

Zero Waste Systems Thinking

Zero Waste System Thinking: Multimorphic Textile-Forms is situated in the context of the rapidly unfolding environmental crisis and the dominant response to this in the industry - the circular economy. It began by building on existing knowledge around sustainable fashion and textiles, and zero waste design practice. The research program is constructed from three interconnected theories: transition design; post-anthropocentric design; and design as future-making. It adopts a transition design “posture” of holistic zero waste system design to develop processes for garment design and manufacturing.

Zero Waste Systems Thinking: Multimorphic Textile-Forms explores the theoretical, aesthetic and technical development of systems and methods for zero waste textile-forms. It presents a range of experimental field tests, as well as interviews and design experiments using a variety of prototyping methods to deepen understanding of the existing context, and to propose methods and theory for a new understanding of the relationship between designer and system, textile and form. Outside of fully fashioned or 3D knitting, methods for simultaneous textile-form design and construction are limited. Conventionally, weaving is a two-dimensional practice – which through cutting and sewing may become form. Cut-and-sew is the most common method of garment construction used in industry; however, it can also be exploitative, time-consuming and wasteful. The current shallow understanding of the relationship between woven textiles and form limits how designers could transform industries and the built environment. This research questions how technology can further shape form-making, and follows some of the lines of inquiry forged by the work of Issey Miyake and Dai Fujiwara in A-POC, and recent explorations on whole garment weaving by Anna Piper, Jacqueline Lefferts, and Claire Harvey. This research undertook a series of experiments which aimed to expand the form-design methods available for whole garment weaving in the context of zero waste system design. The multimorphic and analogue-digital craft practice develops new understandings of textile design and manufacturing elements, such as jacquard looms and weave structures, for use in micro-manufacturing contexts. Its holistic and disruptive reshaping of form-making has the potential to future-make the industry, our cities and our social fabric.



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