

ENERGY-HARVESTING AND SELF-ACTUATED TEXTILES in the Design of Domestic Spaces

PROJEKTBEKRIVELSE

New materials suggest new ways of building by transforming the boundaries of what is possible. This is particularly true today for the textile industry. Smart and sustainable textiles, innovative processes of manufacturing fabrics represent a high potential for textiles to take a leading role in redefining our environments. These new "soft technologies" are encouraging the invisible integration of sensors and actuators into the space. They extend the limits of where computation can operate and reshape the modalities of interaction with our environment. At the same time, architecture shows a revival of interest for textiles. While they have always been used in tensile structures and within the interior, textiles concepts such as weaving, braiding, knitting are increasingly used to inform architectural and building practices, challenging traditional construction processes.

Sitting at the intersection of these two fields, this International PhD funded by the Danish Government, is collaboration between CITA, Centre for IT & Architecture, Copenhagen & TFRG, Textiles Futures Research Group, London, research investigating how the use and design of intelligent textiles can be conceptualized, probed and implemented in an architectural context. More precisely, the aim is to question the role smart textiles can play in a domestic space, how they can be integrated to encourage a more sustainable lifestyle. The project is investigating tangible scenarios for responsive textiles architecture, exploring how tex-

tiles can embed innovative technologies in our interiors, with a specific interest for energy-harvesting and self-actuated technologies.

The research process is exploring a combination of practice-based and design methodologies based on design as a reflective action [Schoen 83]. The approach is focusing on the design and realisation of case studies. The hypothesis will be interrogated through the generation of probes, placing the design experiments and the making of material evidence at the centre of the research methodology. In parallel, a critical framework for the analysis of research outcomes will be developed. The intention so far is to assess if shape memory materials and photovoltaic textiles can become the effective technologies to encourage a more sustainable home.

The research outcomes, including the production of thesis and research artefacts, hope to challenge traditional perceptions of the home by encouraging critical & aesthetical reflexion about how new technology can enhance sustainability.



DATA

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