
**Abstract**

This paper addresses the problem of detecting small areas of textured images which differ from their immediate surroundings. A significance test is described which adapts itself to the generally changing background statistics so that a constant false alarm rate is maintained. A detection algorithm is derived from the fact that this significance test can be expressed in terms of the error residuals of an adaptive two-dimensional linear predictor whose coefficients are estimated from the background. The algorithm has been successfully demonstrated with both synthetic and real-world images.