

THE CHALLENGE OF LINEAR-TIME BOLTZMANN SAMPLING

SPORTIELLO ANDREA

Let X_N be an ensemble of combinatorial structures of size N , equipped with a measure. Consider the algorithmic problem of exactly sampling from this measure. When this ensemble has a 'combinatorial specification, the celebrated Boltzmann sampling algorithm allows to solve this problem with a complexity which is, typically, of order $N^{3/2}$. Here, a factor N is inherent to the problem, and implied by the Shannon bound on the average number of required random bits, while the extra factor N