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Neural network contour deformation for 3d SU(2) gauge theory

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I present our results on exponential variance reduction of Wilson loops on 3d SU(2) gauge theory using the contour deformation technique. Previous studies focused on gauge theories in two dimensions with open boundary conditions that are analytically tractable. In this study, we extend the formalism to three dimensions with periodic boundary conditions, and show how gauge fixing, U-net convolutional neural networks, and transfer learning are used to exponentially suppress the Wilson loop variance.

Topical area

Algorithms and Artificial Intelligence

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