

Lattice 2024



Contribution ID: 490

Type: Poster

Variational Autoencoders and Metropolis-Hastings

Tuesday, 30 July 2024 18:15 (1 hour)

The use of generative models to learn and sample complex distributions is increasingly common in computational physics. Many generative approaches are being used with a view to improving algorithms for complex lattice systems like QCD. One such generative model is the Variational Autoencoder, which can simplify a complex distribution by identifying the distribution with a Gaussian in a latent space. In this work we use a Variational Autoencoder to learn efficient Monte-Carlo updates to the Ising model. We use this model as an example to discuss ergodicity and detailed balance conditions within the Metropolis-Hastings algorithm.

Primary author: HADLEY, Joseph (University of Liverpool)

Presenter: HADLEY, Joseph (University of Liverpool)

Session Classification: Poster session and reception

Track Classification: Algorithms and Artificial Intelligence