

# Understanding Thread Mapping Policies Effects on Machine Learning Algorithms with TensorFlow

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**Abstract**—Machine Learning (ML) algorithms and models are successfully being used in various scientific and industrial applications. The emergence of more complex ML algorithms, combined with the increase in the amount of data available, lead to increasing demand for computational power. Studying ways to improve the performance of these algorithms, therefore, becomes an essential task. In this work, we investigate the performance effects of several thread mapping policies over new ML algorithms, built on top of TensorFlow. Using thread mappings such as scatter and compact policies, we achieved reductions on the execution time of both training and inference phases of the ML algorithms for up to 46% and 29%, respectively.

**Index Terms**—Machine Learning, Thread Mapping, multi-core, TensorFlow

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## DISCLAIMER

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