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The body gets the notion

performative design practice for human computer integration to encourage innovation in the domains of health and well-being

Author(s)
Olthof, Anne Marleen; Verlinden, Jouke; Ben Allouch, Somaya

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The body gets the notion: performative design practice for human computer integration to encourage innovation in the domains of health and well-being

Olthof, Anne Marleen[abc]; Verlinden, Jouke[b]; Ben Allouch, Somaya[ac]

[a] University of Amsterdam, The Netherlands
[b] University of Antwerp, Belgium
[c] Amsterdam University of Applied Sciences, The Netherlands

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1 Abstract

This PhD-project delivers a design methodology that studies how cyber-physical systems can integrate with the human body to improve the quality of life for people with progressive and permanent disabilities. In this project, the perspectives of the 'deviant body' (Murray, 2007) and the 'disabled body' (Goodley, 2017) are seen as bodies of knowledge that can question, collapse, or even eliminate traditional perspectives on what it means to be 'human' in hybrid realities. In recent debates on human-computer integration (HInt) (Farooq & Grudin, 2017; Mueller et al., 2020, 2021; Danry, V.et al., 2021; Semertzidis et al., 2022; Barbosa et al., 2023), possible scenarios for hybrid futures suggest that the body interacts with computing systems that can sense, interpret, and automatically act to body-based and contextual signals (Andres et al., 2023), thereby potentially altering human characteristics and abilities in a fundamental manner. These alterations, which can range from the physical to the spiritual (Dieffenbacher, 2022), have the potential to drift the 'lived body' (MerleauPonty, 2002) leading to all sorts of discomfort in the phenomenology of organ and tissue (Bhatt and Kothari, 2022; Shildrick, 2022), as a result of what is not sensed or expressed in the cells of the human body (Shapiro, 2012). The web of asymmetrical relationships that emerges from incorporating 'nonself matter' in, on and with the human body is not seen as just contact zones with the human body but is seen as border crossings where bodies of knowledge inflect and disturb one another in what we can understand as high productive ways for learning (Shildrick, 1997, 2009; Shildrick & Söffner, 2017). This PhD-project studies the bodily aspects of 'becoming-in-the-world' (Shildrick, 2009) through performative design practices in human-computer integration, to understand how the 'dispositifs' (Deleuze, 1992; Marenko & Brassett, 2015), such as knowledge, techniques, practices, tools, and methods contribute to the potential alteration of human abilities and characteristics as a result of integrating with computing systems. Bodily integrated systems are

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explored through its (1) 'matter', by approaching embodiment as anatomy, physiology, skill, experience (Loke & Robertson, 2011), and through its (2) 'mattering' (Mitchell et al., 2019), by means of the unstable, complex and indeterminate psycho-physiological 'repertoire of play' (Easterling, 2012). The takeaway message is that to advance our understanding of human-computer integration, we must prioritize alternative and pluralistic approaches to develop a more expansive foundation for design practices that encourage innovation in the domains of health and well-being.

1.1 Main Research Question

How can a design methodology employ a bodily design perspective in human-computer integration, specifically in the application domain of health & well-being?

1.2 Sub research questions

- RQ1: What does a bodily design perspective behold for human-computer integration?
- RQ2: How can performative play and cyber-physical artefacts be used to study the web of asymmetrical human-computer relationships in bodily integrated systems?
- RQ3: What design strategies and tactics does the design process of bodily integrated systems need?
- RQ4: What does a design methodology look like for interdisciplinary design teams that explore, design, and develop bodily integrated systems in the application domain of health and well-being?

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