A Review of Cascade Correlation Neural Network for Software Cost Estimation

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Abstract

Cascade-Correlation is a new architecture and supervised learning algorithm for artificial neural networks and classification techniques. Rather than adjusting the weights in a network of predefined topology, Cascade-Correlation begins with a minimal network and it automatically trains, adds new hidden units one after the other by creating a multi-layer structure. As soon as a new hidden unit has been added to the network, its input-side weights are getting fixed. After that these unit then becomes a permanent feature-identifier in the network, present for producing outputs, then cascade-correlation is behaves as more complex feature detectors. The Cascade-Correlation networks have several benefits over existing algorithms as it learns
very fast. It determines its own size and topology fast. It maintains the structures which it has built even after the training set changes, and it doesn't need back-propagation of error signals through the connections of the network and its component. Cascade Correlation Neural Network (CCNN) types such as recurrent CCNN, evolving CCNN, genetic CCNN are used to predict software effort from Use Case diagrams in advance manner which helps further for software cost estimation. The use case diagrams are developed in the early stages of the software development and they are used for input. This paper is an overview of cascade-correlation neural networks in which we study different types of cascade-correlation neural network. They are based on a special architecture which autonomously adapts to the application and makes the training much more efficient than the widely used backpropagation algorithm. This review focuses on different types of CCNN and also describes the cascade-correlation architecture variants.

References

- Vitaly Schetinin, "A Learning Algorithm for Evolving Cascade Neural Networks," in TheorieLabor, Friedrich-Schiller University of Jena Ernst-Abbe-Platz 4, 07740 Jena, Germany
- Vitaly Schetinin, "An Evolving Cascade Neural Network Technique for Cleaning Sleep Electroencephalograms," in Computer Science Department, University of Exeter, Exeter, EX4 4QF, UK
- G´abor Bal´azs, "Cascade-Correlation Neural Networks: A Survey," in
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Department of Computing Science, University of Alberta, Edmonton, Canada
- Mitchell A. Potter, "A Genetic Cascade-Correlation Learning Algorithm," in Computer Science Department George Mason University Fairfax, VA 22030 USA

Index Terms

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Keywords

Neural Network  Cascade Architecture  Evolving.