtly, controlled (Martin, 2015). Another influence is the theatre practitioner Augusto Boal, known for the method Theatre of the Oppressed (Teatro do Oprimido) developed in the 80's. Boal understood theatre as a rehearsal for everyday life, not an end in of itself but the beginning of social transformation that supported the de-alienation of bodies and towards disrupting the repetitiveness of daily tasks (Boal, 2019).

Our methodology will focus on embodiment, felt experience and the integration choreographic approaches (Chicau and Bell, 2022) to investigate technical systems. We will use movements (such as walking in different directions in the room or performing specific gestures) and the prompts that participants generate during the discussion part of the workshop to articulate participants' experiences of building technology. During the workshop, we will go through an iterative process for generating new prompts with participants, inventing together the choreographic language to explore discomfort. In between each body-based exercise, there will be a moment of discussion followed by a collaborative ideation over the forms of resistance to extractivist technology framed by a general direction: how can we move from individual discomfort to collective solidarity?

Workshop themes

The participants are invited to submit their workshop submissions in relation but not limited to the following themes:

From individual discomfort to collective solidarity — How do we build the structures of solidarity on our shared discomfort? We invite participants to explore alternative structures of co-operation and solidarity, for example, tech labour unions, and other forms of collective organization.

Researching affect and emotion in tech design and production — Emotions have long been excluded from the serious matters of technology development and ethics; we want to bring them back, relying on the recent move towards emotions in technology production (Ruckenstein, 2023; Garrett et al., 2023; Su et al., 2021).

Embodied methods as a way to reflect on technological production — In the field of human-computer interaction there has been an increased interest and attention to bodily, felt experiences and tacit knowledge (Höök, 2018). We welcome critical and reflective approaches that experiment with physical involvement or draw inspiration from theater, performing arts, or somatic practices, among others.

Strategies for resisting extractivism and techno-solutionism — We are interested in learning from existing work that empowers communities and individuals to become more resilient in their relationship with technology, in particular in the workplace.

Workshop structure

The workshop is structured as a full-day event. In the first part, we will have a round of introductions where workshop participants will present their submissions:

- Group mapping exploration: participants will share their reflection on the workshop themes, from their pre-workshop submission. This part will focus on experiences of discomfort as creators of technologies and of resisting extractivist techonologies and the organisational practices that stimulate their development.

In the second part we will conduct an embodied exploration of the issues:

- Group design ideation and intervention: With the help of choreographic prompts and body-based exercises, participants will propose forms of countering the issues raised in the first part of the workshop.
- Reflective discussion, summary and conclusion: Participants will reflect on their proposals and how these can inform alternative modes of co-operation, solidarity and digital equity rather than technological production driven by extraction and infinite growth.

Workshop goals

The main workshop goal is to facilitate community building among the tech practitioners and researchers, who share the experience of discomfort around the topics such as ecological crisis, post-colonialism, and social (in)justice. Our second goal is to explore the limits of individual responsibility in small and large scale technology production through choreography. Our third goal is to create a shared data base of methodologies of exploring discomfort and, more broadly, embodied nature of technology. Furthermore, participants will be invited to join an online community discussion group, to contribute to a report to be published in the website as well as potential future publications.

Equipment needs and space requirements

- A3 paper, pens and markers for writing for all participants (max 25 people);
- access to wi-fi;
- a projector (HDMI) and loudspeakers;
- power connection for laptops;
- a furniture-free open space big enough for all participants to comfortably move around, with 3-4 tables and chairs (1 per participant) on the side for participants to use if they wish to;

Participants recruitment

We plan to create a website prior to the conference which will host the studio's information and materials, call for participation, registration, schedule, important dates and the contact information of the organizers.

During the recruitment phase the link to the website will be shared in various channels such our social media accounts (Twitter, LinkedIn, Mastodon), relevant mailing lists (such as PhD Design and AioR) and internally within our universities.

We welcome anyone with an interest in the workshop themes, in particular, but not exclusively, discomfort around realising ethical issues in technological development. We are especially interested, but not limited to, practitioners working in areas such as:

- Digital Product and Software Development;
- Digital Rights and Tech Labour Rights;
- Ethics in Technology;
- Somaesthetic Design and Interaction;
- Sustainability in Technological development;
- Feminist and Decolonial approaches to Computational Practices;
- Pedagogy and Education;
- Policy in the field of Technology.

Those interested in taking part in the workshop are invited to send us a short reflection on the workshop themes. We are open to various submission formats, such as a 2-3 written pages, a 3-5min video, a portfolio of artistic practices or a combination of the above.

Organizers

Kristina Popova[she] is a PhD candidate at the Department of Media Technology and Interaction Design at KTH University of Technology, where she explores ethics of technology through lenses of feminist epistemologies. With a background in social sciences and ethnomethodology, she approaches ethics empirically as situated within the design process. She is developing a theoretical take on ethics that takes into account emotions of both users and creators of technology.

Joana Chicau [she/ela] is a designer — with a background in dance. She researches the intersection of the body with the designed and programmed environment, aiming at widening the ways in which computer sciences is presented and made accessible to the public. She participates and organizes events involving collaborative algorithmic improvisation and community round-tables on digital equity and activism. Chicau is a lecturer (FHEA) pursuing a PhD at the Creative Institute, University of the Arts London.

