Gossamer Timescapes:
une recherche ancrée dans la pratique du design de textiles actifs pour l'environnement maison

E-textiles et vêtements connectés, séminaire Aristote, Ecole Polytechnique, Palaiseau, 16 octobre 2017

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Designer

Textile Futures design & consulting

Researcher

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Teacher

Ecole Nationale Supérieure des Arts Décoratifs, (ENSAD) PSL Research University, Paris

Profile

Soft House, Kennedy & Violich

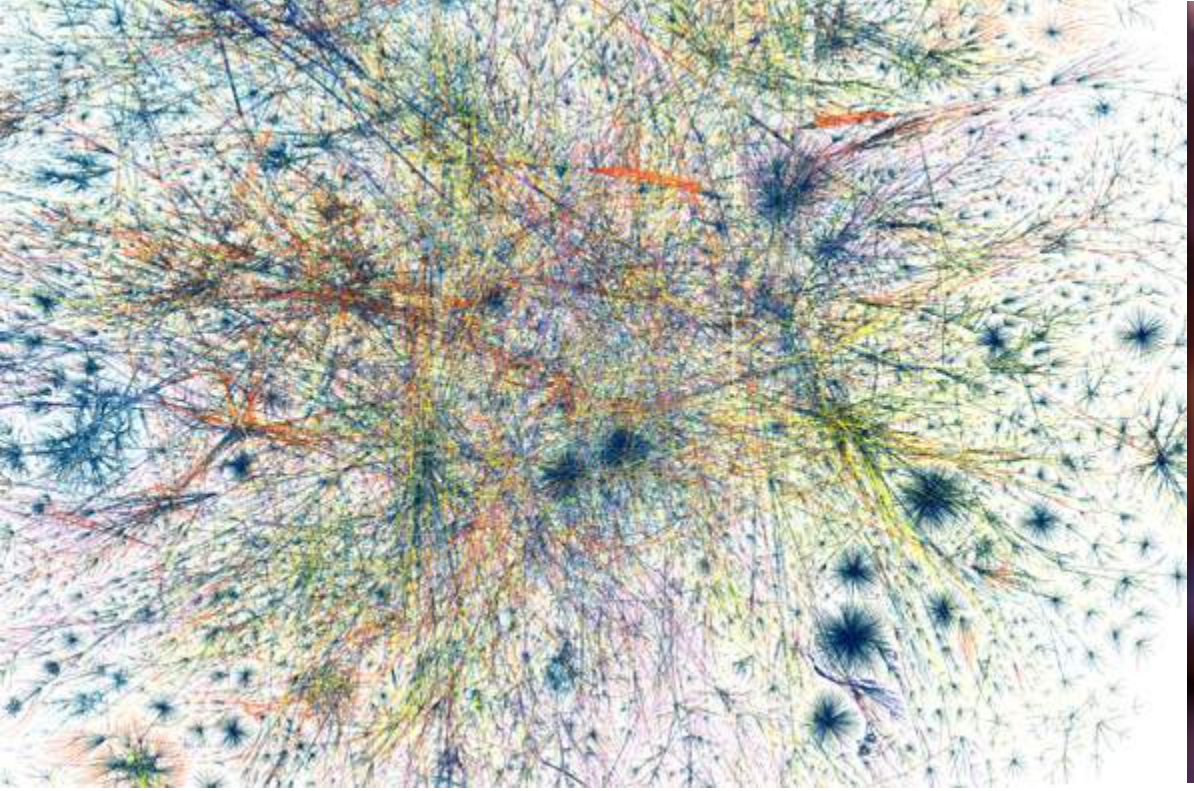
Colonise by Jane Scott

Relatively new family of engineered materials that:

- Challenge traditional categorization of man-made artefacts (machine vs material)
- Challenge practice of textile and architectural design as they introduce time as a core dimension of their materiality

Self-actuated textiles & materials

materials programmed to feel and react to stimuli in their environment with a specific behaviour



Opte Project, 2003, mapping the entire internet in a day

Questionning

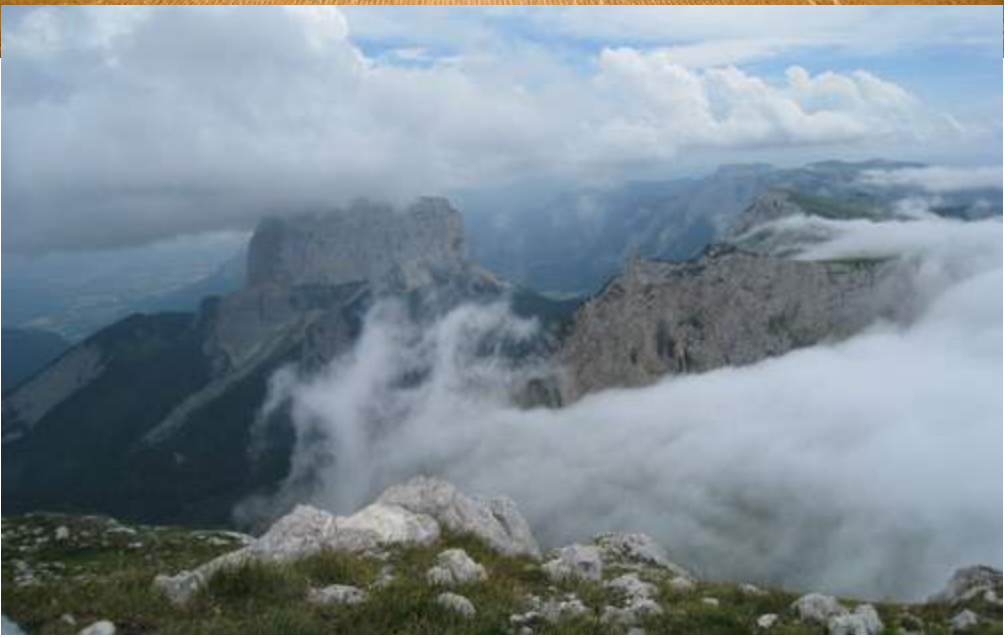
(1) the temporal characteristics of the designed object or material:

