Review of 'Smart Textiles for Designers – Inventing the Future of Fabrics' by Rebeccah Pailes-Friedman (2016). Laurence King Publishing, ISBN 978-1-78067-732-3.

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This well presented, insightful and inspiring book (aimed at designers of all types) is both a timely and a highly valuable addition to the literature on the important and rapidly evolving technological area of 'smart textiles'. Published earlier this year *Smart Textiles for Designers* has numerous colour photos to accompany the text and anyone interested in textiles or technology development will surely find it fascinating to read or to simply just browse through.

The book seeks to inspire readers by presenting visually appealing examples and describing a captivating variety of techno textiles and it does this very well. The scene is set with an interview with Melissa Coleman who rightly identifies the importance of smart textiles and their capacity to 'spark the imagination' of what might be possible in the future. The materials introduced are intended to challenge the reader so that their ideas of what fabrics and textiles are can truly be expanded – the book is envisioned as a source of stimulation for designers so that they may rethink what clothing, as well as other textiles-based products, can do. Some of these materials will be new to many textile designers, for example graphene, smart foams and other non-woven materials produced in novel ways such as by 3-dimensional printing.

Smart Textiles for Designers introduces the different qualities and properties that can be embedded in, integrated with and applied to fabrics and looks at the different contexts in which these smart textiles can be used. These uses range, of course, from utility applications such as high-visibility and protective wear, through to high-performance sportswear and recreational applications as well as fashion and other aesthetic purposes. Textiles may be 'smart' in the sense that they can gather information, communicate, interpret environmental conditions or the status of the wearer, process data and respond. They may be capable of material transformation, conduct energy or even grow. Within this diverse range of technologies are 'emotive textiles' which can trigger the senses using colour, light, scent or sound and the book provides plentiful examples of this latter category. For example, scent-emitting materials can play a role in aromatherapy which the book asserts is a medically proven therapy that can improve health and well-being. It might, however, usefully explore further the distinction between sensory stimulation and emotional response and how smart textiles could mediate between the two. We all receive stimulus and information via our senses but our emotional response to these can vary between individuals, of course, and from moment to moment. Truly smart emotive textiles might assess the mood of a wearer and respond in a way which helps enhance emotional well-being and this is surely an area which holds great potential for textile designers.

New smart textiles have moved far beyond e-textiles and the definition of 'smart' in this context extends beyond purely digital processing although the miniaturisation of electronics and their successful integration into fabrics is a key element of the rapid technological progress being made in this area. The author asserts that we are on the frontier of a techno textile revolution and it is easy to see why this is likely to be true. As the capacity for information gathering expands and the Interconnections between fabrics, wearers and everyday objects exponentially increases the scope for the novel development and application of smart textiles is immense.

The book follows a logical and helpful structure: Chapter one provides definition and context whilst chapter two goes on to examine materials including a survey of smart textiles. Chapter 3 is entitled 'Projects' and this considers the various ways smart textiles can be employed, such as temperature regulation, light and colour variation, renewable energy harvesting and 'shape shifting'. The final section focuses on 'People and Processes' – it includes a variety of case studies of individual designers working in different areas such as fashion, fine art, architecture, industrial design and engineering. Designers featured include: Francesca Rosella, Michele Stinco and Ying Gao.

Whilst this book is surely right to explore and embrace the wide-ranging benefits and possibilities that smart textiles can bring us there is a need for caution too, perhaps. As the author recognises our clothing is often considered as our second skin – we have a deep and personal connection with the fabrics we wear and they allow us to express our identity as well as protect us from highly variable environmental conditions. All new technologies bring risks along with benefits though, and the risks associated with techno textiles are probably an area which deserves more attention by researchers of all types. This does not detract from the value of the book though and the author and publishers have a done an excellent job of bringing contemporary techno-textiles to the awareness of designers and demonstrating the diversity of applications which they can bring. The book updates the important earlier work on techno textiles done by Sarah Braddock Clarke and Bradley Quinn amongst others but it is far more than simply a description of the current 'state of the art' in this technology.

Importantly, it highlights the ways in which textiles may be seen in a new light, as capable of possessing qualities such as being responsive and adaptable. Moreover, it demonstrates that textiles can become an active part of a wider system through connectivity with, for example, garment wearers and the wider environment or external objects. In the future, smart textiles may be able to interpret behaviours or situations and offer 'expert judgement' in the way they respond. They might even be capable of 'learning' and integrate closely with forms of artificial intelligence. The press release for the book describes it as a core reference work for designers, textiles workers and technologists. It will surely soon become this but perhaps its over-riding value will indeed be as a source of inspiration – not just for creative professionals – but for readers of all types as we collectively move into an era of truly 'smart' products.