UNSUPERVISED FEATURE LEARNING CLASSIFICATION USING AN EXTREME LEARNING MACHINE
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ABSTRACT
This paper presents a new approach, which we call UFL-ELM, to classification using both unsupervised and supervised learning. Unlike traditional approaches in which features are extracted, hand-crafted, and then trained using time-consuming, iterated optimization, this proposed method leverages unsupervised feature learning to learn features from the data themselves and then train the classifier using an extreme learning machine to reach the analytic solution. The result is therefore widely and quickly applied to universal data. Experiments on a large dataset of images confirm the ease of use and speed of training of this unsupervised feature learning approach. Furthermore, the paper discusses how to speed up training, using massively parallel programming.

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