

DTInterfaces

Design of Textile Interfaces for Interior Environments

Programm / Ausschreibung	Dissertationen FH OÖ, Dissertationsprogramm FH OÖ, Dissertationsprogramm der FH OÖ 2023	Status	laufend
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Projektbeschreibung

User interfaces on smart textiles promise to substantially extend the design space for human-computer and human-machine interfaces. By moving the user interface out of the computer and into the user's surroundings, smart textiles open a new medium for interaction. Interior environments show an opportunity for local control of local output with no need for additional devices, as well as seamless integration of technology that goes beyond just our smartphones. However, current research on smart textiles mostly focuses solely on integrating functionality and therefore often lacks clear communication on how and where the user should interact.

DTInterfaces will build upon previous work from the dissertation candidate [12,13], and extend it beyond just finger-textile interaction to hand- and body-textile interaction as well. Textile gestures are inspired by the actions we already perform on textiles, translated into interaction triggers on multiple levels of granularity in order to enable the control of actions in the physical and digital world (e.g., smart home environments): finger-textile interaction (tapping, sliding, pushing etc.) for hand-textile interaction (twisting, stretching, pulling etc.), for body-textile (sitting, leaning to the side, rolling, stepping etc.).

The dissertation project will focus primarily on defining meaningful gestures users could perform on textiles, and secondly on visual and haptic cues to communicate interaction. This will be achieved by analysing people's behaviour in their everyday use of textiles, translating those actions into interaction triggers, applying interaction principles to them for a better understanding of the user interface, and finally prototyping samples of possible solutions on how to integrate the interactive elements into commercial products and furniture.

Beyond the scientific contribution, the main goal of this project is to provide guidelines, insights, and examples of how to design smart textile interfaces for other product or furniture designers to apply to various consumer products in interior environments.

Projektpartner

- FH OÖ Forschungs & Entwicklungs GmbH