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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS -OT/MI/PDE Seminar Series (Online)

Title : Air Markov chain Monte Carlo

Speaker : Krzysztof Łatuszyński (University of Warwick)

Date : Tuesday, 26 March 2024

Time : 4:00 pm (IST)

Abstract : We introduce a class of Adapted Increasingly Rarely Markov Chain Monte Carlo (AirMCMC) algorithms where the underlying Markov kernel is allowed to be changed based on the whole available chain output but only at specific time points separated by an increasing number of iterations. The main motivation is computational efficiency of implementations and robust theoretical properties of such algorithms. Under the assumption of either simultaneous or (weaker) local simultaneous geometric drift condition, or simultaneous polynomial drift we prove the convergence, Weak and Strong Laws of Large Numbers (WLLN, SLLN), Central Limit Theorem (CLT), and discuss how our approach extends the existing results. Moreover, under a contraction assumption for a Wasserstein-like function we deduce upper bounds of the convergence rate of Monte Carlo sums taking a renormalisation factor into account that is close to the one that appears in a law of the iterated logarithm. We argue that many of the known Adaptive MCMC algorithms may be transformed into the corresponding Air versions, and provide empirical evidence that performance of the Air version stays virtually the same. This is joint work with Cyril Chimisov, Julian Hofstadler, Daniel Rudolf and Gareth Roberts.

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Venue : Please click on the below link to join the talk

https://us02web.zoom.us/j/81379290349

Meeting ID: 813 7929 0349

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