

# Towards Agency Sensitive Design

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## ABSTRACT

How can we design *for* agency? Why should we design *for* agency? What is the relationship between agency and design? In what ways different conceptions of agency bring about different designs? The main motivation of this research is to explore the ways for designing for agency and gain a better understanding of relational agency as an emergent property of the relations between human, machine and environment. The study follows research through design approach and synthesizes various perspectives from feminist Science and Technology Studies, Participatory Design, Seamful Design, Reflective Design, and Actor-Network Theory. At the end of the research, we expect to have a framework for Agency Sensitive Design, which includes principles and strategies for designing for agency and insights and reflections on various dimensions of agency exhibited in participatory workshop studies involving various human-machine assemblages.

## Author Keywords

Human agency, material agency, participatory design, seamful design, feminist STS, ANT, post-phenomenology

## INTRODUCTION

Human agency has been at the hub of discussions centring upon philosophical enquiry for a long period of time. The concept of agency is defined in its simplest sense as the “capacity for action” or “transformative capacity” (Giddens, 1984). Yet, there has been ongoing debate surrounding definition, emergence and possession of agency in artificial intelligence, cognitive science, philosophy and many other fields. In technology design, different conceptualizations of agency result in very different designs. Three main views on agency can be separated according to their consideration of attribution of agency. Technological determinism sees agency only as an attribute of technology, whereas social determinism maintains that only humans can possess agency (Rose and Jones, 2005). A third perspective stemming from feminist STS (Barad, 2003) and ANT (Latour, 1994) advocates a relational view of agency. Barad suggests that agency is not an attribute of subjects or objects or systems but is “the ongoing reconfigurations of the world, an enactment” (2003). Agency emerges out of the dynamism between entities.

While technological determinism largely ignores the

different ways of appropriation of technology by humans, social determinism underestimates the role and impact of technologies shaping human intentions and social structures. By recognizing and acknowledging the roles of both human and non-human entities in interaction scenarios, the relational view of agency can provide a useful base for designing *for* agency.

## AGENCY SENSITIVE DESIGN

Agency Sensitive Design (ASD) aims to develop a framework for designing for relational agency. The basic principles of ASD are: (a) embracing variety in the formation of agency, (b) facilitating fair treatment of every human and non-human actants<sup>1</sup> and (c) supporting the emergence and evolution of new forms of agency in production and use of technologies.

There are several qualities and values supporting these principles of ASD:

*Transparency:* Transparency is the most essential quality for ASD. It requires making visible the invisible work, actants and processes in both production and use of technologies (Suchman, 1994). While the transparency in technology production allows us to recognize every actant that affects or is affected by the design and embrace their views and values, the transparency in technology use keeps the boundaries and interactions between all actants distinct and observable and facilitates to heighten the overall critical awareness. The quality of transparency is used and advocated in other research and design studies such as seamful design (Chalmers and Galani, 2004), accounts in design (Dourish and Button, 1998), located accountabilities (Suchman, 1994) and intra-actions (Barad, 2003).

*Awareness:* Supported by the quality of transparency, the quality of awareness plays a critical role in recognition and evolution of different forms of agency by all actants (Bardzell, 2010). It operates on two levels: (i) the awareness of each actant about their own role and responsibility; and (ii) the awareness about other actants’ role and contribution.

*Participation:* The relational view of agency asks for recognition and inclusion of multiple and heterogeneous sources of influence in design processes. Here, in addition to participation, the cognitive justice (Van der Velden, 2009) between the different actants should be ensured. We also need to avoid seeing users as the passive information-containers or the consumers of technology, managers as the definers of technology and designers as

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<sup>1</sup> Human and non-human entities, agents and artefacts are called actants in ANT’s terminology as an indication of equal treatment of every entity.

the invisible heroic creator. The participation together with equal representation and cognitive justice facilitates the recognition and valorisation of marginalized views, values and multiplicity and hence can enable the emergence of new forms of agency.

*Designing (configuring)-in-use:* In parallel with the idea of agency as an emergent property of the relation between human and non-human actants, we need to acknowledge the performative aspects of design and ongoing processes of design-in-use (Aanestad, 2003). This requires supporting the *tuning* processes in technology use by making the technologies configurable, flexible, modular and open (Jensen, 2001). By supporting the design-in-use, we can make users see themselves as the owners of technology and increase their sense of agency.

*New metaphors:* The use of different metaphors results in different designs and is directly influential on the formation of agency between human and non-human actants (Friedman, 1992). While an anthropomorphic metaphor can result in a dialogue-based interface, a non-anthropomorphic tool-like metaphor can bring about a direct manipulation-based interface. We should carefully select the proper metaphors in order to support ASD. We need new metaphors facilitating reconfigurations in use and enabling recognition of every human and non-human actants in a fair way.

#### **METHODOLOGY**

The research follows a research through design approach and combines various perspectives from feminist STS, ANT, Participatory Design, Seamless Design and Reflective Design. There are two main practice-based stages of the research involving a series of workshops. At the first stage, we investigated the emergence and evolution of relational agency by conducting two workshops designed in top-down manner. We will explore the principles and strategies for agency sensitive design by using methods from participatory design at the second stage. Actor-Network Theory by Latour (1994) and the post-phenomenological perspectives suggested by Ihde (1990) and Verbeek (2006) guide the development and evaluation of these workshops. In the first two workshops, participants who were equipped with low-fi wearable computing devices engaged in game-like activities.

#### **FINDINGS AND FUTURE WORK**

The workshops showed that the perceptions and interpretations of feedbacks, and the strategies of the participants were highly dependent on the places to which computing devices attached. The strategies employed by participants were primarily affected by the metaphors used in grounding experience. In addition, the roles of participants were negotiated and determined by participants on the fly during the activities by using only haptic feedback of wearable devices. Finally, both the core and relational dimensions of agency were identified.

At the second stage, we are planning to conduct two more workshops, in which participants will design the activities and human-machine-environment assemblages by

themselves. In this respect, the next two workshops will be designed in a bottom-up way as opposed to the first two workshops that were designed in a top-down manner. Participatory Design will allow us to facilitate fair treatment of every actant and their roles in design process in the next workshops. In addition to the sensitivity to identities and values of human actants provided by participatory design perspective, we will develop sensitivity to the impact and roles of non-human actants by using ANT's symmetrical vocabulary. This will enable us to assess and acknowledge each actant's contributions to the relational agency exhibited.

At the end of the PhD study, we aim to have a framework for Agency Sensitive Design, which includes principles and strategies for designing *for* agency and insights and reflections on various dimensions of relational agency exhibited in participatory workshop studies involving various human-machine-environment assemblages.

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