

Hyperparameters in Music Generating Algorithms

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A hyperparameter is an external customization of a learning algorithm, often predefined before its execution by the programmer himself. With such an implementation, the algorithm can improve the quality of its generations, for instance by selecting the variables differently or by restricting the probabilities produced. Hyperparameters are often neglected in current artificial neural networks. Indeed, programmers prefer to increase the number of features extracted from their training dataset or to amplify the considered accuracy. However, the code implementing a hyperparameter can be very simple and considerably improve the quality of the result. This thesis presents two different projects examining the use of hyperparameters in music generating algorithms. The first project analyzes the implementation of a hyperparameter in a pre-existing artificial neural network. This addition enabled the algorithm to focus on producing a score meeting an initial constraint. The second research goes more in depth since it allows to know which hyperparameters are advantageous for a music generating algorithm. By proposing five distinct hyperparameters, this work effectively aims at collecting and interpreting the productions of several selections in order to define the optimal initial implementation. The results proved to be positive, since some hyperparameters allowed to significantly improve the generated scores.

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