4D TEXTILES: HOW TO PROGRAM ELASTIC TEXTILES BY 3D PRINTING

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Combining 3D printing and textile materials is still a relatively new research area. This represents a growth area that offers the promise of "4D Textiles" - hybrid textile/3D printed structures that can change structural form with time. The underlying principle behind these hybrid material systems is the stored energy in the textile material prior to printing causes a change in form when the energy is released. The shape change of the textile is defined by the design and arrangement of the 3d printed rigid elements. This talk explains design principles for 4d textiles using applied examples from the fields of clothing and architecture.

Biography

David Schmelzeisen studied mechanical engineering at the RWTH Aachen University. During his PhD he started researching on production technologies for smart textiles and is focusing on hybrid 4D printing technologies. He is responsible for the research group of 4D textiles at the Institut für Textiltechnik (ITA) der RWTH Aachen University. Furthermore he supports apparel manufacturers to meet the demand of near-shoring, fast production and sustainable design.

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