

AFFECTIVE INTERACTIVE SMART TEXTILES

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<https://www.tudelft.nl/en/ide/research/research-labs/emerging-materials-lab/smart-textiles>

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INTRODUCTION

At the CWI (Centrum Wiskunde & Informatica) research is conducted at the intersection of human computer interaction, affective computing, and artificial intelligence. With increased computing power, shrinking hardware, ubiquitous wireless networks, and widespread adoption of personal computing devices, we are entering into a new technological era of how humans interact with (affect-aware) machines. This is made possible through embedding (at times personal and imperceptible) low-cost and low-power sensors and devices into our everyday environments, whether through bio-responsive wearables and mobile devices, emotion-aware avatars in eXtended Reality (XR), or embodied personal assistants that exhibit emotional intelligence.

In Delft, at the Emerging Materials group we develop textiles with embedded, soft sensors for recording bodily signals which are unobtrusive and simple to use and can be used for monitoring purposes in everyday-life situations.

In the project the student will develop a smart textile device in Delft and setup and perform a series of user interaction experiments at the CWI in Amsterdam.

TOPICS

Possible topics are

1. Emotion self-reporting;
2. Cross-reality emotion displays;
3. Biosignal acceptability;
4. Emotion and social presence in virtual reality

We expect that you have experience with electronics and hardware prototyping (Arduino) as well as design research methods, controlled user studies and data analysis

SUPERVISION AND LAB INFRASTRUCTURE

The work will be done partly in the CWI group in Amsterdam and partly in the Emerging Materials group in Delft. The student thus can use the research infrastructures and labs of both groups. The supervision will be done by dr. El Ali and prof. K.M.B. Jansen.