Qeios

Peer Review

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

Pawel Wawrzynski[1]

1. Institute of Computer Science, Warsaw, Poland

The paper presents a modified training methodology for a compact-sized Probabilistic Neural Network (CS-PNN). This modified methodology can be used in incremental learning scenarios.

The material in the paper is interesting, and the experimental results are encouraging. However, in my opinion, the paper cannot be accepted because of the deficiencies below.

Firstly, the proposed methodology requires finding a hyperparameter of the network at test time, based on the whole test set. Neural networks are simply not used this way. Typically, they are used independently for consecutive test samples. Let us imagine the neural network is applied for image recognition in an autonomous vehicle. Obviously, the network is applied after a batch of on-board camera recordings is collected.

Secondly, the structure of the paper makes it incomprehensible. The paper devotes a lot of attention to the problem of unlearning, which is never defined and seemingly useless. Also, the presented methodology is really never explained exhaustively. It is only presented in Algorithms 1-4. But they leave a lot of questions. For instance:

- How does the output layer of the network work?
- How is the network output assigned a given value, e.g., Lines 3, 11 of Algorithm 1?

A minor remark: The datasets used in the experimental study are not particularly challenging. The proposed methodology should be tried on CIFAR100 and mini-Imagenet.

 doi.org/10.32388/9E6TIX

Declarations

Potential competing interests: No potential competing interests to declare.