# Soma-Based Design Theory

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## Abstract

Movement-based interaction design is increasingly popular, with application domains ranging from dance, sport, gaming to physical rehabilitation. In a workshop at CHI 2016, a set of prominent artists, game designers, and interaction designers embarked on a research journey to explore what we came to refer to as "aesthetics in soma-based design". In this follow-up workshop, we would like to take the next step, shifting from discussing the philosophical underpinnings we draw upon to explain and substantiate our practice, to form our own interaction design theory and conceptualisations. We propose that soma-based design theory needs practical, pragmatic as well as analytical study – otherwise the *felt* dimension will be missing. We will consider how such tacit knowledge can be articulated, documented and shared. To ground the discussion firmly in the felt experience of our own practice, the workshop is organised as a joint practical design work session, supported by analytical study.

## Author Keywords

Soma-based interaction; somaesthetics; design theory

Figure 1 Pictures from CHI 2016 workshop

**ACM Classification Keywords**
H5.2. Information interfaces and presentation (e.g., HCI): User Interfaces.

## Introduction

In a workshop at CHI 2016, a set of prominent artists, game designers, and interaction designers embarked on a research journey to explore what we came to refer to as "aesthetics in soma-based design" [9]. In short, we draw upon Hannah's definition of somatics and soma: "*Somatics is the field which studies the 'soma': namely the body as perceived from within by first-person perception. When a human being is observed from the outside – i.e. from a third-person viewpoint – the phenomena of a human 'body' is perceived. But, when the same human being is observed from the first-person viewpoint of his own proprioceptive senses, a categorically different phenomenon is perceived: the human soma*" [7]. Second, we see *aesthetics* as a way to examine connections between sensation, feeling, emotion and subjective understanding and values, in both a constructive and an evaluative sense.

Soma-based design will engage with our own felt experiences – both as designers and as end-users. The topic includes a diversity of applications – some systems are for learning skills in emotion-regulation and relaxation, some are for understanding or changing your own movement habits, some aid playful discussion with others through movement, some focus on whole-body movements, others add to our expressiveness. What we discovered and *experienced* in the workshop was that even if these applications are diverse, they share a certain designerly sensitivity: an aesthetics, a care for our somatics, and a way of shaping and being shaped by the interaction. They engaged us somatically, enabling us to connect feeling, thinking, movement, and expression into one subjectivity.

The success of this first workshop came partly from how it was organized into two distinctive parts. The first part involved sensitizing and foregrounding somatic and experiential sensibility through a series of first person experiences. For example, we performed a movement exercise together and we also experienced one-another's designs. The second part was a discussion on some of the theoretical underpinnings that could explain and deepen our reasoning around soma-based design. However, what was unique to our discussion was an explicit invitation to bring our own 'felt experience' from the movement exercises into the discussion as evidence of knowledge. We discussed the first person perspective [15,25], concepts like somatics [7], aesthetics [3,14], somaesthetics [8,21], the lived body [15,25], the politics of the body and so on.

The workshop at CHI 2016 was followed by a lively email debate amongst the participants, resulting in a joint declaration (submitted as a paper to CHI 2017) of one of the key components of a soma-based design process – a strategy that perhaps somewhat paradoxically brings rigor to our practice: the so-called first person perspective. This view puts the *felt experience* of *movements, somatics* and *aesthetic sensibilities* of the designer, design researcher and user at the forefront.

In the follow-up workshop we propose here, we would like to take the next step, shifting from discussing the philosophical underpinnings we draw upon to explain and substantiate our practice, to instead form our own soma-based interaction design theory.

Figure 2 Pictures from CHI 2016 workshop – wearing Dag Svanaes tail and taking notes

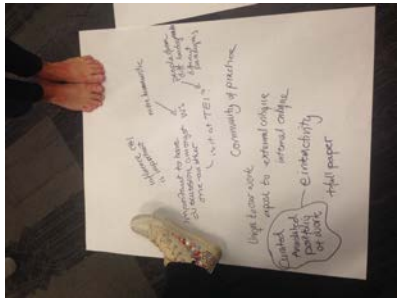

Figure 3 Notes from last year's workshop

## Articulating Soma-Based Design Knowledge

Maxine Sheets-Johnstone takes the position that movement is primary to us, language secondary [20]. As we move, meaning arises and is communicated between us already. To take a simple example, a person can see where someone is heading by watching their gait and direction – the meaning arises from both what we see but also from our own movements and understanding. Based on the meaning already readily available to us in movement, it is easy to see how gestures, eye-direction, or facial expressions can develop into meaningful communication. It is with a basis in these pre-linguistic meaning-making practices that language can appear and be filled with meaning. In that sense, language is post-kinetic. As phrased by Sheets-Johnstone: "*is not that the flow of thought is kinetic, but that the thought itself is. It is motional through and through*" [20]. Or as Parviainen [17] writes about dancers: the way they know is "*not disconnected from language, yet their bodily knowledge is grounded on a tacit and nonverbal dimension of knowing."*

Language alone is an impoverished way of communicating somatic experiences, as somatic knowledge is often tacit. This does not mean that we should leave language (both linguistic expressions and other media) outside our inquiry and design work. Language has a critical role to our design practice. Depending on which concepts and theories we use, the labels we put on our emotions and experiences, we will perceive and appreciate our experiences differently. As pointed out by Shusterman [22] the use of linguistic tags is a resource that can be used to improve perceptual nuances: "*Linguistic tags or descriptions, for example, can make a very vague feeling less difficult to discriminate by tying that feeling to words, which are much more easily differentiated. James argues, for instance, that the different names of wines help us discriminate their subtly different flavours far more clearly and precisely than we could without the use of different names. [..] The rich and value-laden associations of words can, moreover, transform our feelings, even our bodily ones*."

