## Nonparametric Bayesian data analysis

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## Abstract

We review the current state of nonparametric Bayesian inference. The discussion follows a list of important statistical inference problems, including density estimation, regression, survival analysis, hierarchical models and model validation. For each inference problem we review relevant nonparametric Bayesian models and approaches including Dirichlet process (DP) models and variations, Pólya trees, wavelet based models, neural network models, spline regression, CART, dependent DP models and model validation with DP and Pólya tree extensions of parametric models.

## Keywords

Dirichlet process, Regression, Density estimation, Survival analysis, Polya tree, Random probability model (RPM).