

1104-62-328

Sebastien Bubeck* (sebubeck@microsoft.com), Building 99, Microsoft campus, Redmond, WA 98052. *Estimation in high-dimensional random geometric graph.*

We consider a random graph model where connections depend on unknown d -dimensional labels (or feature vectors) for the vertices. Upon the observation of a realization from this model we are interested in estimating the unknown dimension d of the feature vectors. We propose a new statistic, based on "signed triangles", which can successfully estimate dimensions as large as n^2 (where n is the number of vertices), while a simple count of triangles would only work up to dimension of order n . We also show that n^2 is optimal, using a new bound on the total variation distance between Wishart matrices and the Gaussian Orthogonal Ensemble.

Joint work with Jian Ding, Ronen Eldan, and Miklos Racz. (Received September 03, 2014)