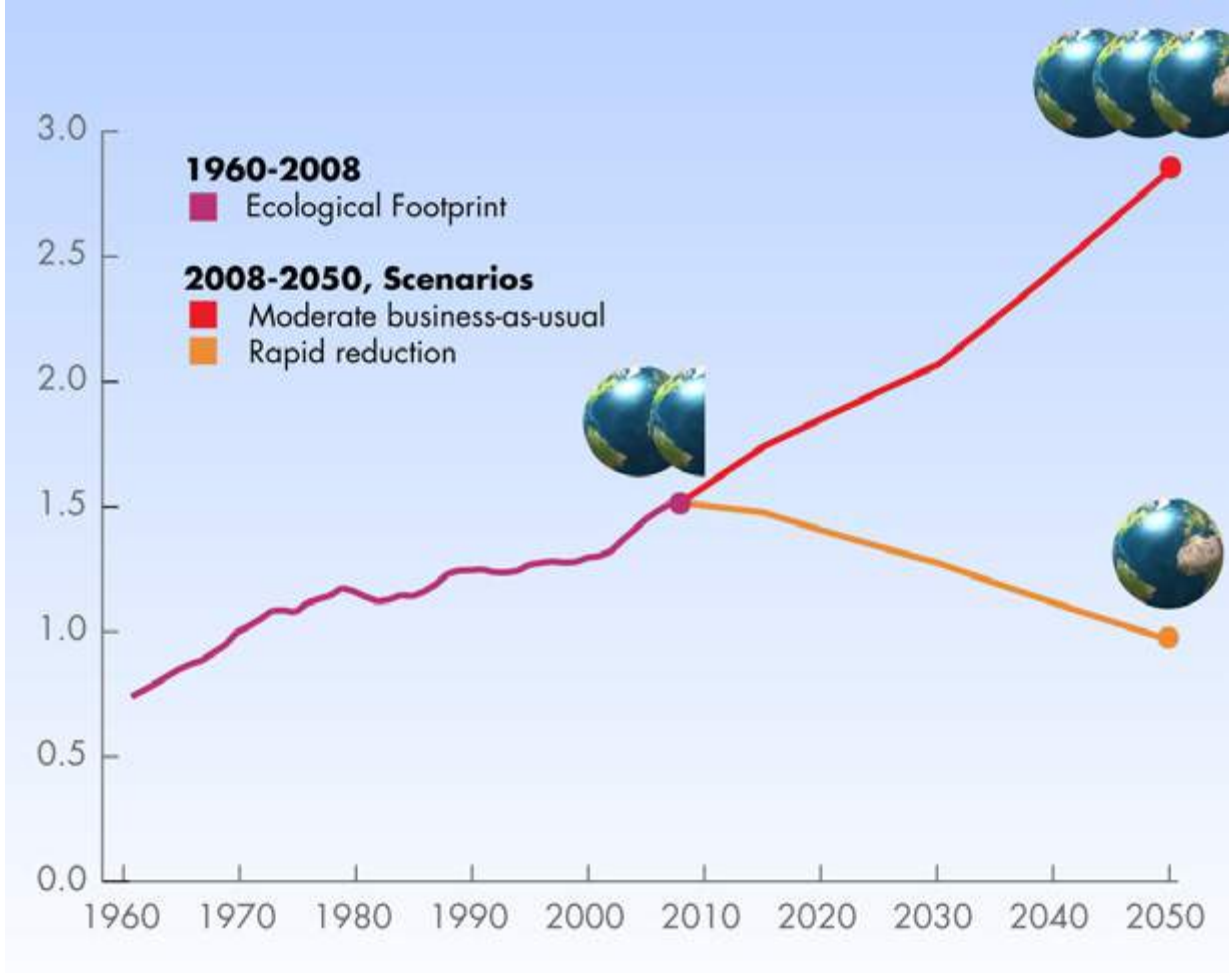
- how does it unfold in time
- at which pace and rythm
- through which typology and patterns of movements

