

MAXIMUM PSEUDO-LIKELIHOOD ESTIMATOR FOR GIBBS POINT PROCESSES

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Abstract. The purpose of this paper is a statistical study of spatial Gibbs point processes. Our framework is general so that it includes a large variety of classical models (such as the Strauss process or the area interaction process) and some new models based on a “nearest-neighbor”-type of interaction. We present some method based on the maximization of the pseudo-likelihood to estimate some vector parametrizing the energy function of such point processes. Finally, we give general conditions under which the consistency and the asymptotic normality hold for such estimates. The talk will be illustrated by several simulations of classical and nearest-neighbor Gibbs point processes and motivated by some dataset descending from the forestry domain.

Keywords: Gibbs point processes, nearest-neighbour Gibbs point processes, pseudo-likelihood

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