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Multimedia Data Fusion for Event Detection in Twitter by Using Dempster-Shafer Evidence Theory

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Abstract : Data fusion technology can be the best way to extract useful information from multiple sources of data. It has been widely applied in various applications. This paper presents a data fusion approach in multimedia data for event detection in twitter by using Dempster-Shafer evidence theory. The methodology applies a mining algorithm to detect the event. There are two types of data in the fusion. The first is features extracted from text by using the bag-ofwords method which is calculated using the term frequency-inverse document frequency (TF-IDF). The second is the visual features extracted by applying scale-invariant feature transform (SIFT). The Dempster - Shafer theory of evidence is applied in order to fuse the information from these two sources. Our experiments have indicated that comparing to the approaches using individual data source, the proposed data fusion approach can increase the prediction accuracy for event detection. The experimental result showed that the proposed method achieved a high accuracy of 0.97, comparing with 0.93 with texts only, and 0.86 with images only.

Keywords : data fusion, Dempster-Shafer theory, data mining, event detection
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