

## The Effect of Pixelation on Face Detection: Evidence from Eye Movements

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**Abstract :** This study investigated how different levels of pixelation affect face detection in natural scenes. Eye movements and reaction times, while observers searched for faces in natural scenes rendered in different ranges of pixels, were recorded. Detection performance for coarse visual detail at lower pixel size (3 x 3) was better than with very blurred detail carried by higher pixel size (9 x 9). The result is consistent with the notion that face detection relies on gross detail information of face-shape template, containing crude shape structure and features. In contrast, detection was impaired when face shape and features are obscured. However, it was considered that the degradation of scenic information might also contribute to the effect. In the next experiment, a more direct measurement of the effect of pixelation on face detection, only the embedded face photographs, but not the scene background, will be filtered.

**Keywords :** eye movements, face detection, face-shape information, pixelation

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