Overview

Nipun Batra

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IIT Gandhinagar

1. Why Bayesian ML?
2. Bayesian Inference basics: Bayes Rule in the ML context
3. Probability Refresher
4. Maximum Likelihood Estimation: Distributions, Linear Regression, Logistic Regression, NN
5. Aleatoric and Epistemic Uncertainty
6. Maximum A Posteriori Estimation: Distributions, Linear Regression, Logistic Regression, NN
7. Conjugate Priors: Distributions, Linear Regression (BLR)

1. Bayesian Logistic Regression: Laplace Approximation
2. predictive distribution: Linear Regression (closed form), Logistic Regression (Laplace Approximation + probit)
3. Monte Carlo Methods: General, Value of Pi, etc, predictive distribution for linear and logistic regression
4. MCMC: Metropolis Hastings, Gibbs Sampling, Hamiltonian Monte Carlo
5. Information Theory: KL Divergence, Cross Entropy, Mutual Information
6. Variational Inference
7. Bayesian Neural Networks: MC Dropout, Deep Ensembles
8. Gaussian Processes
9. Neural Processes
10. Active Learning
11. Bayesian Optimization
12. Variational Autoencoders

Projects Category I: Tools

1. RMH in Hamiltorch
2.