(2) the temporal experience or timescape designed through these materials

Time as a material for design

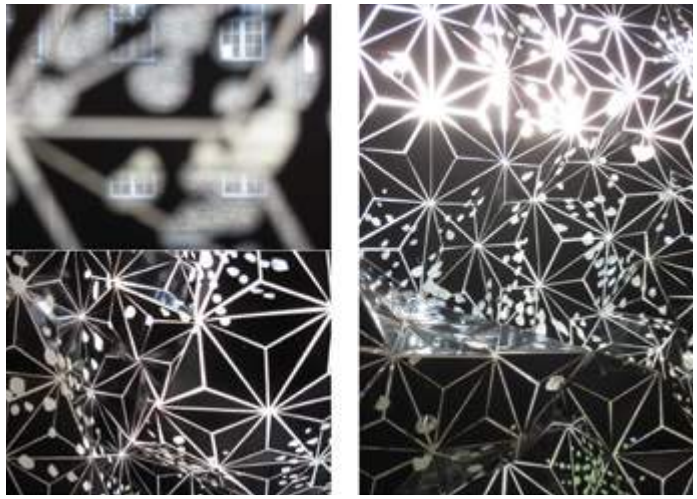
From designing material behaviours to designing timescape





Sustainability: a conflict of timescape

resulting from the imposition of industrial time over natural rythmicities (cf B. Adam)



Light-responsive experiments

Electro-active experiments

Gossamer Timescapes
Designing Self-actuated Textiles for the Home PhD Thesis by Aurélie Mossé

Centre for IT & Architecture,
Royal Danish Academy of Fine Arts,
School of Architecture & Conservation
Copenhagen, Denmark, 2014

The Royal Danish Academy of Fine Arts
School of Architecture

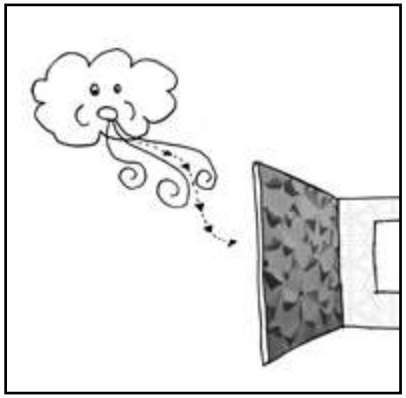
CITA

TF RC

University of the Arts London
Central Saint Martins

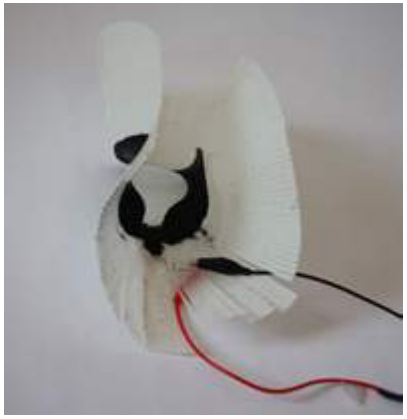
Gossamer Timescapes

exploring the cultural/poetic potential of smart textiles for the home by developing embodied scenarios mixing fragments of reality and fiction



Conceptual Probe

a design-led investigation allowing speculative inquiry, theorisation and the setting out of design criteria



Material Probe

a materially-led investigation allowing exploratory testing, of craft and material behaviour. The prot type answers and develops the design criteria ofthe conceptual probe

Immersive Probe

an application-led investigation allowing interfacing with real world problems and constraints

Material Tales

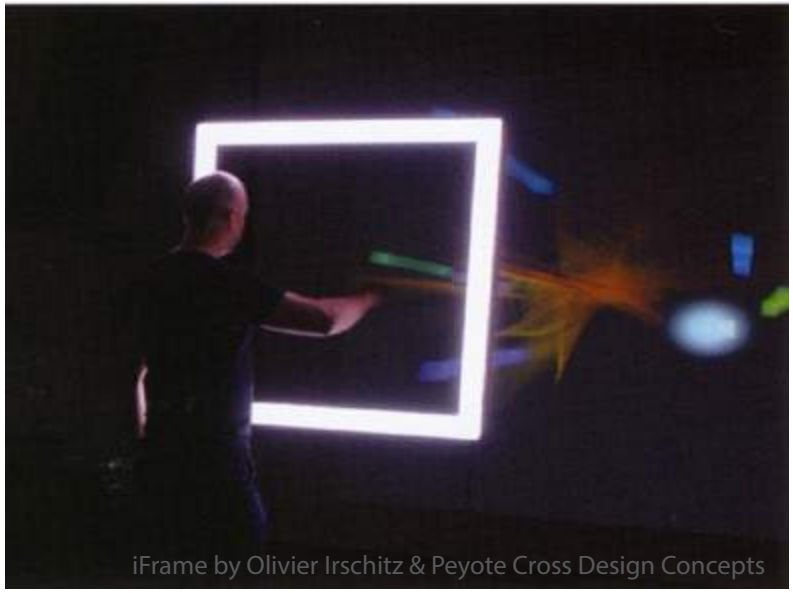
material evidences as a process of investigation rather than a finite object or application

Extension of Ecole Nationale des Arts Décoratifs, Paris by Philippe Starck, 1998

sick building syndrome: series of ailment affecting the inhabitant of a building characterised with poor indoor environment quality: inadequate ventilation or air pollution.

