Third part of the course is about Bayesian non Parametric models. First you should learn some basic knowledge about probability models, Dirichlet and Gaussian Process and some methods of approximate inference like MCMC. Then you can see the application of them in bayesian modelling. The advantage of bayesian non parametric models is that there is no model selection and they increase complexity of the model where it is needed, and the main difficulty is the inference part which is not sometimes scalable. After that you will see some applications.

First week: Dirichlet Process
1. General assignment:
   (a) Reading chapter 1 of Orbanz lecture notes
   (b) Reading [1]
   (c) Reading [2]
   (d) Reading [3]

Second week: DPMM
1. General assignment:
   (a) Reading [3]
   (b) Reading Walsh lecture notes on MCMC
   (c) Reading chapter 2 of Orbanz lecture notes
   (d) Reading part 1 and 2 from [5]
   (e) Reading [6]

Third week
1. General assignment:
   (a) Reading [5]
   (b) Reading chapter 3 of Orbanz lecture notes
   (c) Reading chapters 1 and 2 from [7]
   (d) Reading chapter 4 of Orbanz lecture notes
Presentations

1. Group 3: What is Dirichlet Process
   References: [1], [3], . . .

2. Group 1: Dirichlet Process Mixture Model
   References: [2], [4], Orbanz lecture notes, . . .

3. Group 4: MCMC methods in DPMM
   References: [6], Orbanz lecture notes, Walsh lecture notes, . . .

4. Group 2: Indian Buffet Process
   References: [5], Orbanz lecture notes, . . .

5. Group 5: Gaussian Process
   References: [7], Orbanz lecture notes, . . .

References


