Mathematics > Statistics Theory

Consistency of maximum-likelihood and variational estimators in the Stochastic Block Model

Alain Celisse, J.-J. Daudin (MIA), Laurent Pierre (UP10 UFR SEGMI)

(Submitted on 17 May 2011 (v1), last revised 30 Sep 2012 (this version, v3))

The stochastic block model (SBM) is a probabilistic model de- signed to describe heterogeneous directed and undirected graphs. In this paper, we address the asymptotic inference on SBM by use of maximum- likelihood and variational approaches. The identi ability of SBM is proved, while asymptotic properties of maximum-likelihood and variational esti- mators are provided. In particular, the consistency of these estimators is settled, which is, to the best of our knowledge, the rst result of this type for variational estimators with random graphs.

Subjects: **Statistics Theory (math.ST)**
Cite as: **arXiv:1105.3288 [math.ST]**
(or **arXiv:1105.3288v3 [math.ST]** for this version)

Submission history

From: Alain Celisse [view email]
[v1] Tue, 17 May 2011 07:09:06 GMT (71kb)
[v2] Wed, 30 Nov 2011 12:07:17 GMT (90kb)
[v3] Sun, 30 Sep 2012 17:01:01 GMT (72kb)

Which authors of this paper are endorsers?