As design researchers, our choice of articulations to frame knowledge and design insights will shape what we 'see' and value as design opportunities. In a design process, through sharing experience and emphatically creating a dialogue that reveals understandings of what others feel, we may approach a common language – intersubjectively constructed meanings [19] or kinaesthetic empathy [4], of use to our design work [11].

In soma-based design work, many emphasise the importance of training somatic designerly skills – the pragmatic side of our work [e.g. 17,23]. Many tactics can be employed, such as engaging in some particular movement practice or moving slowly to experience possible movements and their qualities. But alongside training somatic designerly skills and experiencing the design in formation through various movement tactics, we draw upon affordances of the design materials at hand, as well as what others have done. Re-interpreting, transforming or even stealing from others help shape design ideals. This is why particular design *exemplars*, also called *ultimate particulars* [24] have been considered the goal of RtD, as well as the ultimate way of embedding design knowledge.

In RtD another way of conceptualising design knowledge has been through looking for and articulating familiar resemblances between different designs or ways of doing design: methods, tools and design prac-

tices, strong concepts [10], bridging concepts [2] experiential qualities [13,23], manifestos and frameworks [6], guiding principles, sensitizing concepts, and annotated portfolios [1,5,13] among others. Löwgren and Höök propose to see these as intermediate forms of knowledge that range within a continuum of scope and applicability hat has on one end grand theories and on the other end concrete design particulars [10,13]. By naming and articulating intermediate design knowledge as well as specific design exemplars, the field of soma-based design can start forming its own research program, theoretical concepts, and design theory. This is no small endeavour.

Shusterman divides the somaesthetic project into three related processes: an *analytical* study of the body's role in perception and experience, which in turn means studying its role to moral and social life; a *pragmatic* study of methodologies to improve our functioning; an finally, a *practical* study where we test those pragmatic methods on ourselves to render concrete experience. When working from a somaesthetic perspective, Shusterman points out that some go directly to the practical study without first understanding the analytical side, while others begin in the practical, and only later seek to understand from an intellectual point of view. We propose that our community, the soma-based design researchers, can significantly benefit from engagement through practical as well as analytical study, and from cultivating designerly skills through pragmatic study. The analytical study might also benefit from being communicated and discussed in many different formats –linguistic expressions, video, pictures and the designed systems. In particular, we proposed that Research through Design (RtD) is particularly important to our knowledge formation as it touches on the tacit design knowledge needed and allows us to articulate it in many different forms of relevance to both our practice and academic endeavours [6,26].

Our proposal is therefore to organize this second workshop with a stronger focus on the process of design*ing.* Similar to the first workshop, we will divide our exploration into two parts. In the morning, we start by *doing* design together, using toolkits, methods and ideas from one another's design exemplars to brainstorm (or rather bodystorm [16]) together. This enables a grounded discussion in the afternoon on design methods, strong concepts, experiential qualities and exemplar systems that, taken together, aim to map out a design space with its own vocabulary and design concepts. We expect the discussion to be continued after the workshop, leading to a publication at one of the major venues for design work.

## Workshop organizers

**Professor Kristina Höök**, KTH, manages the Mobile Life centre, a design-driven 10-year research program. Her research focus is on designing for somaesthetics, emotion and sociality.

**Professor Caroline Hummels** is heading the Designing Quality in Interaction group at the department of Industrial Design (ID) at the Eindhoven University of Technology (TU/e). She designs for transformative qualities grounded in embodiment, inspired by multiple fields of knowledge, such as phenomenology of perception, Gibson's ecological theory of perception, social situatedness and embodied cognition

**Professor Katherine Isbister** leads the Social Emotional Technologies group at UC Santa Cruz's Depart-

ment of Computational Media. Her research at the intersection of games and human computer interaction includes building games aimed at enhancing collocated social interaction through body-based experiences.

**Professor Youn-kyung Lim** is Associate Professor at the Department of Industrial Design at KAIST, South Korea. Her current research focus has been in the areas of experience-centered design and aesthetics of interaction, as well as prototyping in interaction design especially for creative interaction design.

**Martin Jonsson** is a senior researcher in media technology at Södertörn University, Stockholm. His research interests concern experiential dimensions of bodily and tangible interaction, sensor based interactive systems, and somaesthetics.

**Professor Patrizia Marti** is part time Professor at the Department of Industrial Design, Eindhoven Technical University (NL) and Senior Researcher at the Department of Social, Political and Cognitive Science, University of Siena (Italy). Her research activity concerns designing systems facing cultural, aesthetic and social issues through embodied experiences.

