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## White Speck Detection on Dyed Fabric Using Image Analysis

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White specks are undyed spots on dyed fabric, and are commonly caused by neps. Since quality of a finished garment is determined by, among other things, the number of imperfections contained within the fabric, the inclusion of white specks is detrimental to fabric quality. The manual counting of neps is not only a time-consuming process, but also inconsistent and prone to error because it is very subjective. In this study, an image analysis system was developed to count and size white specks on dyed fabric that can minimize the variations from light fluctuations and automatically perform threshold and calibration. The performance of the white speck counter was compared with that of the traditional manual counting of white specks in terms of accuracy, repeatability, and sensitivity to different operators. Two different operators inspected 20 test lots on two fabric rolls using the white speck counter and the manual counting method. The white speck counter counted white specks faster and more efficiently than the manual counting method. The white speck counter also performed more consistently and objectively than the manual counting method.