Sick building

Early stimulus for the research understood as manifestations of a culture of deterritorialisation



iFrame by Olivier Irschitz & Peyote Cross Design Concepts

Selgas Cano offices

Technology-driven temporality

Time as invariable, predictable, reversible and universally applicable concept

A set of experience essentially concerned with a user-oriented time space based on human machine dependences.

Inheritance of mechanical conception of time vehicled by the abstract and decontextualised temporality of the clock.

Earth-bounded temporality

Time as variable, impredictible, irreversible and embodied concept

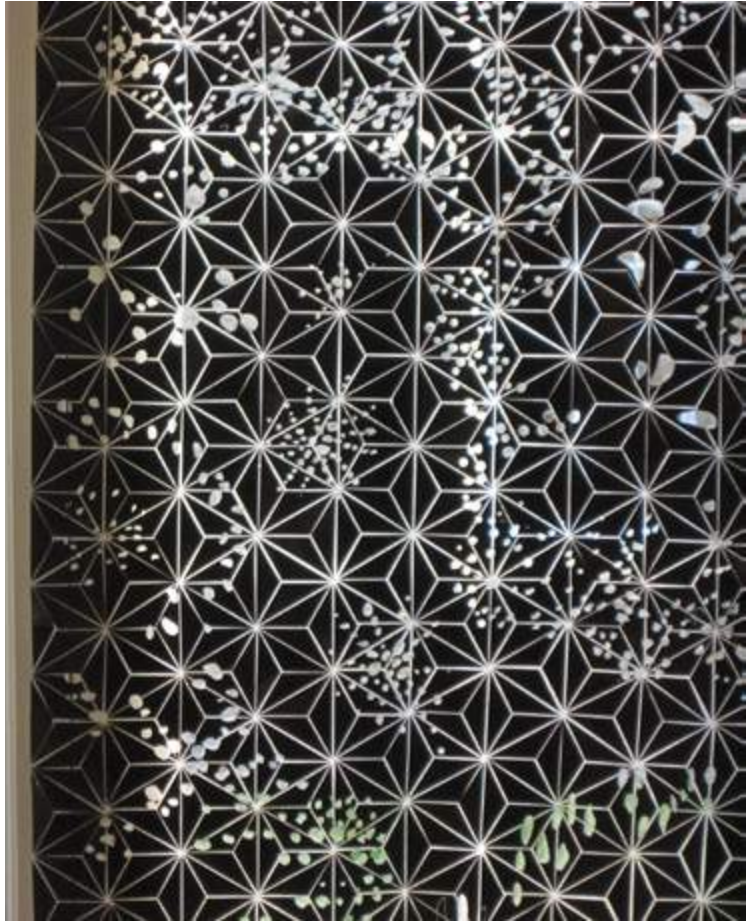
A set of experiences concerned with local time based on earth-life dependances

Inheritance of ecological conceptions of time vehicled by the concrete and contextualised temporality of biological clocks

Interactivity vs interconnectivity

how smart textiles can contribute to a culture of interconnectivity

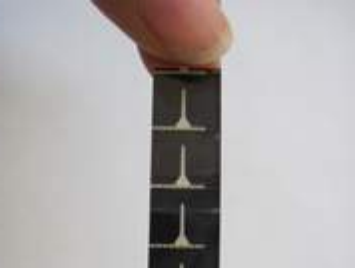
Traditional islamic mashrabiya



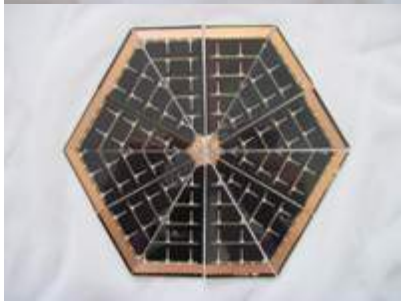
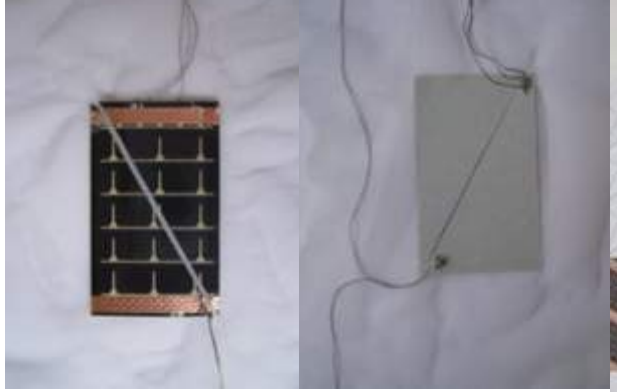
The Photovoltaic Mashrabyia by Aurélie Mossé

Photovoltaic Mashrabyia

designing a textile membrane changing shape and producing electricity according to solar rhythms



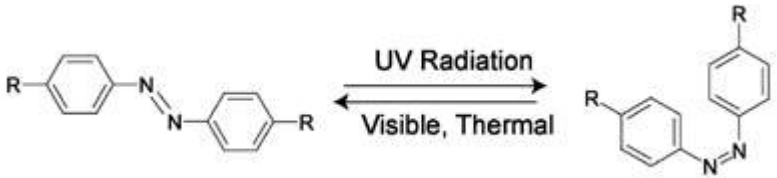



Designing & testing a soft electronic circuit based on tessellations with thin films photovoltaics 2009, by Aurélie Mossé

