

CFP: Learning with Nonparametric Bayesian Methods – ICML 2006 Workshop

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CALL FOR PAPERS / ABSTRACTS

ICML 2006 Workshop

Learning with Nonparametric Bayesian Methods

Pittsburgh, Pennsylvania, June 29, 2006

Deadline for submissions: April 28, 2006

INTRODUCTION

Dirichlet Processes and other nonparametric Bayesian (NPB) methods have originally been developed in statistics but are finding growing interest in the machine learning community. Although the name indicates otherwise, NPB is concerned with models with an infinite number of parameters. For machine learning practitioners this leads to attractive models with (countably) infinite dimensions in a hidden state space like infinite mixture models. NPB models have the favorable property that their complexity automatically adapts to the number of data points. It has already been demonstrated that in some important machine learning applications, NPB has clear advantages over parametric solutions. We hope that this workshop will serve as a platform to discuss basic issues and recent developments in NPB.

TOPICS AND QUESTIONS WE WANT TO ADDRESS

- * General principles:
 - + We plan an introductory talk on nonparametric Bayesian methods.
- * Current developments:
 - + What are the recent developments in the field of NPB?

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- + Are there interesting new applications?
- * Open problems/new challenges:
 - + What are the problem settings for which satisfactory NPB solutions are still missing due to modeling or inferential issues?
 - + In which areas NPB methods could not demonstrate superior performance, if compared to parametric solutions?
 - + Are there any new challenges arising from recent developments like spatial, time-varying or transformed Dirichlet processes?
- * Computational issues:
 - + How can we improve the speed of parameter estimation and inference?
 - + What is the right estimation/inference method for what setting (MCMC, variational Bayes, empirical Bayes, expectation propagation)?
 - + Are we ready for large data sets, high dimensional data, or online data processing?

PAPER/ABSTRACT SUBMISSION

We strongly encourage researchers in the area of machine learning, statistics, natural language processing, computational biology,