

# **Review on Training Hidden Markov Models with Multiple Observations**

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## **ABSTRACT**

Hidden Markov models (HMMs) are stochastic models able to represent sequential signals. They are widely and successfully used in speech recognition and recently also in handwriting recognition applications. As each modelling techniques also HMMs impose some constraint on the modeled signal. Feature independence assumption is considered to be one of the major drawbacks of Hidden Markov modelling approach. Lot of research effort is devoted to relax this assumption. Reviewed article presents theoretical justification of the multiple observation HMM training method that does not impose the independence assumption. It is proven that derived training algorithm guarantee the convergence of the training process. Training equations constrained by feature independence assumption are shown to be a special case. In this paper we will concentrate on theoretical review of the suggested method and its usability for a large vocabulary continuous speech recognition.