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The Impact of Artificial Intelligence on Textiles Technology

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Abstract : Textile sensors have gained a lot of interest in recent years as it is instrumental in monitoring physiological and environmental changes, for a better diagnosis that can be useful in various fields like medical textiles, sports textiles, protective textiles, agro textiles, and geo-textiles. Moreover, with the development of flexible textile-based wearable sensors, the functionality of smart clothing is augmented for a more improved user experience when it comes to technical textiles. In this context, conductive textiles using new composites and nanomaterials are being developed while considering its compatibility with the textile manufacturing processes. This review aims to provide a comprehensive and detailed overview of the contemporary advancements in textile-based wearable physical sensors, used in the field of medical, security, surveillance, and protection, from a global perspective. The methodology used is through analysing various examples of integration of wearable textile-based sensors with clothing for daily use, keeping in mind the technological advances in the same. By comparing various case studies, it come across various challenges textile sensors, in terms of stability, the comfort of movement, and reliable sensing components to enable accurate measurements, in spite of progress in the engineering of the wearable. Addressing such concerns is critical for the future success of wearable sensors.

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