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**Title:** Human-Technology Choreographies : Body, Movement, and Space

**Year:** 2016

**Version:**

**Please cite the original version:**

Pirhonen, A., Tuuri, K., & Erkut, C. (2016). Human-Technology Choreographies : Body, Movement, and Space. *Human Technology*, 12 (1), 1-4.  
doi:10.17011/ht/urn.201605192617

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**Guest Editors' Introduction****HUMAN–TECHNOLOGY CHOREOGRAPHIES:  
BODY, MOVEMENT, AND SPACE**

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INTERACTION DESIGN**

In interaction design and related disciplines, the focus of research tends toward technological objects rather than the movements relating to interacting with the objects. Even when movements are considered, the emphasis is placed on their instrumental value, that is, how movements have direct effect on the functions of technology. However, the emphasis of this thematic issue of *Human Technology* rests upon the design and use of technological objects. In other words, we, as editors of this special issue, were looking for submissions that emphasized intentional human movement in the physical and social lifeworld in which humans encounter technological and virtual artifacts. The term *choreography* here refers to meaningful continuums of movement that humans, as individuals or as groups, experience during interaction with technology (see also, e.g., Loke & Reinhardt, 2012; Parviainen, Tuuri, & Pirhonen, 2013; Parviainen, Tuuri, Pirhonen, Turunen, & Keskinen, 2013).

But why do we need the concept of choreography in human technology studies? In daily life, each technological design constitutes choreographies of varying scopes: Technology may



enable, limit, or control human movements and other behavior. Human–technology choreographies can involve anything from subtle finger movements to the movement of crowds in public spaces. A choreographic orientation, therefore, brings forth and makes explicit the opportunities and options that interaction designers have available for defining movements, movement qualities, and choreographies required when interfacing with the various devices so prevalent in contemporary living. Human movement is never a mere structure that could be handled without also affecting the inherent meanings it embodies.

When we initiated this thematic issue, we sought contributions that challenge current thinking on and critically acknowledge the role of bodily movement as a basic element in a profound understanding of relationships between humans and technology. In the call for papers, we proposed choreography as a key concept through which the movement-centered phenomena present in interaction with technology could be better acknowledged, reflected on, and understood. We hoped the submissions would represent varying orientations on the subject, for example, interaction design, product design, architecture, phenomenology, or embodied cognition, as well as more broad cultural, societal, artistic, educational, or philosophical accounts. Reports on empirical studies as well as movement-centered reinterpretations of prior research and theories were explicitly welcomed.

By the time the deadline for submissions passed, more than 20 interesting research reports were submitted for publication consideration. Not only did the quantity of submissions demonstrate that others see the value associated with our choreographic emphasis, but the range of topics validated our belief that this perspective on technology use and design could be highly influential in multiple fields.

Thus the papers submitted have resulted in a truly interdisciplinary special issue. As all who have been involved in interdisciplinary activities know, these can be rewarding as well as challenging. Different academic disciplines and related paradigms are, in Thomas Kuhn's (1980) words, incommensurable. Despite the challenges, we as researchers and special issue editors have learned that, when reconciling the traditions and approaches of different disciplines, the common ground gradually takes shape. This process of discovery and understanding is, fundamentally, what academic research is all about. In the context of human–technology choreographies, the pursuit of a common ground was challenging not only because of the typical demands of interdisciplinary work, but also because the connotations of the theme of this special issue, human–technology choreographies, proved to be extremely varied among the authors of the submissions.

Nevertheless, in spite of the variation in terms of viewpoints and approaches, the selected papers could quite effortlessly be divided into two groups: those having their focus on interaction design issues relating to choreographies within assemblages of humans and technology, and those that more specifically focus on expressivity in movement or the performative and artistic aspects within interaction design and human–technology interaction. We decided to split the submissions between two separate issues, each with a distinct perspective on human–technology choreographies but bound together through a core emphasis on the choreographic approach. The contributions in this current issue are related to the former thematic focus; a second special issue with the latter focus will be published in the coming months. In all, the articles in both issues paint a multifaceted picture of the many ways that choreographies can be utilized and acknowledged in design cases or other types of analysis.

## PREVIEW OF THIS FIRST THEMATIC ISSUE

The articles in this thematic issue can be roughly organized into the following two subthemes. Papers representing the first subtheme (designing by moving) concern movement within the methodological terms of designing for and with the lived body (see Svanæs, 2013), that is, investigating meaningful and situationally appropriate physical interactions. The papers of the other subtheme (moving by design) take the inverse approach by acknowledging how technology makes users move or considers the ways designs actually choreograph movements.

### Designing by Moving

Ethnography-based studies are not rare in the human–computer interaction community. However, the way in which **Parisa Eslambolchilar**, **Mads Bødker** and **Alan Chamberlain** approach human life is novel. They focus on an extremely everyday human action: walking. For Eslambolchilar, Bødker and Chamberlain, walking is not just mechanical usage of the body to move from one location to another. Rather, they take the reader through an intriguing journey of experiencing the world through the senses and movements of the feet. They also present a partial vocabulary to improve the understanding of the nature of and environmental issues surrounding walking and advocate that these could inform the design of mobile applications intended to be used “on the go.”

Another ambitious approach to using physical activity as a source of creative ideas for design, called *Bodystorming*, has been studied by **Elena Márquez Segura**, **Laia Turmo Vidal** and **Asreen Rostami** in an article titled “*Bodystorming for Movement-based Interaction Design*.” For technical reasons, their contribution was not able to be included in this current issue but will be published in an issue scheduled in the autumn.

### Moving by Design

Through their account on choreographic inscriptions, **Lian Loke** and **A. Baki Kocaballi** examine qualities of movements people perform as enabled or constrained by the technology of their everyday environments. By drawing on Laban movement analysis as well as action–network theory, Loke and Kocaballi construct a theoretical framework that provides a conceptual basis for the analysis of movements in human–computer interaction. The proposed framework goes beyond the stereotypical Euclidean space by encompassing the material and the social in their analysis of movements.

The following two papers consider mobile technologies from different angles. **Jaana Parviainen** focuses on wearables and constructs a view on how micro- and macrochoreographies are generated by using wearable technologies for biomonitoring. Her conceptual tools are wide ranging, and her empirical methods include netnography and media text analysis. The paper contributes to the ongoing theoretical discussions on the “quantified self” movement and human–data interaction.

Despite their great benefits, mobile technologies may also have the negative potential to limit and discourage social interaction, as well as lock the attention of individual users onto their small screens. **Katherine Isbister**, **Elena Márquez Segura**, **Suzanne Kirkpatrick**,

**Xiaofeng Chen, Syed Salahuddin, Gang Cao, and Raybit Tang** challenge this by developing a mobile social game that rewards synchronized movement. They choreograph social interactions through their dance battle game, which was initially designed by adhering to two guiding design values: (a) suppleness and (b) meaningful and natural movement-based interaction. Their design took another direction through collaboration with an “indie” developer, which resulted in their incorporating a third design value (designing technology-supported play in a sociotechnical space of affordances) and led to a dramatically different but successful final design.

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*Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*  
ISSN 1795-6889  
www.humantechnology.jyu.fi