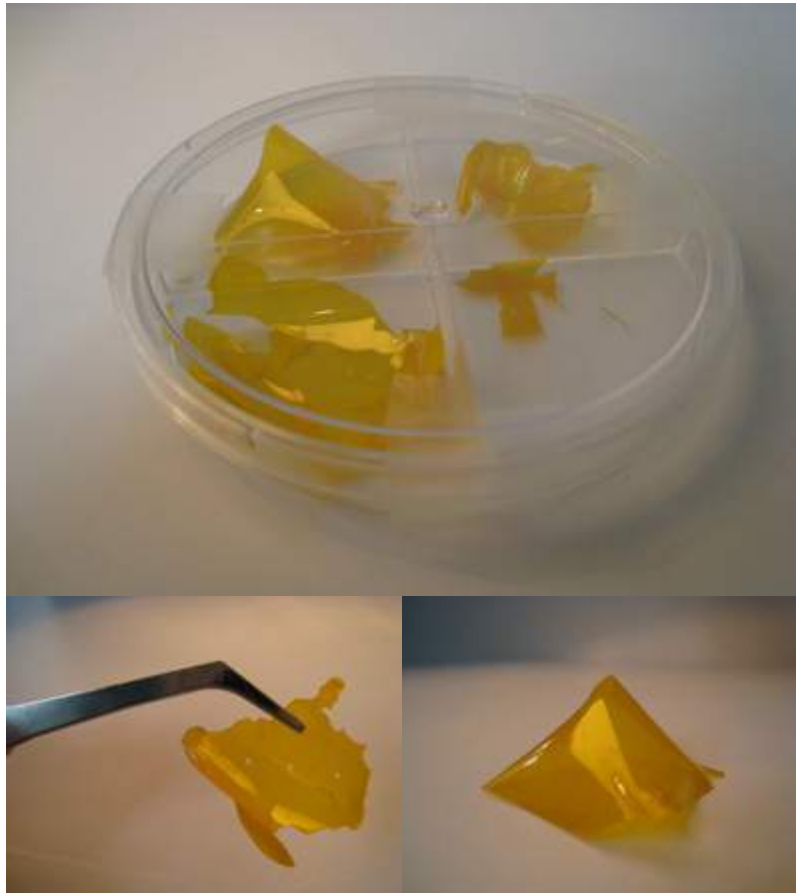
Photovoltaic Mashrabyia

Exploring energy-harvesting designs based on thin film photovoltaics



Change in order gives dimensional change

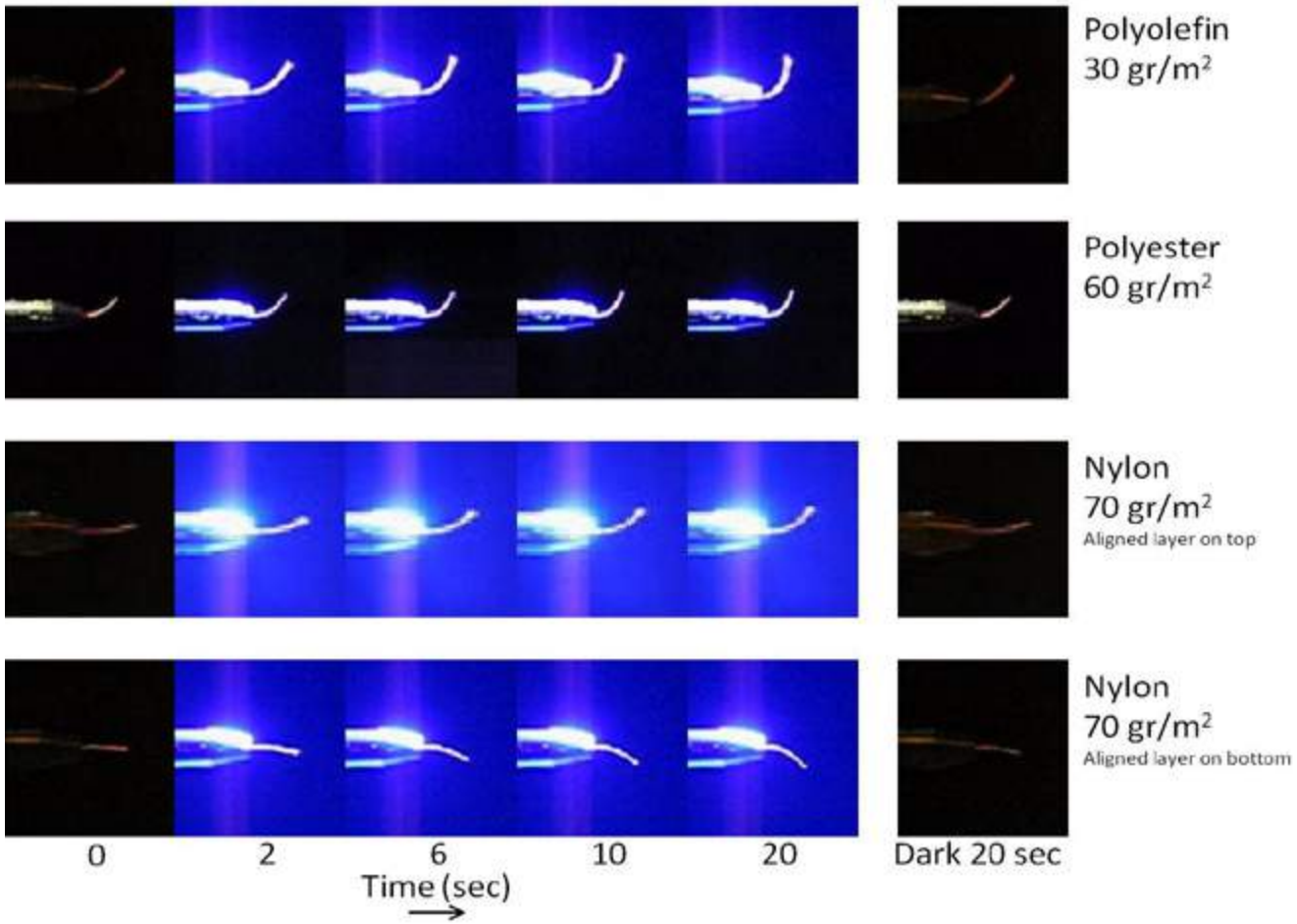
Courtesy Casper van Oosten



Raw light reactive liquid crystal

