Video Episode Boundary Detection with Joint Episode-Topic Model

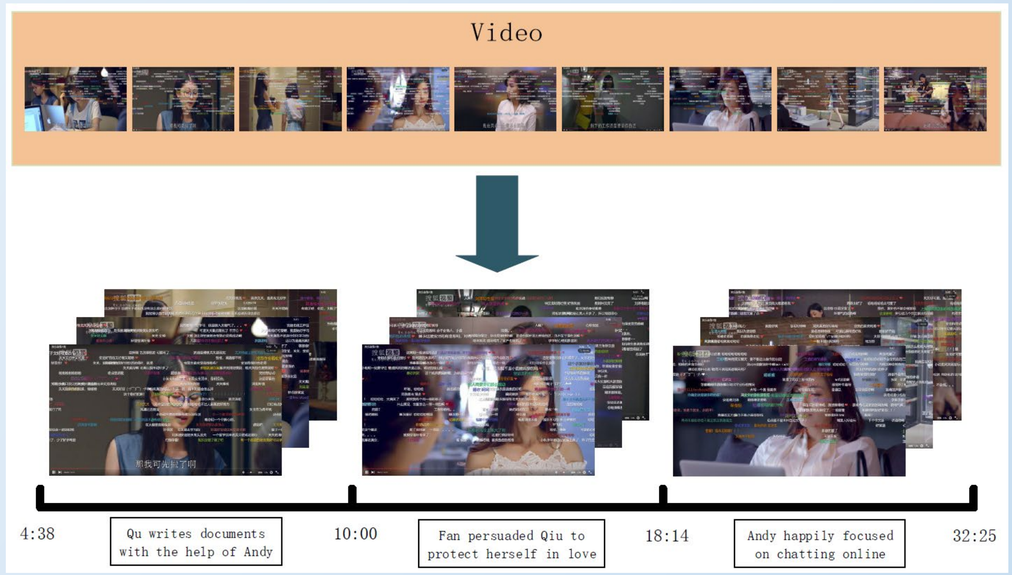
basic introduction

Social online video has emerged as one of the most popular application, where bullet screen comment is one of the favorite features of Asian users. User behavior report finds that most people are used to quickly navigate and locate his concerned video clip according to its corresponding video labels. Traditional scene segmentation algorithms are mostly based on the analysis of frames, which cannot automatically generate labels. Since time-synchronized comments can reflect the episode of current moment, this paper proposed an unsupervised video episode boundary detection model (VEBD) for bullet screen comment video. It could not only automatically identify each episode boundary, but also detect the topic for video tagging. Experiments based on real data show that our model outperforms the existing algorithms in both boundary detection and semantic tagging quality.

Technological innovation

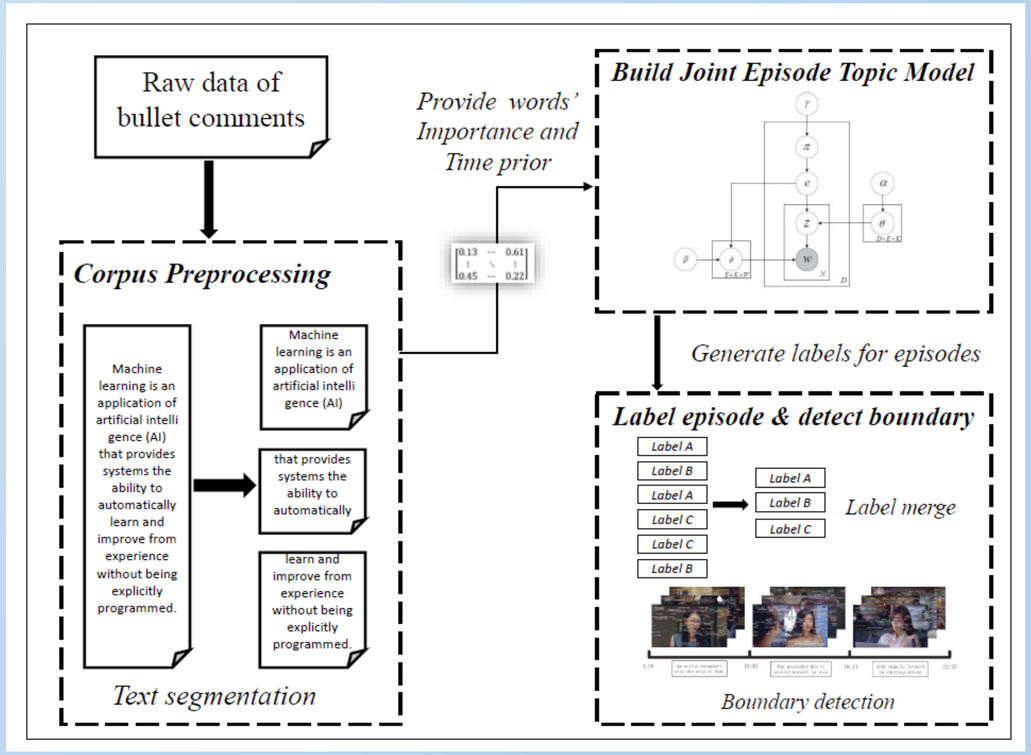
- Compared with the traditional topic model, this article innovatively adds time prior and importance prior.
- It could not only automatically identify each episode boundary, but also detect the topic for video tagging.

A demo of VEBD model



- When the video is playing, the comments are swiped across screen like bullets, so they are also known as bullet screen comment(s) .
- By processing these bullet screen comments filled with screens, VEBD model can divide a complete video into segments based on the correct episodes.

The framework of VEBD model



- VEBD model consists of three layers, corpus preprocessing, Gibbs sampling and episode label merging.

The labels generated by the VEBD model on timeline