Stats 201C: Introduction to advanced topics in statistical modeling and inference

Time: Tue/Thu 3:30pm - 4:45pm

Instructor: Yuhua Zhu
Office: MS 8935
Office Hours: Tue, 4:45pm - 5:30pm
Course website: `https://www.yuhuazhu.org/stats201c`

TA: Wenlu Xu
Discussion Session: Wed, 3pm-3:50pm, MS 5137
Office: Boelter Hall 9434
Office Hours: Friday, 2pm-2:50pm

Course Outline

1. Incomplete Data and Hidden Variable Models

- Incomplete Data and the EM Algorithm
- Bayesian Inference with Missing Data
- Mixture Modeling
- Hidden Markov Models

2. Sampling Algorithms

- MCMC
- Diffusion Model

Grading

1. Homework assignments: 40%: Four to five homework assignments
2. Final Exam: 50%: Due final exam week
3. Student Participation: 10%: The students are expected to actively participate in the course with questions and suggestions.

Key References

[1]"***Lecture notes*** "

Will be posted on the course website.

[2]"***An Introduction to MCMC for Machine Learning***"

by C. Andrieu, N. Freitas, A. Doucet, M. Jordan
Source: `https://link.springer.com/article/10.1023/A:1020281327116`

[3]"***Generative Deep Learning***"

by David Foster
Source: `https://codelibrary.info/files/1654_Generativnoe-glubokoe-obuchenie.pdf`