Contribution ID: **177** Type: **Parallel Talk**

NeuLat: a toolbox for neural samplers in lattice field theories

Tuesday, 1 August 2023 17:40 (20 minutes)

The application of normalizing flows for sampling in lattice field theory has garnered considerable attention in recent years. Despite the growing community at the intersection of machine learning and lattice field theory, there is currently a lack of a software package that facilitates efficient software development for new ideas in this field. We present the idea of NeuLat, a fully customizable software package that unifies recent advances in the fast-growing field of deep generative models for lattice field theory in a single software library. NeuLat is designed to be modular, supports a variety of lattice field theories as well as normalizing flow architectures, and is easily extensible.
We believe that NeuLat has the potential to considerably simplify the application and benchmarking of machine learning methods for lattice quantum field theories and beyond.

Topical area

Algorithms and Artificial Intelligence

Primary author: NICOLI, Kim (Technische Universität Berlin)

Co-authors: Mr ANDERS, Christopher (TU Berlin); JANSEN, Karl (Deutsches Elektronen-Synchrotron DESY, Platanenallee 6, 15738 Zeuthen, Germany); Prof. FUNCKE, Lena (University of Bonn); Dr KESSEL, Pan (Prescient Design); Dr NAKAJIMA, Shinichi (TU Berlin)

Presenter: NICOLI, Kim (Technische Universität Berlin)

Session Classification: Software Development and Machines