

Why Movement-Based Design!? Exploring Methods and Experiences in MBD*

Vincent van Rheden
University of Salzburg
Salzburg, Austria
vincent.vanrheden@plus.ac.at

Carine Lallemand
University of Luxembourg and
Eindhoven University of Technology
Eindhoven, the Netherlands
carine.lallemand@uni.lu

Florian Daiber
German Research Center for Artificial
Intelligence (DFKI)
Saarbrücken, Germany
florian.daiber@dfki.de

Dennis Reidsma
University of Twente
Enschede, the Netherlands
d.reidsma@utwente.nl

Laia Turmo Vidal
Andrii Matviienko
KTH Royal Institute of Technology
Stockholm, Sweden
laiatv@kth.se
andriim@kth.se

Fabio Zambetta
RMIT University
Melbourne, Australia
fabio.zambetta@rmit.edu.au

Lars Elbæk
University of Southern Denmark
Odense, Denmark
lelbaek@health.sdu.dk

Don Samitha Elvitigala
Exertion Games Lab, Monash
University
Melbourne, Australia
don.elvitigala@monash.edu

Florian 'Floyd' Mueller
Exertion Games Lab, Monash
University
Melbourne, Australia
floyd@exertiongameslab.org

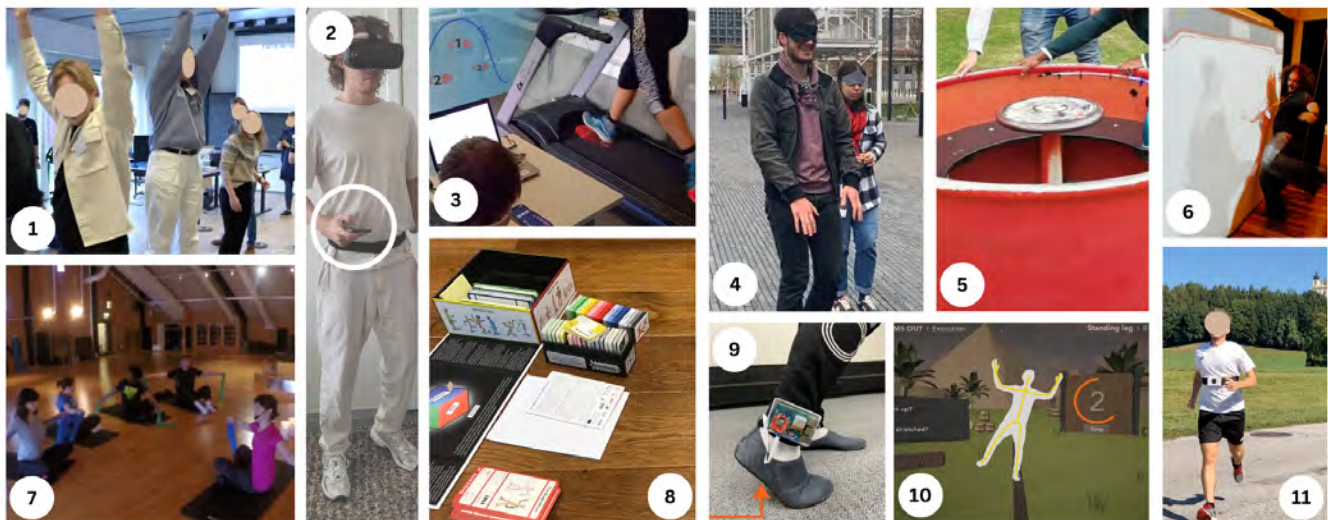


Figure 1: Movement-based design activities, concepts, and designs. 1: movement-based design workshop [13, 43], 2: exploring body-steering methods for jogging in virtual environments [18], 3: connecting breath and running movements into a rhythm [16, 55–57], 4: exploring the embodied experience of walking meetings through bodystorming [24], 5: movement at the playground to inspire context-sensitive play activities, 6: remote impact: shadowboxing over a distance [34], 7: movement correction in instructed fitness training [51], 8: method cards for movement-based interaction design (MeCaMInD) toolbox [13], 9: walking as a form of interaction with the foot[14], 10: real-time training assistance for balancing on a slackline [9, 26, 27, 38], 11: designing for seamless interaction and capturing breathing movement on the move [5]

*2-day workshop



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ABSTRACT

The rise of movement-based design (MBD) is fueled by the integration of computer technology into the movement of the everyday. Departing from traditional interface design, MBD prioritizes natural interaction, SportsHCI, and health promotion through physical activity. This paradigm shift has led to innovations in experimental applications and interaction techniques, including exergames, expressivity in interactions and soma-design. Various guidelines and frameworks have been proposed for specific purposes, from sports to virtual reality. This workshop explores participants' experiences and perspectives on MBD, delving into MBD workshop design and reflect on MBD methods and the current move towards MBD methodologies.

CCS CONCEPTS

• **Human-centered computing** → **Interaction design theory, concepts and paradigms.**

KEYWORDS

Movement-Based Design, Embodiment, Bodystorming, Interaction Design, Methods

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1 INTRODUCTION

Movement-based design (MBD) is on the rise due to the widespread integration of computer technology into everyday items such as wearables, mobiles, and IoT, as opposed to being confined to desks. This “somatic turn” in HCI [23, 29] has required a deeper understanding of embodied user experiences [19]. Beyond technological aspects, movement-based design extends to crafting artifacts, environments, and activities that enhance or utilize human motion. This approach diverges from traditional interface design by prioritizing values like natural interaction [60], inclusion of knowledge from the movement sciences [42], and promoting health through physical activity [41].

