

# Fabric Defect Detection using Deep Learning

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**Abstract:** Fabric defect detection is very significant in textile manufacturing. Inspecting the quality of raw materials is considered to be one of the most crucial aspects behind any production unit. Its significance in the textile industry is even more as most of the time different fabrics are combined together to form a finished fabric and defect found in any one of the fabric can halt the entire production assembly resulting in huge financial losses for large manufacturing unit. In general the valuation of the fabric gets reduced in between 40 to 60 percent depending upon the nature of the defect found in the fabric. Most of the defects in fabrics also known as flaws, on the surface results either from wear and tear of machines, improper stocking or other miscellaneous activities like stain spills or scratches etc. Therefore the main aim is to develop model that maximize the machine's detection efficiency by minimizing its misclassification rate

**Keywords:** Fabric defect detection, deep learning , Inception V3, Deep Convolutional neural Network (DCNN).

## REFERENCES

- [1]. Y. Y. Liu, "Research on fabric defect detection method based on deep learning," M.S. thesis, Dept. Control Sci. Eng., Harbin Inst. Technol., Harbin, 2020.
- [2]. K. Yıldız, Ö. Demir, and E. E. Ülkü, "Fault detection of fabrics using image processing methods," Pamukkale Univ. J. Eng. Sci., vol. 23, no. 7, pp. 841–844, 2017.
- [3]. W. Wong and J. Jiang, "Computer vision techniques for detecting fabric defects," in *Applications of Computer Vision in Fashion and Textiles*, Elsevier, Amsterdam, Netherlands, 2018.
- [4]. T. Czimmermann, G. Ciuti, M. Milazzo et al., "Visual-based defect detection and classification approaches for industrial applications-a survey," *Sensors*, vol. 20, no. 5, p. 1459, 2020.
- [5]. M. F. Nisha, P. Vasuki, and S. M. M. Roomi, "Survey on various defect detection and classification methods in fabric images," *Journal of Environmental Nanotechnology*, vol. 6, no. 2, pp. 20–29, 2017.
- [6]. M. Li, S. Wan, Z. Deng, and Y. Wang, "Fabric defect detection based on saliency histogram features," *Computational Intelligence*, 2019.
- [7]. W. Ouyang, B. Xu, J. Hou and X. Yuan, "Fabric defect detection using activation layer embedded convolutional neural network", *IEEE Access*, vol. 7, pp. 70130-70140, 2019.
- [8]. L. Li, "Research on fabric defect detection method based on convolutional neural network", 2019.
- [9]. H. P. Liu, "Research on nonwoven fabric defect online detection system using machine vision", 2015.
- [10]. W. J. Liu, H. Liu, Z. R. Li and D. Y. Lai, "A fabric defect detection algorithm based on image enhancement and CNN", *Comput. Technol. Develop.*, vol. 31, pp. 90-95, Jan. 2021.