Cours de la chaire d'excellence

FONDATION
SCIENCES
MATHÉMATIQUES DE
PARIS

Philippe Rigollet (MIT)

An optimization perspective on sampling using optimal transport

Sampling is a fundamental question in statistics and machine learning, most notably in Bayesian methods. Sampling and optimization present many similarities, some obvious, others more mysterious. In particular, the seminar work of Jordan, Kinderlehrer and Otto ('98) has unveiled a beautiful connection between the Brownian motion and the heat equation on the one hand, and optimal transport on the other. They showed that certain stochastic processes may be viewed as gradient descent over the Wasserstein space of probability distributions. This connection opens the perspective of a novel approach to sampling that leverages the rich toolbox of optimization to derive and analyze sampling algorithms. The goal of this course is to bring together the many ingredients that make this perspective possible starting from the basics and building to some of the most recent advances in sampling.

Mardi 31 mai, jeudi 2 juin, mardi 7 juin et jeudi 9 juin 2022

de 9h30 à 12h et de 14h à 16h30

Salle 15-16-101
(excepté les jeudis après-midis : salle 15-25-101)

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