In MBD, the body is not just a vessel for interaction but a source of creativity and innovation in its own right. By engaging the body as a source of creativity, we can enrich our interactions with technology, promoting physical activity, health, joy and enhancing the “naturalness” of these interactions. Early phases involve designers moving themselves or observing others for empathizing and understanding, while later stages require movement for ideation and evaluation.

Movement-based design has spurred innovations in experimental applications [25] and interaction techniques [7]. Guidelines and frameworks have been proposed for specific purposes such as sports [42], exergames [35], somaesthetic experiences [21], and virtual reality [15]. Additionally, researchers have explored methods and

methodologies to better grasp movement and bodily experiences [17, 18, 28, 31].

This workshop builds upon the outcomes of the Method Cards for Movement-based Interaction Design (MeCaMInD) project that focuses on curating a collection of movement-based design methods, through an accessible and easy-to-navigate method toolbox. The project strives to foster the inclusion of motion in sport, movement, and technology design [12].

In this workshop, participants will be offered a platform to collectively discuss and explore current approaches, methods and tools in movement based design, and exchange insights and experiences regarding key elements in movement-based design methods used in practice. This is approached through hands-on practice: participants will get an introduction to movement-based design and, along with this, use the MeCaMInD toolbox as vehicle for discussions: Why MBD? When (not) to apply MBD? We will explore this in the workshop.

2 BACKGROUND

Movement-based design methods have gained prominence across various domains due to their unique ability to offer insights into the embodied experiences of stakeholders involved in the design process [46, 61]. These methods play a crucial role in different phases of design projects, ranging from sensitization, generative exercises, and testing to evaluations and document movement insights [52]. However, the diversity in design projects necessitates careful consideration of various issues such as requirements, goals, limitations, context, available resources, facilitation, and emerging contingencies [43, 58].

In the realms of design for movement and design of movement, designers are encouraged to utilize the body as a creative resource, incorporating movement as a medium or instrument to design with movement in the design activity [19, 22]. This involves awareness of the silent, fleeting, and immediate movement experience [1, 4, 28]. Notable activities in MBD include bodystorming, embodied sketching, experience prototyping, and others [3, 10, 11, 24, 31–33, 44]. The significance of play in unlocking the creative potential within the body has been emphasized, with Arvola and Artman [2] asserting that the courage to play and be playful is the gateway to creativity.

“Bodystorming”, a potential method of unlocking playful creativity, is a situated generative design method that utilizes full-body engagement with objects, space, and people to generate multiple design ideas. This method has evolved with variations proposed by different researchers, highlighting the adaptability of movement-based design methods [32, 40, 46, 53, 59]. “Sensory Bodystorming”, introduced by Turmo Vidal et al. [53], incorporates non-digital materials and objects with different sensory qualities to foster exploration and ideation.

Schiphorst [45] advocates for somatic facilitation in technological design processes, labelling it “Somatic Connoisseurship”. This practice involves a careful and trained focus on the lived experiences in the body to enrich the design space in the associated practice. “Soma Design”, building upon Somaesthetics [47, 48], embraces a

holistic design process that explores and improves sensations, feelings, emotions, and subjectivity in participants' bodies, emphasizing introspection, slowness, and increased awareness.

"Embodied Sketching" [32] integrates movement-based ideation practices, combining physical engagement in the surrounding context with playfulness to elicit a creative mindset. The concept of estrangement, turning the familiar into the unfamiliar, is a common resource in Soma Design [19, 21, 50]. "Estrangement" serves as a powerful approach in embodied design methods, inspiring new movements, objects, and design concepts [61]. "Moving and Making Strange", proposed by Loke and Robertson [28], employs a choreographic approach to defamiliarize everyday movements and explore interaction possibilities.

"Role-playing", as a method, involves assuming character roles to simulate and improvise various design situations. "Informances" [6, 49] blend performance, scenario-based design, and "Wizard of Oz techniques to simulate future generative-oriented situations. "Live Action Role Playing" provides a more elaborate form of role-play, enabling deeper connections between participants and their characters for testing and evaluating design concepts [30].

Up to now various movement related workshops have taken place, e.g. [8, 37, 39, 54]. We want to highlight the workshop "Move to be Moved" [20], that focused on discussing the emerging landscape that is formed by movement-based design, establishing an academic community in IxD and HCI. Rather than taking a theoretical perspective and discussing exemplars, we direct our workshop towards methods and aim to frame movement-based design methodology.

3 GOALS OF THE WORKSHOP

The workshop goals are as follows:

- Providing an interdisciplinary forum for researchers, practitioners and designers to discuss movement-based design
- Discussing state-of-the-art research on movement-based design, as well as practices and experiences from the field with movement-based design approach
- Getting hands-on experience with movement-based design practice
- Consolidating insights and key elements of movement-based design in practice
- Building an overview of movement-based design methodologies and tools
- Contributing a special issue on movement-based design (e.g., in Interactions)

4 ANTICIPATED OUTCOMES

Through the workshop activities, and building on the expertise of facilitators and participants, the workshop anticipated outcomes are as follows:

- Overview of MBD methods, towards MBD methodology
- Pros and cons of MBDM based on participant experiences
- New movement-based design concepts in the contexts of interests (SportsHCI, education, health)
- Collaboration towards a joint journal contribution
- Academic community interested in MBD

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