

How it Feels, not Just How it Looks

Towards an Understanding of Kinaesthetic and Proprioceptive Experiences of Interaction with Technology

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CERTIFICATE OF AUTHORSHIP AND ORIGINALITY

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Abstract

Movements of the human body are involved in all our interaction with technology, and these movements have kinaesthetic and proprioceptive aspects to them. This thesis addresses kinaesthetic and proprioceptive experiences in technology interaction, and develops an empirical grounded concept, the feel dimension, an articulation of the different aspects of this experience. The thesis discusses why movement understandings should be a part of interaction design practice, and how to work with these understandings through a set of design questions for exploring kinaesthetic and proprioceptive experiences in a technology design situation.

The questions in this thesis address how and what makes a technological system good to use from the perspective of the kinaesthetic and proprioceptive senses. These questions were explored in three studies in which I examined the *use* of technology enabled through movement of the body, the *experience* of moving, and movement as a material for *design*. Movement was analysed from three different points of view, as an *object for investigation*, as *subjective experience* and as a form of *knowing*. The outcome of the thesis suggests that what makes a system good to use, from the perspective of the kinaesthetic and proprioceptive senses, is an understanding of how the four concepts tangibility, proximity, dynamics and Merleau-Ponty's body schema (1962) influence our kinaesthetic and proprioceptive experiences. Synthesised, these four concepts form the foundation for the feel dimension, the main contribution of this thesis. The feel dimension attempts to define the role our kinaesthetic and proprioceptive senses play in experiencing technology interactions from the point of view of people moving and acting. Additional contributions include:

- Three empirical studies exploring different aspects of movement, which highlight the use of technology enabled through movement of the body, the experience of moving and movement as a material for design.

- Insights into and extension of the nature of user experience by introducing kinaesthetic and proprioceptive experiences as an experiential quality.
- Alternative phenomenologically informed methodologies on how to collect and approach data about kinaesthetic and proprioceptive experience and the use of multiple perspectives in the analysis of this data.
- Suggestions for how to understand movement as a part of interaction design practice. That is, how to be able to design technology interactions based in understandings of movement through performance and observation of movement.
- A set of design questions following from the feel dimension that can be used to organise and support design decisions when designing for kinaesthetic and proprioceptive experiences.