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Lie Group Machine Learning and Lie Group Structure Preserving Integrators

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Deadline for manuscript
submissions:

closed (2 March 2020)

Message from the Guest Editors

Machine/deep learning explores use-case extensions for more abstract spaces as graphs and differential manifolds. Recent fruitful exchanges between geometric science of information and Lie group theory have opened new perspectives to extend machine learning on Lie groups to develop new schemes for processing structured data.

Structure-preserving integrators that preserve the Lie group structure have been studied from many points of view and with several extensions to a wide range of situations. Structure-preserving integrators are numerical algorithms that are specifically designed to preserve the geometric properties of the flow of the differential equation such as invariants, (multi)symplecticity, volume preservation, as well as the configuration manifold. They also naturally find applications in the extension of machine learning and deep learning algorithms to Lie group data.

This Special Issue will collect long versions of papers from contributions presented during the GSI'19 conference, but it will be not limited to these authors and is open to international communities involved in research on Lie group machine learning and Lie group structure-preserving integrators.



mdpi.com/si/30856

Special Issue



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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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