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Type: **Parallel Talk**

Neural Network Gauge Field Transformation for 4D SU(3) gauge fields

Thursday, 3 August 2023 14:30 (20 minutes)

We construct neural networks that work for any Lie group and maintain gauge covariance, allowing smooth and invertible transformations of gauge fields. We implement the transformations for 4D SU(3) lattice gauge fields, and explore their use in HMC. Our current research develops various loss functions and optimizes field transformation accordingly. We show the effect of these transformations on HMC's molecular dynamics evolution and discuss the scalability of this approach.

Topical area

Algorithms and Artificial Intelligence

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Session Classification: Algorithms and Artificial Intelligence