Neural Computer

Thesis Subtitle

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Abstract

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Implementing some equations that repreent the Brain as a Dynamical System:

Latent factor $Z->X[TSC]$ Observation

The distribution of x is compatible with the sampled Z

$P(x|z)$ – P of x given z conditional probablity

This is Bayesian

The joint probability of x and z occuring togehter equals the probability of Z and x given z

$P(x,z) = P(z) \cdot P(x|z)$

It is important to note how we can parametrize this probability by leveragin a distribution and rely on the mean field theory.

$P(x) = \frac{1}{\sigma\sqrt{2\pi}}$

Isotropic Gaussian

minimize the KL divergence

$D_{KL}[P(x)||P_\theta(x)] = \sum_{x}^{states} P(x) \cdot \log \frac{P(x)}{P_\theta(x)}$

maximize the expected log probability

$\sum_{x}^{states} P(x) \cdot \log P_\theta(x)$