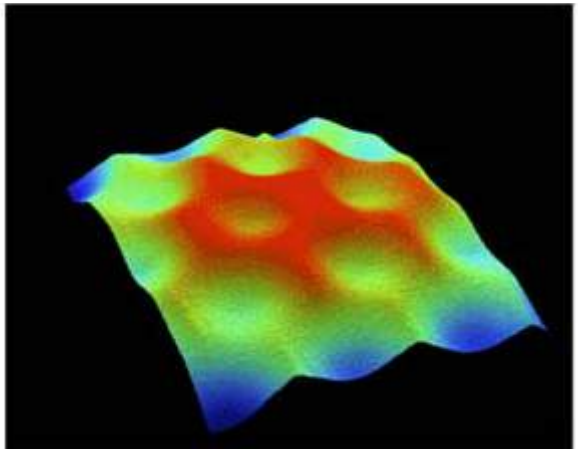
Photokinetic Textiles

Investigating liquid crystals for light-induced shape change, collaboration with TUe Eindhoven

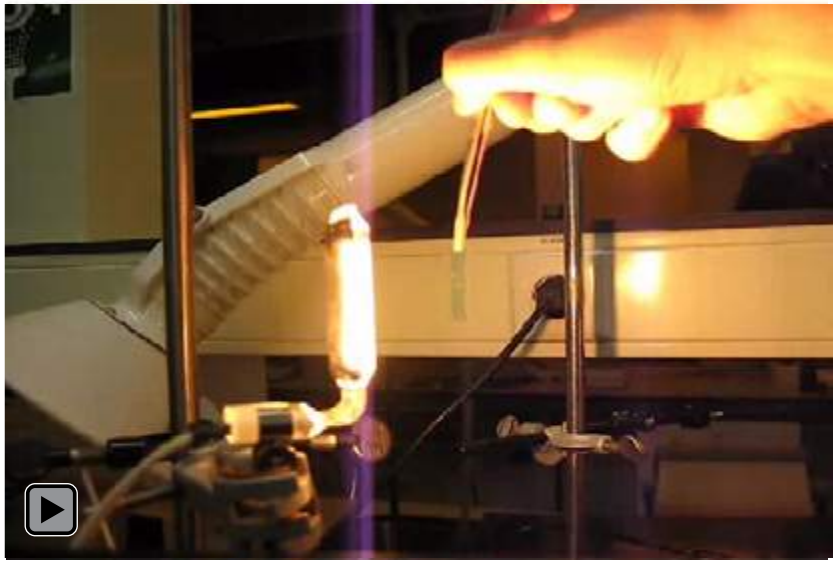


Photovoltaic Mashrabiya

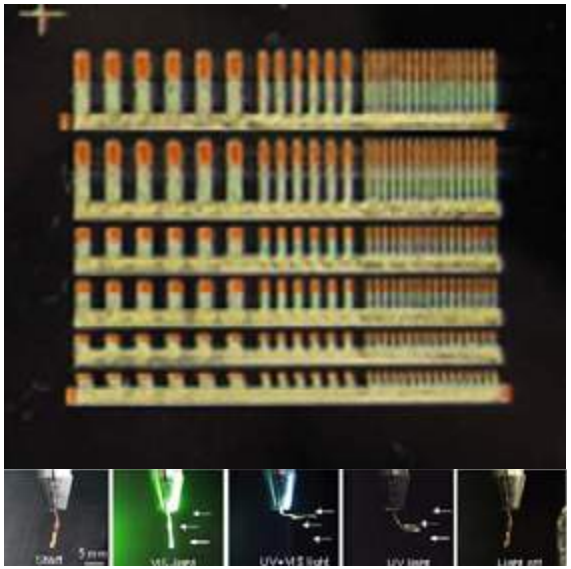
Designing textiles changing shape with light



