

AUTOMATED QUALITY INSPECTION OF FABRICS – A BAYESIAN APPROACH

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ABSTRACT

Industrial inspection is one of the crucial factors to ensure quality of product before they reach the market. Significant attention of the researchers has been being drawn by automated textile inspection systems in order to replace manual inspection, which is time consuming and not accurate enough. Automated textile inspection systems mainly involve two challenging problems, one of which is defect classification. The inspection of real fabric defects is particularly challenging due to the large number of fabric defect classes. It is reported that the price of fabric is reduced by 45%-65% due to the presence of defects, which results in the emergence of intelligent inspection systems to ensure the high quality of products. This paper mainly focuses on detecting various kinds of defects that might be present in a given fabric sample based on the computer vision of the fabric. We apply the maximum a posteriori (MAP) rule in Bayesian algorithm to find the best match of the input image with the sample. We present a possibly appropriate set of geometric features in order to address the problem of Bayesian algorithm based textile defect classification.

KEYWORDS: Bayesian Algorithm, Computer Vision, Maximum A Posteriori (MAP) Estimation