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## Introduction

In recent years, defect recognition and quality classification using artificial vision systems and intelligent techniques have been widely applied in the production of nonwoven materials. At the level of methodology, Li C Huang and J F Lu developed an algorithm usingatcher transform and back-propagation (BP) neural network for detecting nine categories of nonwoven defects, including thick yarn, hole, needle mark, oil stain, stripe, porosity, white spot, folding mark and wrinkle mark. A Prasad and his collaborators introduced an off-line wavelet-fractal method for detection and classification of thermal-bond nonwoven web images using the box counting dimension as the main feature and the BP neural network as classifier. At the level of software systems for vision inspection, the most used commercialized systems for nonwoven defect inspection include SMASH WEB<sup>®</sup> or ISRA VISION, NIN300<sup>®</sup> of Lening Instruments, and BLAWSCANTM-1000

Nonwovens of 175. These systems can detect common defects like thin areas, thick areas, holes, lines, coating defects, contamination, embossing defects, and so on. However, the existing visual inspection systems cannot

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