

Problem Set 4

Graphical Models

June 3, 2011

1. In this question we consider the application of importance sampling to Markov networks.
 - (a) Explain likelihood weighting.
 - (b) Explain intuitively why we cannot simply apply likelihood weighting to Markov networks
 - (c) Show how likelihood weighting can be applied to chordal networks.
2. Implement a CRF over $n \times n$ binary grids. For example you can use the denoising dataset in "Discriminative fields for modeling spatial dependencies in natural images".
3. Implement convex max-product given your implementation of convex sum-product.