Other

A Primer on Machine Learning

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Abstract:

The field of machine learning provides interesting new avenues into the investigation of physical systems. In this work, various methods from data science and machine learning are described alongside the motivations for their use. These methods include feature space scaling, feature space reduction, cluster analysis, and neural networks. Application of these methods to the 2-dimensional Ising model will be presented along with a discussion of how the results may have impact on future investigations of more complex physical systems.

Speaker's Bio:

Nicholas Walker is a Ph.D. candidate in condensed matter physics at Louisiana State University with a bachelor of science degree in physics from Saint Louis University. Research interests are primarily focused on machine learning applications to phase/structural transitions in materials science and condensed matter physics. His other research interests include computational physics, data science, numerical analysis, and algorithms.

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