# Intensity Dependent Spread Theory

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The Intensity Dependent Spread (IDS) procedure is an image-processing technique based on a model of the processing which occurs in the human visual system (1,2). IDS processing is relevant to many aspects of machine vision and image processing. For quantum limited images, it produces an ideal trade-off between spatial resolution and noise averaging, performs edge enhancement thus requiring only mean-crossing detection for the subsequent extraction of scene edges, and yields edge responses whose amplitudes are independent of scene illumination, depending only upon the ratio of the reflectance on the two sides of the edge. These properties suggest that the IDS process may provide significant band-width reduction while losing only minimal scene information when used as a preprocessor at or near the image plane.

## References

1. Cornsweet, T. Prentice Award Lecture: A Simple Retinal Mechanism That Has Complex and Profound Effects on Perception. American Journal of Optometry and Physiological Optics Vol. 62 no. 7, 1985, pp. 427-438.

2. Cornsweet, T. and Yellott, J. Intensity-Dependent Spatial Summation. Journal of the Optical Society of America 2, 1985, pp. 1769-1786.