



Video search technology with visual examples

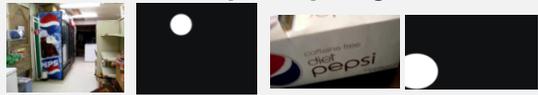
Abstract— We present content-based video retrieval using image queries that show a specific person/object/place. This type of searching is called “instance search” and it has been actively discussed in the TREC Video Retrieval Evaluation (TRECVID) community since 2010. Our approach is based on a probabilistic information retrieval model, and it generates search results using bags of local visual features extracted from image queries and videos in a database. These features correspond to keypoints and by using the novel keypoint-weighting method, our instance search results currently record the world’s highest level in search accuracy for a series of the TRECVID dataset. This research contributes to work on robust and smart media search technology that enables responding to the complex search intentions of today’s users.

• Instance Search

Instance example “Stephen Colbert”



Instance example “Pepsi logo – circle”



Instance example “Brooklyn bridge tower”

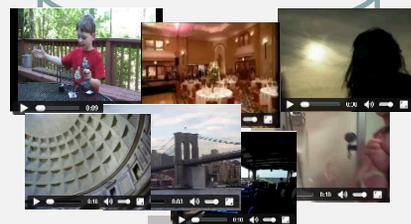


Instance example “Pantheon interior”



Instance = specific person/object/place
“Instance search system is requested to search videos in which the instance topic really appears”

Large-scale video database



“Brooklyn bridge tower”

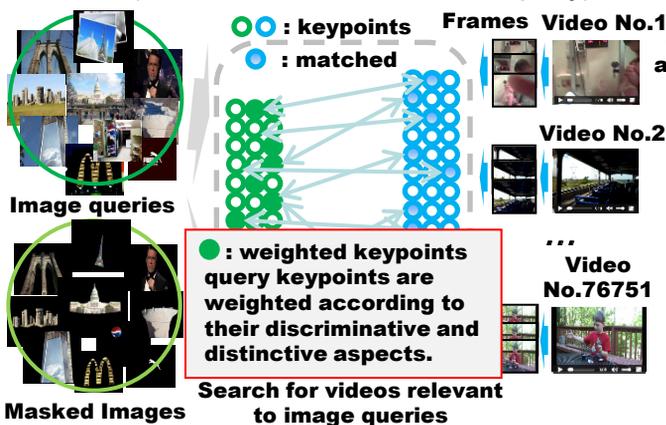
“Pepsi logo – circle –”

“Stephen Colbert”

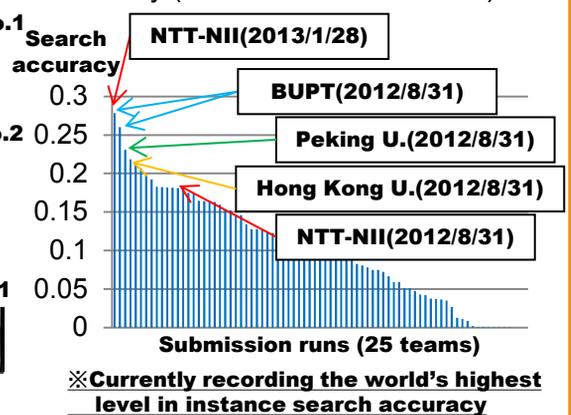
1. Video No. 65213
2. Video No. 55238
3. Video No. 20169
4. Video No. 1963
- ...
1000. Video No. 62469

Video ranking search result

• Retrieval (BM25M: BM25 with masked query)



• Accuracy (TRECVID 2012 dataset)



Related works

- [1] M. Murata, T. Izumitani, H. Nagano, R. Mukai, K. Kashino, S. Satoh, “NTT Communication Science Laboratories and National Institute of Informatics at TRECVID2012: Instance Search and Multimedia Event Detection Tasks,” In *Proc. TRECVID2012 Workshop*, 2012.
- [2] M. Murata, H. Nagano, R. Mukai, K. Kashino, S. Satoh, “Instance Search with Image Queries,” in *IEICE Technical Report, PRMU2012-175*, pp. 215-219, 2013 (in Japanese).

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