**Elena Márquez Segura** is a postdoctoral scholar at the Social and Emotional Technology Lab at the University of California, Santa Cruz. She is also an instructor and practitioner of several fitness practices, including acrobatics. She focuses on studying and designing for movement-based co-located social activities.

**Professor Florian 'Floyd' Mueller** directs the Exertion Games Lab at RMIT University, Melbourne Australia. He proposes virtues as guiding principles to support somaesthetic interactions.

**Marianne Graves Petersen** is associate professor at the Department of Computer Science, University of Aarhus. Her research interests include aesthetics of interaction, collective interaction, and how the design of technology conditions our opportunities for engaging with co-located people.

**Pedro Sanches** is a post-doctoral researcher at the Royal Institute of Technology in Stockholm, Sweden. He has been conducting research in technologies for health and wellbeing and is currently focused on exploring somaesthetic design for mental health.

**Professor Thecla Schiphorst** is the Director of the School of Interactive Arts & Technology, and a somatics and dance practitioner working in HCI with a research focus on applying the epistemological practices of *Technologies of the Self* including movement and body-based inquiries to the ethical, social and cultural impacts of RtD in everyday contexts.

**Anna Ståhl** works as a senior researcher at SICS (Swedish Institute of Computer Science) within the Mobile Life centre. Her research focus is on designing for emotion and somaesthetics. She is trained as an industrial designer and is interested in how to bridge the gap from theory into design.

**Professor Dag Svanæs** manages the Health Technology Usability Lab at NTNU. His main research interest is on interaction design for the body. Since the 1990s he has been using the phenomenology of Merleau-Ponty as

a theoretical framing for understanding the bodily aspects of the user experience.

**Ambra Trotto** is studio director of Interactive RISE ICT in Umeå, senior lecturer and chair of the research council at Umeå School of Architecture, Umeå University. She works with dance and movement explores designerly ways to deal with complexity and informs how to design for rich and poetic interactions.

## Workshop website

https://wpmu-bis.sys.kth.se/soma-based-design-theory/

## Workshop organization

*Before the workshop*

The workshop is suitable for IxD and HCI design researchers interested in designing soma-based interactions. To recruit participants, we will send specific invitations to some of the key researchers in related subdomains. In addition, post our CFP in email lists, such as the PhD Design mail list, NordiCHi, Nordes, DRS, etc. This call will also be available in our website, where we will integrate social media channels to raise awareness of the workshop. Selection of participants will be based on short position statements (max. 2 pages) including their interests in this topic, as well as a brief description of their background and research.

*During the workshop*

This will be a one-day workshop that will be divided into three activities: participants will first engage in a series of warming up exercises meant to break the ice between those present and prepare them to engage in a "bodily way of thinking and doing". For this, we will use some of the exercises that proved particularly successful in our former workshop. After this, we will divide the participants into small groups and engage in a mock-up design activity. Each group will be presented with an open design task that challenges the group to design for a particular soma-based aesthetic experience. For this, we will use evocative soma-based projects that share family resemblances. These could be used as a sort of guiding portfolio or collection of exemplars.

The participants will be tasked to design their design process, which will include their coming up with their own collection of exemplars (that might or might not include those initially provided), as well as theirs (and others) methods, concepts and approaches that could be used during the design process. We will also provide soma-based toolkits. If time allows it, we will encourage the participants to start what could be considered the first ideation activity of their project.

After lunch, we will gather and present our design projects to one another. We will use the rest of the remaining time to discuss each group's choice of design exemplars, methods, and approaches. The last part of the workshop will be devoted to discuss the methods and theoretical conceptualisations that are unique to or even defining soma-based interactions – without removing the felt dimension of our work.

For all activities, like last year, we will be removing the chairs and tables and conduct all activities on the floor or while standing up in order to facilitate our lived experience of the body during the workshop.

*After the workshop*

The workshop organizers will use the workshop website and emails of those involves as sites to continue the

discussions held during the workshop. If the interest is deemed enough, these organizers will actively seek to publish an article next year at an appropriate venue such as CHI or interactions.

**Workshop at CHI 2017**
**Denver, CO, USA, 6 or 7 May 2017**
**9:00am – 6:00pm**

## Call for Participation

Movement-based interaction design is increasingly popular, with application domains ranging from dance, sport, gaming to physical rehabilitation. In this workshop, we aim to discuss and share own design theory. By naming and articulating intermediate design knowledge as well as specific design exemplars, the field of soma-based design can start forming its own research program, its own theoretical concepts, and its own design theory.

We propose that soma-based design theory needs practical, analytical and pragmatic study – otherwise the felt dimension will be missing. The workshop is therefore organised as both practical design work, as well as analytical discussions bringing forth many different forms of articulation of our tacit design knowledge.

To participate, please submit a 2-page position paper to the workshop organisers: khook@kth.se. If accepted, at least one of the authors has to attend the workshop and register for at least one day of the CHI conference. Applicants will be selected based on their past engagement with the topic, their future vision, or how well their skills can contribute to the discussion.

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