Visualizing the glass transition using machine learning

Alexandre G.R. Day[1, *]

[1] *Department of Physics, Boston University, 590 Commonwealth Ave., Boston, MA 02215, USA*

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We study the solutions of two random boolean satisfiability problems 3-SAT and XORSAT using recently developed machine learning techniques. We use non-linear embedding techniques to learn the local manifolds in which the solutions organize. In particular we provide, to the best of our knowledge, the first visualizing of the so-called clustering transitions that are known to occur in those problems. Finally, using unsupervised clustering methods we are able to automatically extract quantities such as the entropy of clusters.

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*Electronic address: agrday@bu.edu

Supplemental Material

I. COMPLEXITY OF OPTIMAL STATE PREPARATION