STA 380: Bayesian Deep Learning
Fall 2019, Tuesday 3:00 - 6:00 PM, Room: SZB 240

Instructor: Mingyuan Zhou, Ph.D., Associate Professor of Statistics

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Office Hours: Tuesday 2:00-3:00 PM

You are welcome to come by my office at other times. To make sure that I will be there then, you may first call my office or send me an email.

Course Description:

This Ph.D.-level course will discuss research topics lying at the intersections of Bayesian methods and deep neural networks. We will learn typical ways to construct probabilistic deep learning models and perform approximate Bayesian inference. I will give about five lectures, including topics such as variational auto-encoders, generative adversarial nets, recurrent neural networks, deep reinforcement learning, deep learning based graph analysis, and deep discrete latent variable models. In the remainder of the semester, the students of the class will be presenting classical/recent research papers in Bayesian deep learning and related topics.

To follow the progress of the class and be able to present recent research papers in Bayesian deep learning, the students are expected to have already had good understanding in probabilistic modeling and Bayesian inference. A good indication of having sufficient background to take the class is that a student is already familiar with the topics listed in "Pattern Recognition and Machine Learning, by Christopher Bishop" and "Machine Learning: a Probabilistic Perspective, by Kevin Murphy."

Materials:

- The following textbook is recommended but not required:

  Deep Learning, by Ian Goodfellow, Yoshua Bengio, and Aaron Courville.

- Software:

  Python (PyTorch or TensorFlow)