Recitation: Homework 4
Markov Chain Monte Carlo

10-418/10-618: ML for Structured Data

October 24, 2022

1. Recap of Gibbs Sampling and MH algorithm
2. Consider $X_1, ..., X_n$ being i.i.d. Poisson(λ). Show that a Gamma(α, β) prior on λ is a conjugate prior, and find the posterior distribution.
3. Gibbs sampling can proceed either rotationally (sweeping through indices i) or randomly (by sampling i). For the purposes of this problem consider the version where i is sampled randomly with probability π_i. **Show that Gibbs sampling satisfies detailed balance.**