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Designing Everyday Computational Things

Doctoral Dissertation

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Abstract

The prospect of ubiquitous computing in everyday life urges us to raise basic design issues pertaining to how we will *live* with, and not only use, computers. To design for everyday life involves much more than enabling people to accomplish certain tasks more effectively, and therefore, traditional approaches to human-computer interaction that focus on usability are not sufficient. To support critical discussion of, and reflection upon, the design of everyday computational things, both new design philosophies and a richer collection of design examples are needed.

This thesis reports on the development of a design philosophy based on investigations of the design space of everyday computational things. Using experimental design, a collection of design examples illustrating how computational things can become integral parts of everyday environments has been developed. These investigations have been centred on: amplification of things and environments using computational technology; different forms of information presentation; the use of everyday materials in the design of computational things; and the aesthetics of computational things in use.

The specific results are a number of design examples, including support for local interaction, access to digital information using physical objects as *tokens*, information displays such as the *ChatterBox* and *Informative Art*, and examples of *Slow Technology*. The general results are presented as a design philosophy for everyday computational things. This design philosophy is aimed at design for meaningful *presence*, rather than efficient use, and states that computational technology is a design material, that time is the central design parameter and that aesthetics is the basis for design for presence.

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Human-computer interaction, interaction design, design research, experimental design, ubiquitous computing, aesthetics.

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Cover: Detail from photo of the *Fan House*.

Note: a digital version of the thesis in full colour is available at <http://www.viktoria.se/~johan/thesis/> This web-page also includes errata and links to additional material, such as video clips of the design examples.

