REAL-TIME DEFECT DETECTION ON CLOTHS

Antonio Baldassarre ; Maurizio De Lucia ; Paolo Nesi ; Francesca Rossi ; Jacopo Zamberlan

abstract

The detection and classification of defects is strongly useful for stopping in real time the cloth production when degenerative defects occur; for increasing the efficiency of production by limiting the decrement of price for cloth rolls. The paper describes the work performed for detecting defect of well-known manufacturers of cloths and machine builders for cloths (looms). The main goal has been to obtain a new and innovative production line endowed with a system for detecting defects in real-time. The system is based on image processing techniques with a special attention to the real-time constraints. An architecture separating an on-line defect detection and an off-line classification has been proposed. An intelligent optical head, assembled on the loom, has the duty to acquire images and to detect the defects in real-time. A server has the offline task to classify each defect detected by the head. In the paper, some new algorithms for defect detection have been proposed. These have been compared with a selection of the most interesting algorithms for the same purposed taken from the literature. The comparison has been conducted by on the basis of a large test set with several types of defects and by considering reliability, performance, and complexity.