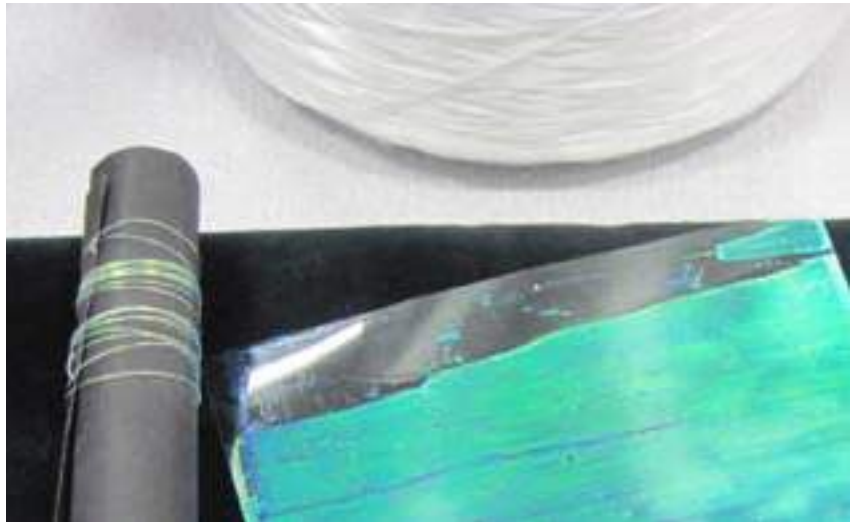
Surface relief (TUe and Brown University)



Complex morphing (TUe and partners)



Inkjet printed and responding to different light wavelength (Casper van Oosten, TUe)



from film to yarn (nanoforce)

Courtesy Dick Broer

Photovoltaic Mashrabiya

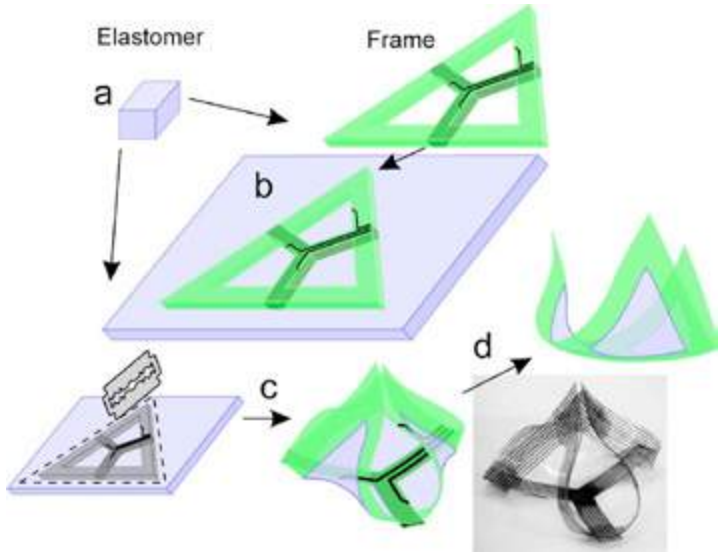
By-passing the need for electronics in the actuation of shape-changing textiles

Active behaviour

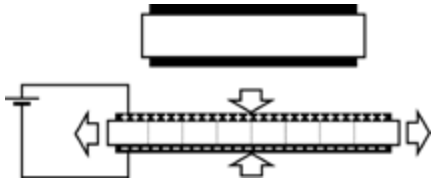
Passive behaviour

Reef

designing a self-actuated ceiling changing with the wind

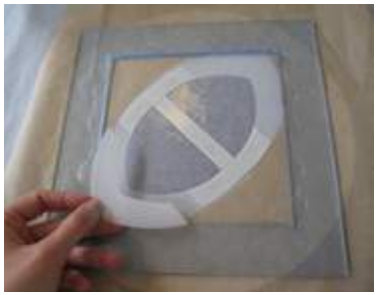


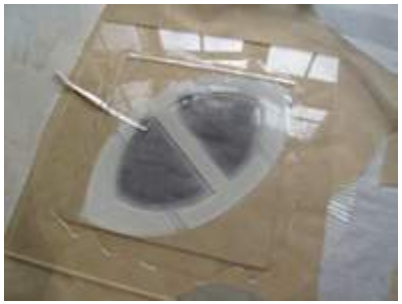
(1) Energy-minimisation and self-organisation principles as morphogenesis and actuation principes (Courtesy Guggi Kofod, University Potsdam)



Electrical pressure on the elastomer results in the actuation of the mnimum energy structures

