

**ON THE ASYMPTOTIC BEHAVIOR OF SOME STATISTICS  
BASED ON MORPHOLOGICAL OPERATIONS**

Marc Moore, Sylvain Archambault  
Département de Mathématiques Appliquées  
École Polytechnique de Montréal  
Montréal, QC  
Canada, H3C 3A7

**ABSTRACT**

Some operations defined in mathematical morphology (e.g. erosion, dilation, opening, closing) can be used in the definition of useful statistics to be computed from an observed image. Images generated by a stochastic mechanism, and observed on a window, are considered and two statistics are defined. The uniform almost sure convergence of these statistics is studied in the situation where the size of the window increases, and also in the situation where many independent copies of the image are observed on a fixed window. The convergence in law to a normal distribution is also considered. Two examples are presented.

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