

Peer Review

Review of: "Automatic Construction of Pattern Classifiers Capable of Continuous Incremental Learning and Unlearning Tasks Based on Compact-Sized Probabilistic Neural Network"

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This paper proposes a novel probabilistic neural network for classification that supports continuous incremental learning and unlearning tasks. The proposed method eliminates the need for hyperparameter tuning by relying on a straightforward, data-driven approach to dynamically update its structure and parameters. Experiments on several datasets demonstrate its effectiveness. However, there are some issues that should be addressed by the authors:

1. The rationale for excluding two datasets from the class incremental learning tasks and continuous multi-class unlearning and incremental learning tasks (despite the nine datasets mentioned in the abstract) requires clarification.
2. A formal definition of the critical parameter $d_{\max}$ would improve reproducibility.
3. The reported iCaRL accuracy on MNIST (<20% under 2 classes/batch) in this paper appears inconsistent with its documented performance on CIFAR-100 ($\geq 35\%$ under identical batch settings, as reported by Rebuffi et al.). This discrepancy requires further explanation.
4. Compared to replay-based methods, the approach proposed in this paper appears more aligned with dynamic architectures, such as `Progressive Neural Networks` (Rusu et al.). To strengthen methodological rigor, comparisons with these approaches should be incorporated.

Declarations

Potential competing interests: No potential competing interests to declare.