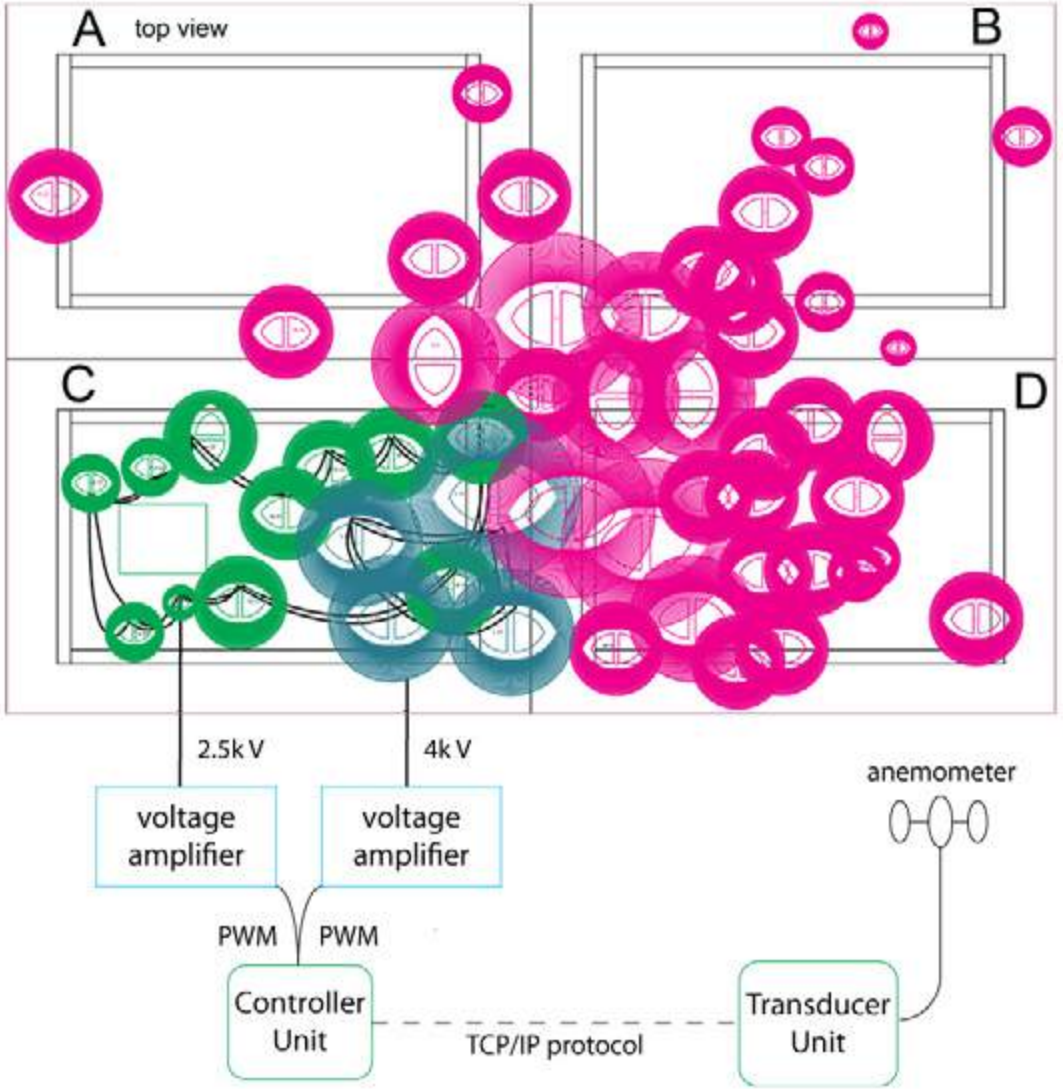






Self-actuated minimum-energy structures

crafting dielectric elastomer composites for 3D shape change, collaboration with G. Kofod, Postdam University



Reef

Design the interactive setting

Reef

expericencing material behaviours, in collaboration with David Gauthier, CIID

EnsadLab Présentation Groupes Projets Séminaires Colloques Doctorat Équipe

Soft Matters

Jean-François Bassereau, Prof., co-responsable de groupe
Aurélie Mossé, PhD, co-responsable de groupe
Jeanne Vicérial, étudiante-chercheuse
ses préoccupations. Il explore comment nouveaux matériaux et nouvelles technologies (mais aussi actuels et anciens) peuvent contribuer au développement d'une culture plus résiliante en s'appuyant sur des méthodes de recherche ancrées dans la pratique du design. S'inscrivant à la croisée de disciplines telles que le design textile, matériaux, surface, l'architecture et le design d'objets, *Soft Matters* examine comment cette nouvelle matérialité du doux (textile, matériaux souples, technologies du numérique et du biologique etc.) influence la pratique du design et affecte notre quotidien au niveau culturel, social comme technologique.
Pour ce faire, *Soft Matters* place la conceptualisation et matérialisation d'artefacts au centre du processus de recherche. Le groupe privilégie le dialogue interdisciplinaire en s'appuyant notamment sur le développement de collaborations à l'intersection de la science, du design et de l'ingénierie.

3 PhD

2 MPhil students

Soft Matters Research group

design-led research exploring the potential of new materials & technologies for the shaping of more resilient futures

Aurélie Mossé l Soft Matters Research Group, Ensadlab l ENSAD l aurelie.mosse@ensad.fr

WEAR sustain

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Open call 2 event hosted by Ensad

22/11/2017

de 16h à 21h