Pseudo-random Number Sampling

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Pseudo-random number sampling is the numerical practice of generating pseudo-random numbers that are distributed according to a given probability distribution.

It is hard to design a algorithm to directly sample a random variable from a pdf in a high-dimension space. So We first restrict ourself to the simpler problem: drawing a sample from uniform distribution on $[0, 1]$. Once we solve that, we can easily extends it to uniform distribution on any interval by scaling.

1 Uniform distribution on [0,1]

2 Inverse Transform Sampling

This figure (Figure 1) (from here) shows

3 Gibbs Sampling

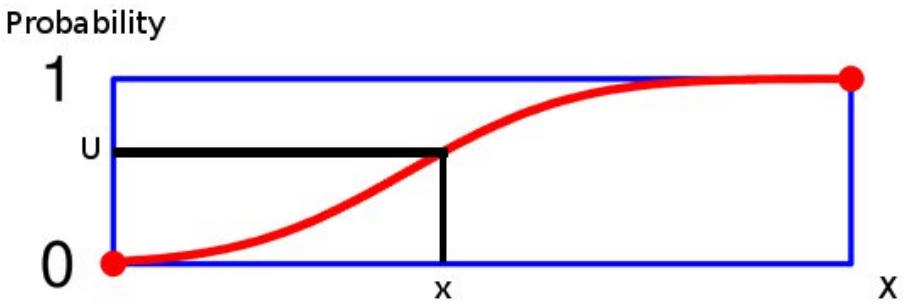

Figure 1: A cumulative distribution function.