MARQUETTE UNIVERSITY

HELEN WAY KLINGLER
COLLEGE OF ARTS AND SCIENCES

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COLLOQUIUM ANNOUNCEMENT

New Development in Nonparametric Bayesian Inference

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Abstract

Ferguson's Dirichlet process introduces a prior on space of all probability measures. This prior is a random discrete probability measure which is dense over the space of all probability measures. The Dirichlet prior works like frequentist's empirical process and this can be confirmed through asymptotic theory as well. For example, the Bayesian bootstrap shows asymptotic equivalence and an analogous m out of n Bayesian bootstrap can also be introduced which works like the frequentists' regular "m out of n Bayesian bootstrap". The goal is to present an overview of topics from nonparametric Bayesian inference such as Bayesian testing. Some other important priors that work like Dirichlet process but with more flexibility will be introduced and a brief historical overview will be provided. We also present few semi-parametric models and introduce a data augmentation technique to use the results in Machine Learning.