Rebecca Fiebrink [she] is Professor of Creative Computing at University of the Arts London. Her research focuses on developing new technologies to support human creative practices, and investigating how these technologies change creators' working processes and outputs. She is the developer of a number of creative machine learning tools, used by tens of thousands of creators, that enable more embodied approaches to design, including Wekinator and InteractML.

Rob Comber [he] is an Associate Professor of Communication at KTH Royal Institute of Technology. His work over the last ten years has been concerned with the social and ecological sustainability of socio-technical systems, incorporating feminist ecological perspectives on civic technologies and algorithmic systems.

Clàudia Figueras [she/her] is a PhD student at Stockholm University in Sweden. Situated at the crossroads of AI ethics, STS, CSCW, and Critical Data

Studies, her research delves into the technology practitioners' perspectives on AI system design, development and use. In this way, her work focuses on understanding how ethics is perceived and applied in practice by technology practitioners. With a multidisciplinary background, she sees ethics as something enacted through everyday interactions instead of rigid frameworks and rules to be followed.

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References

Ahmed, S. (2017): *Living a feminist life*. Durham: Duke University Press.

Boal, A. (2019): *Teatro do oprimido: e outras poéticas políticas*. São Paulo: Editora 34, 1ª edição edition. OCLC: 1137218643.

Butler, J. (2016): 'Vulnerability in resistance'.

Chicau, J. and R. Bell (2022): 'Choreographies of the Circle & Other Geometries'.

Cochior, C., K. Moubarak, and J. Rocha (2022): 'Digital Discomfort'.

Crawford, K. and V. Joler (2018): *Anatomy of an AI System: The Amazon Echo As An Anatomical Map of Human Labor, Data and Planetary Resources*. AI Now Institute and Share Lab: .

Dolejsova, M., A. Botero, and J. H. Choi (2023): 'Open Forest: Walking-with Feral Stories, Creatures, Data'. In: *Proceedings of 21st European Conference on Computer-Supported Cooperative Work*. European Society for Socially Embedded Technologies (EUSSET).

Dourish, P. (2001): *Where the Action Is: The Foundations of Embodied Interaction*. The MIT Press.

Dourish, P. (2010): 'HCI and environmental sustainability: the politics of design and the design of politics'. In: *Proceedings of the 8th ACM conference on designing interactive systems*. pp. 1–10.

Federici, S. (2004): *Caliban and the Witch*. Autonomedia.

Garrett, R., K. Popova, C. Núñez-Pacheco, T. Asgeirsdottir, A. Lampinen, and K. Höök (2023): 'Felt Ethics: Cultivating Ethical Sensibility in Design Practice'. In: *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA, Association for Computing Machinery.

Hemmings, C. (2012): 'Affective solidarity: Feminist reflexivity and political transformation'. vol. 13, no. 2, pp. 147–161.

Höök, K. (2018): *Designing with the body: Somaesthetic interaction design*. Cambridge, MA, USA: MIT Press.

Lampinen, A., A. Light, C. Rossitto, A. Fedosov, C. Bassetti, A. Bernat, P. Travlou, and G. Avram (2022): 'Processes of Proliferation: Impact Beyond Scaling in Sharing and Collaborative Economies'. *Proc. ACM Hum.-Comput. Interact.*, vol. 6, no. GROUP.

Light, A., A. Powell, and I. Shklovski (2017): 'Design for Existential Crisis in the Anthropocene Age'. In: *Proceedings of the 8th International Conference on Communities and Technologies*. New York, NY, USA, pp. 270–279, Association for Computing Machinery.

Light, A., C. Rossitto, A. Lampinen, and A. Botero (2023): 'The Ecological Underpinnings and Future Contributions of (E) CSCW'.

Martin, R. (ed.) (2015): *The Routledge companion to art and politics*. London ; New York: Routledge, Taylor & Francis Group.

Popova, K., , C. Figueras, K. Höök, and A. Lampinen (2024): 'Who Should Act? Distancing and Vulnerability in Technology Practitioners' Accounts of Ethical Responsibility (forthcoming)'. In: *Proceedings of the 2024 CSCW*. New York, NY, USA, Association for Computing Machinery.

Rossitto, C., M. V. A. Lindrup, R. Comber, J. Tholander, M. Jacobsson, A. Cabral, and R. Hagensby Jensen (2023): 'Data-Enabled Sustainability: The Collective Work of Turning Data into Actions for Environmental Care'. In: *Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing*. pp. 506–511.

Ruckenstein, M. (2023): *The Feel of Algorithms*. Univ of California Press.

Su, N. M., A. Lazar, and L. Irani (2021): 'Critical Affects: Tech Work Emotions Amidst the Techlash'. *Proc. ACM Hum.-Comput. Interact.*, vol. 5, no. CSCW1.

Widder, D. G., D. Zhen, L. Dabbish, and J. Herbsleb (2023): 'It's about Power: What Ethical Concerns Do Software Engineers Have, and What Do They (Feel They Can) Do about Them?'. In: *Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency*. New York, NY, USA, p. 467–479, Association for Computing Machinery.

Wong, R. Y., M. A. Madaio, and N. Merrill (2022): 'Seeing Like a Toolkit: How Toolkits Envision the Work of AI Ethics'. Pre-print manuscript.

Wulf, V., M. Rohde, V. Pipek, and G. Stevens (2011): 'Engaging with practices: design case studies as a research framework in CSCW'. In: *Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work*. New York, NY, USA, p. 505–512, Association for Computing Machinery.