Lecture 6: Review of Part I

Purpose of Part I

- How can we 'simulate' and what can we use it for?
- $f(x)$ is a probability density
- We want to generate samples $x_1, \ldots, x_n$ from $f(x)$
- We learned how to generate independent samples from f
- We learned how to estimate expectations with respect to f

Review

What have we done until now?

- Simulation from discrete or continuous probability models
  - Inversion sampling
  - Transformations of RVs (e.g. Box Müller)
  - Mixtures of RVs
  - Ratio of uniform method
  - Rejection sampling (standard, weighted resampling, adaptive)
- Estimating expectations
  - Monte Carlo integration
  - Importance sampling (standard, renormalized/weighted)

Summary

See Notes

See Summary Intro Video (although it misses a few points)