

Reading group on Markov Chains

Summary

In this reading group we discuss about basic and more advanced techniques related to Markov chains (theory and some applications). We meet weekly on Wednesdays, between 1-3pm.

Location: Meeting Room 06, Level 5 of Building 1.

Lectures

Date	Lecturer	Chapter(s)/Paper(s)
5/10	Ioannis	Chapter 1, MC fundamentals
12/10	Ioannis	Chapters 4,5,14 Mixing times/Coupling/Examples
19/10	Ioannis	Spectral analysis, Cheeger's ineq., expanders
2/11	Ioannis	Counting and sampling
9/11	Thip	Connections to Statistical Physics: Glauber dynamics phase transitions
16/11	Ioannis	Connections to Game Theory and social networks: Logit dynamics
23/11	Georgios	Computing the volume of a convex body
30/11	Shaowei	Gibbs sampling and Metropolis + Deep Learning
7/12	Ioannis	Evolution
14/12	??	??

Organisers

Ioannis Panageas and Tushar Vaidya

Contact

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Useful Links

Book [Markov chains and mixing times](#) by Levin, Peres and Wilmer.

[Eric Vigoda's class.](#)

[Alistair Sinclair's class.](#)

[Notes on expanders.](#)

[Notes on counting and sampling by Sinclair.](#) Equivalence between (approximate) counting and sampling.

Papers on Glauber dynamics.

Papers on estimating volumes of convex bodies: [Dyer, Frieze, Kannan](#) for convex sets. Another paper [for polytopes.](#)

Papers on Evolution and MCs: [PSV](#)