



Deep Learning Program Opening Workshop August 12-16, 2019

SPEAKER TITLES/ABSTRACTS

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“An Adaptively Weighted Stochastic Gradient MCMC Algorithm for Global Optimization in Deep Learning”

We propose an adaptively weighted stochastic gradient MCMC algorithm for Bayesian learning. The proposed algorithm possesses a self-adjusting mechanism for escaping local traps; it is essentially immune to local traps and can converge quickly to global optimal solutions. Theoretically, we establish the convergence of the proposed algorithm and provide an upper bound for its hitting time for a wide class of non-convex functions. The proposed algorithm has a much smaller order of hitting time than the stochastic gradient Langevin dynamics algorithm and simulated annealing stochastic gradient Langevin dynamics algorithm. We test the proposed algorithm on multiple benchmark data sets including CIFAR10 and CIFAR100. The numerical results indicate the superiority of the proposed algorithm over the existing state-of-the-art algorithms in training deep neural networks.