EXTENDED PROBABILISTIC LATENT SEMANTIC ANALYSIS MODEL FOR TOPICS IN TIME-STAMPED IMAGES

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ABSTRACT—This paper considers the problem of modelling the topics in a sequence of images with known timestamp. Detecting and tracking of temporal data is an important task in multiple applications, such as finding hot research points from scientific literature, news article series analysis, email surveillance, search query log mining, etc. In contrast to existing works mainly focusing on text document collections, this paper considers mining temporal topic trends from image data set. An extension of the Probabilistic Latent Semantic Analysis (PLSA) model, which includes an additional variable associated with the timestamp to better model the temporal topics, is presented to extract topics among images and track how topics change over time. Experiments show the effectiveness of this method.

Key Words: Extended Probabilistic Latent Semantic Analysis, Temporal Image Mining;