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MATERIALS INNOVATION

Future Textiles conference: Scandinavian innovation

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WGSN reports from the Future Textiles conference in Copenhagen, exploring innovative projects within smart and interactive textiles from some of the key researchers in the field.

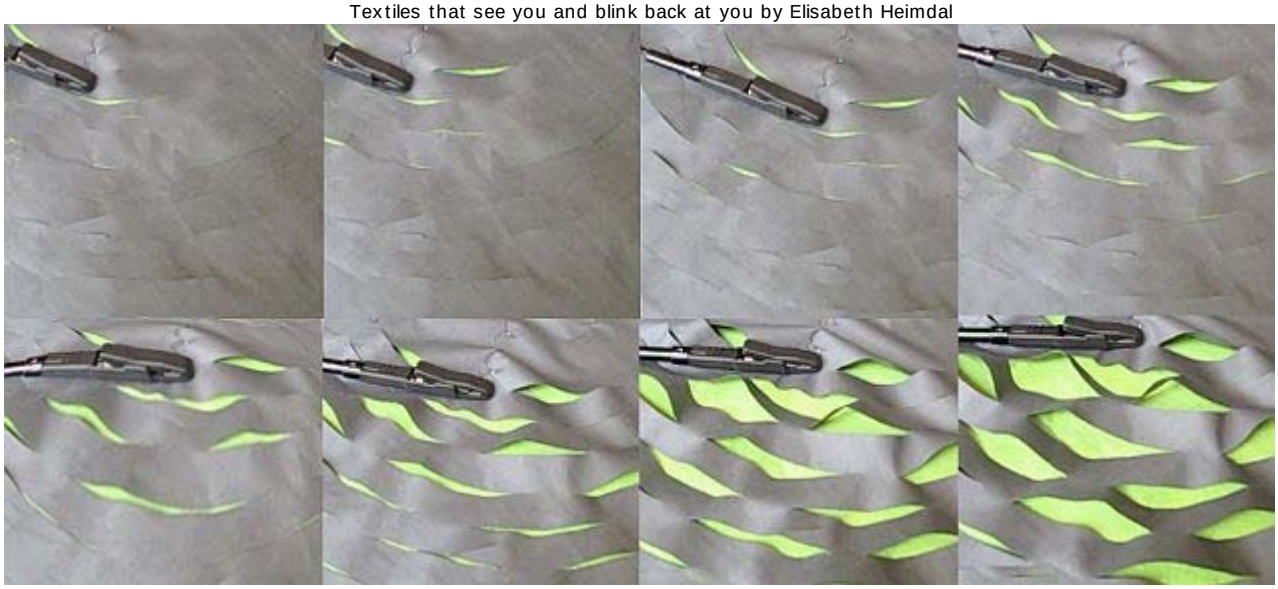
Organised by the Centre for Textile Research in Copenhagen, the one-day conference gathered the Scandinavian textile community to discuss the evolution of future textiles. Exploring materials that are smart, intelligent, responsive and interactive, key researchers and academics in the field presented their thoughts and projects as a way to question and inspire the industry.

With growing importance of textiles within interior and architectural applications, we explore some of the key points raised at the conference, grouped in three areas:

- Responsive and interactive textiles
- Textiles in architecture
- Bio and recyclable textiles

Responsive and interactive textiles

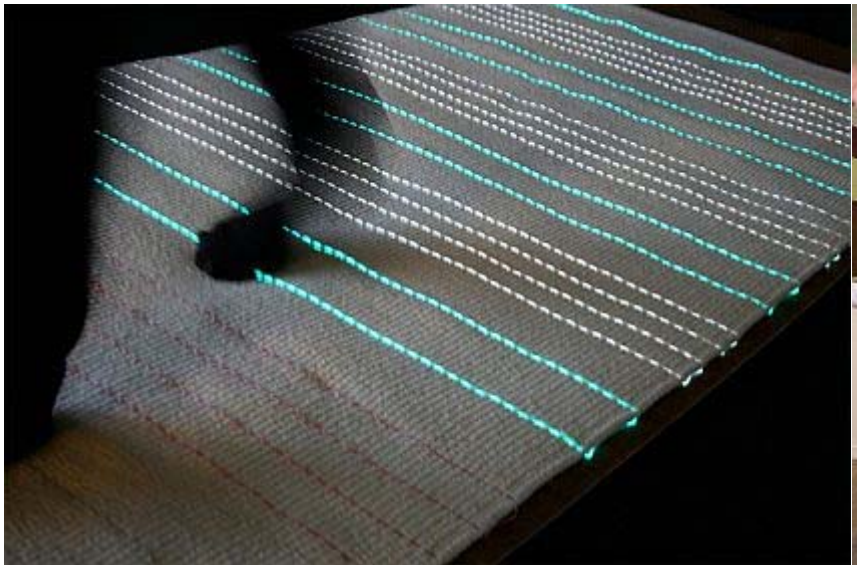
Textiles that see you and blink back at you by Elisabeth Heimdal



