Document Classification by Computing an Echo in a Very Simple Neural Network

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ABSTRACT. — *In this paper, we present a new classification system called ECHO. This system is based on a principle of echo and applied to document classification. It computes the score of a document for a class by combining a bottom-up and a top-down propagation of activation in a very simple neural network. This system bridges a gap between Machine Learning methods and Information Retrieval since the bottom-up and the top-down propagations can be seen as the measures of the specificity and exhaustivity which underly the models of relevance used in Information Retrieval. The system has been tested on the Reuters 21578 Collection and in the context of an international challenge on large scale hierarchical text classification (with corpus extracted from Dmoz and Wikipedia). Its comparison with other classification systems has shown its efficiency.*

KEYWORDS: *classification, neural network, relevance models*