

Abstract

Edge detection is an essential task in image processing. In some applications, such as Magnetic Resonance Imaging, the information about an image is available only through its frequency (Fourier) data. In this case, edge detection is problematic, as it requires extracting local information from global data. The problem is exacerbated when the data are noisy. In this talk, we discuss a new algorithm for detecting edges which combines the concentration edge detection method (Gelb and Tadmor, 1998) with statistical hypothesis testing. We utilize properties of the concentration edge detection method to formulate a test that achieves high probabilities of detection while maintaining low false detection probabilities.