Moving Textile by Elisabeth Heimdal

Textile engineer Elisabeth Heimdal presented her recent graduation project from the Technical University of Denmark (DTU), which focuses on the development of inspirational tools for responsive textiles.

She showed two specific experiments - a light-responsive textile that blinks in response to light emission, and shape-changing textiles that incorporate shape-memory alloys and open up when touched by the user. Embarking on a PhD, Heimdal aims to explore how textile materials (traditional and responsive) will be used in new applications and how innovation in the field can be strengthened.

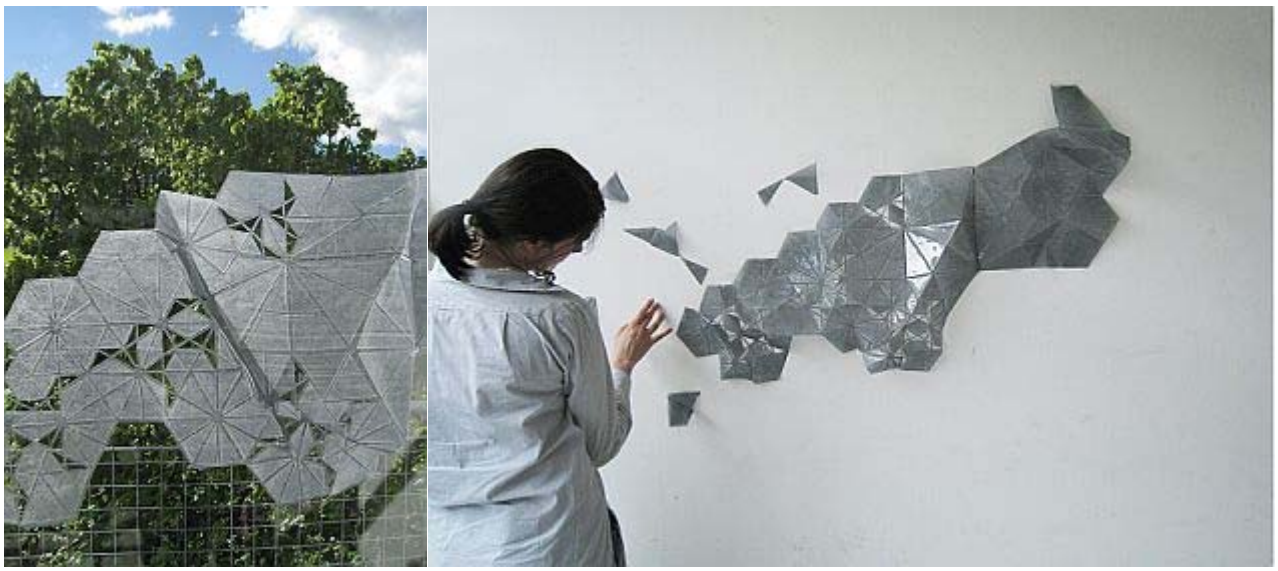


Functional styling by Linda Worbin, Anna Persson, Christian Mohr and Kasthall Carpets AB. Photo by Linda Worbin

Heat-sensitive tapestry by Linda Worbin, Anna Persson and Amy Bondesson. Photo by Henrik Bengtsson

Studying for a PhD at the Swedish School of Textiles (THS), textile and interaction designer Linda Worbin presented her investigation into dynamic textiles, which utilise technology such as thermochromic and light-emitting fabrics to create interactive patterns.

