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Estimating interactions in binary data sequences. (English) Zbl 0629.60104

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Gibbs random sequences with pair interactions, as defined in frame of statistical mechanics [cf. e.g. *H. Föllmer*, Z. Wahrscheinlichkeitstheor. Verw. Geb. 26, 207-217 (1973; Zbl 0258.60029), and *C. Preston*, Random fields (1976; Zbl 0335.60074)], are used to form probability models for dependent binary data. The appropriate probability measure is uniquely determined by the vector of interactions which describes its dependence structure. An applicable method for estimating the interactions is developed, and properties of the obtained estimate are derived. Direct instruction for implementation is given and demonstrated by a numerical example.

MSC:

60K35 Interacting random processes; statistical mechanics type models; percolation theory

82B05 Classical equilibrium statistical mechanics (general)

Keywords:

sequence of binary data; Gibbs random sequences with pair interactions; statistical mechanics; numerical example

Full Text: EuDML

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