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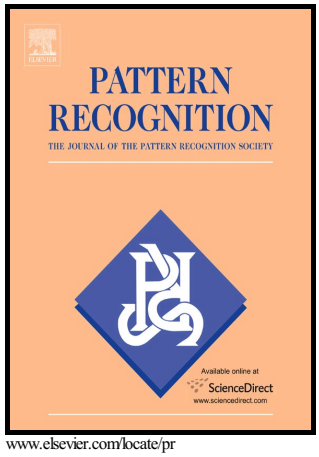

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Abstract

Background in a handwritten document can be anything other than the words we are interested in. The characteristics of the background are typically captured by a background model to achieve spotting in handwritten documents. We propose two such bayesian background models for keyword spotting in handwritten documents. Firstly, we present a background model using the bayesian generalized linear model called (VDBM) and secondly propose a bayesian generalized kernel background model called BGKBM. Given a set of handwritten documents and a bunch of keyword and non-keyword scores, the models learn an efficient bayesian rejection criteria to output the most confident keyword regions in the handwritten document. For the variational dynamic background model (VDBM) the inference of parameters is done using variational methods and for the bayesian generalized kernel background model (BGKBM), the inference is done using a proposed Markov Chain Monte Carlo (MCMC) approach. The models are built on top of the scores returned by a handwritten recognizer for keywords and non-keywords. The approach is recognition based and works at line level. The methods have been validated on publicly available IAM dataset and compared with other state of the art line level keyword spotting approaches.

Keywords: `Handwriting Recognition`, Keyword Spotting, Bayesian Generalized Linear Models, Bayesian Generalized Kernel Models

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