Berkeley Algebraic Statistics Seminar

Organizer(s): Andrew Critch and Shaowei Lin

Wednesday, 2:00–3:00pm, 939 Evans

Dec 7 **Guido Montufar**, UC Berkeley

Submodels of Deep Belief Networks

Deep Belief Networks (DBNs) constitute the prime example of deep learning architectures. They have shown to be promising feature extractors for high-dimensional real world data. This poses many questions about the geometry of the corresponding generative models. Recent research [1,2] has shed light into the geometry of a closely related model; the Restricted Boltzmann Machine. In this talk I follow our ideas from [2] and discuss submodels and approximation errors of DBNs.

[1] M. A. Cueto, J. Morton, and B. Sturmfels. *Geometry of the Restricted Boltzmann Machine.* In M. A. G. Viana and H. P. Wynn, editors, Algebraic methods in statistics and probability II, AMS Special Session. AMS, 2010.

[2] G.M., J. Rauh, N. Ay. *Expressive Power and Approximation Errors of Restricted Boltzmann Machines*, to appear in NIPS 2011,
Preprint: http://www.mis.mpg.de/publications/preprints/2011/prepr2011-27.html