Developments such as a light-emitting carpet with patterns that evolve according to people's footsteps, and a heat-sensitive tapestry that responds to dancers' movements, bring a new understanding of what smart textiles can be, with an emphasis on craft, colour and poetry.



Ice-Fern by Aurélie Mossé in collaboration with CITA. Photos by Mette R Thomsen

Currently studying at CITA (Center for Information Technology and Architecture), Copenhagen, in collaboration with the Textile Futures Research Group (TFRG) in London, PhD student Aurélie Mossé discussed the potential of energy-harvesting and self-actuated textiles in the design of domestic spaces. Particularly interested in shape-changing textiles, she is aiming to map out new design territories for smart textiles, with a focus on ecological concerns.

For Ice-Fern - one of three winning projects in the Gecko: Think Forward competition by Création Baumann - Mossé developed a window sculpture made from nano-coated adhesive textile shapes that allows the user to create different patterns, and merges the concepts of curtain and wall. The intention would be for the sculpture to also provide extra properties, such as energy harvesting using solar power.

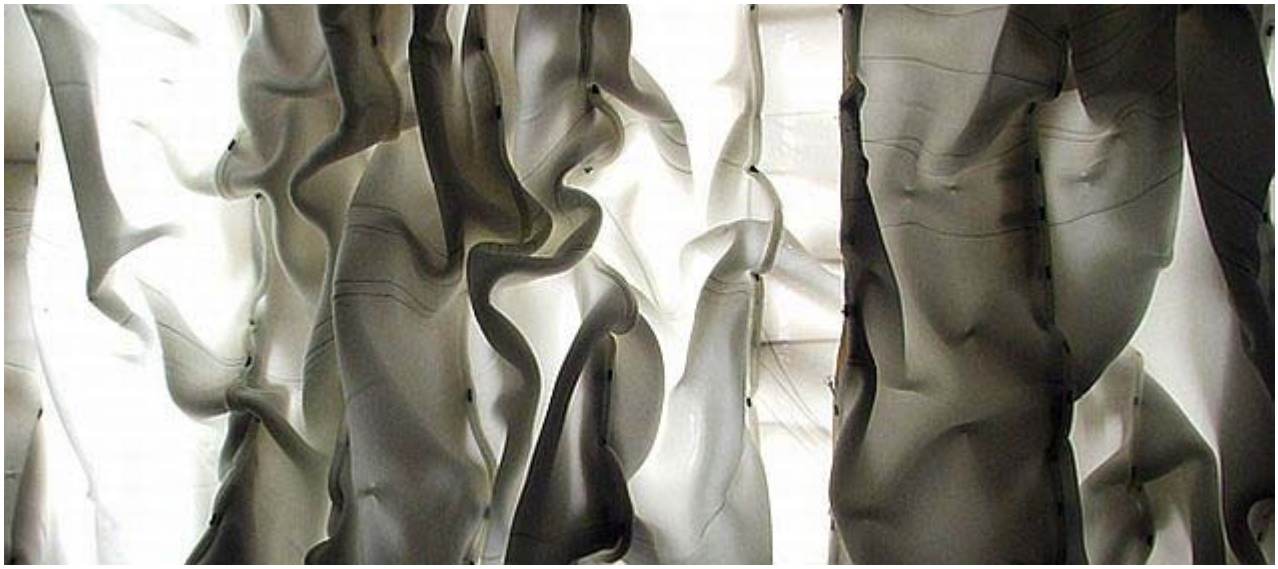
Textiles in architecture

Textiles in Architecture and Design workshop, Torben Lenau in collaboration with Karch

Textile-cast concrete from The Potential of the Material: Textiles workshop, Torben Lenau in collaboration with Karch

Associate professor of the Department of Management Engineering at DTU, Torben Lenau, presented some of the textile-related projects undertaken in collaboration with the School of Architecture at the Royal Academy of Fine Arts. Interesting ideas look to the potential of textiles as a building material, such as the use of fabrics to enable architects to cast complex shapes from concrete for applications such as outdoor furniture.

