An Integrated Deep Neural Network for Defect Detection in Dynamic Textile Textures

Dirk Siegmund[1,2]
Ashok Prajapati[1,2]
Florian Kirchbuchner[1,2]
Arjan Kuijper[1,2]

[1]**Fraunhofer Institute for Computer Graphics Research (IGD). Germany.**
{dirk.siegmund,ashok.prajapati,lorian.kirchbuchner,arjan.kuijper}@igd.fraunhofer.de
[2]**Technische Universit¨at Darmstadt, Karolinenplatz 5, 64289 Darmstadt, Germany.**

Abstract

This paper presents a comprehensive defect detection method for two common fabric defects groups. Most existing systems require textiles to be spread out in order to detect defects. This method can be applied when the textiles are not spread out and does not require any pre- processing. The deep learning architecture we present is based on transfer learning and localizes and recognizes cuts, holes and stain defects. Classification and localization is combined into a single system combining two different networks. The experiments this paper presents show that even without adding depth information, the network was able to distinguish between stain and shadow. This method has been successful even for textiles in voluminous shape and is less computationally intensive than other state-of-the-art methods.

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