Reef Pattern installation, DevA project by CITA for the Distortion Festival. Photos by Anders Ingvartsen



Slow Furl by Mette Ramsgard Thomsen and Karin Bech

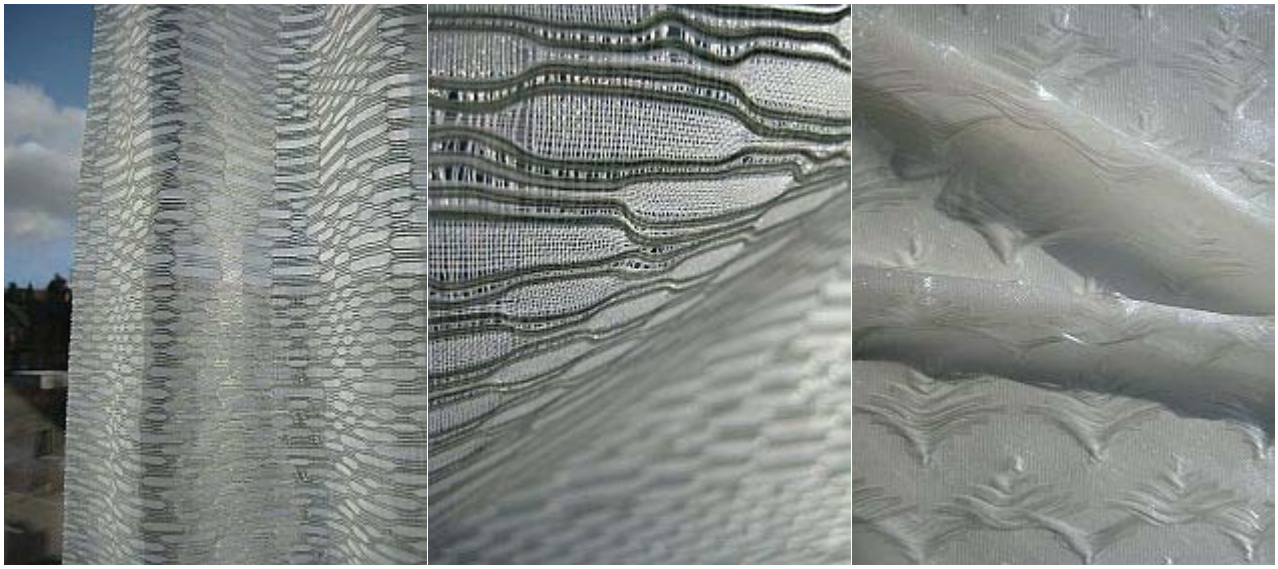
Mette Ramsgard Thomsen, architect and head of CITA, engaged with the topic of future textiles by discussing the possibilities of textile architecture and the use of computing intelligence to inform tools and techniques.

She illustrated this idea with various projects undertaken at CITA, such as the DevA project, an exploration of pattern-cutting techniques for developable steel surfaces, and Slow Furl, a soft and pliable skin that acts and reacts within its environment through slow movements.

Bio and recyclable textiles

Joy Boutrup, textile engineer and associate professor of Kolding School of Design in Denmark, questioned the environmental factors of intelligent textiles, such as those with embedded electronics, and posed the question: "Is it intelligent in a broader sense to mass-produce textiles that could create problems of disposal?"

In collaboration with Vibeke Riisberg, she is exploring the opportunities offered by synthetics that can be fully reprocessed and recycled, and has created a collection of curtains made out of bio-synthetic fibres. Some of the fabrics are woven with Lindauer Dornier looms, a specific loom technology that uses around 30% less material than a regular loom.



Biofront®, Waveron® and Morphotex® weaves, fibres by Teijin Fibers Limited, designs by Joy Boutrup, Seiko Takanashi Marquard and Vibeke Riisberg. Photos by Vibeke Riisberg

Anders Baun, associate professor of the Department of Environmental Engineering at DTU, also touched on the negative impact that smart textiles could have on the environment by asking: "Is nanotechnology dangerous?" Highlighting the diversity of nanomaterials, both in terms of properties and possible environmental risks, he pointed out that some research has found nanomaterials to be hazardous to both humans and the environment.

From textile design to textile engineering, the Future Textiles conference opened up the definition of smart textiles far beyond the understanding of electronic fabrics, where researchers are investigating applications from the nano to the architectural scale.

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