iBingo Mobile Collaborative Search

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ABSTRACT

This paper describes a collaborative video search system for mobile devices, '*iBingo*'. It supports division of labour among users, providing search results to colocated iPod Touch devices.

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General Terms: Algorithms, Design, Human Factors.

Keywords: Video retrieval, interactive, collaboration, iPod.

1. INTRODUCTION

One of the areas in which information retrieval (IR), including video IR, is likely to see great interest in the future is *synchronous collaborative search*. This concerns the common scenario where two or more people, physically collocated and working together on some shared task, initiate a search activity to satisfy some shared information need. This could vary from two people in a professional setting, working on a research report together requiring background information on some topic, to a group of friends trying to find weekend packages for a holiday break. Such a search scenario is easily replicated at the VideOlympics

Conventionally, a shared, multi-user information need is satisfied by independent, uncoordinated searching on one or more search engines. This naturally leads to inefficiency, redundancy and repetition as searchers separately encounter, access and possibly re-examine the same documents. There is, as such, a need for a collaborative search engine which supports a group of users who are working together on the same, shared information need, at the same time.

We have developed techniques for supporting synchronous collaborative search, allowing for greater efficiency in satisfying shared information needs. In our work, searchers operate independently to locate relevant documents, however indications of relevance are exploited to the benefit of the group. Our work also supports users in exploring different facets of the shared information need, corresponding to different users following different information "trails".

Here we apply these techniques to multiple users performing shared, collaborative, collocated search through the 2007 TRECVID video collection. The system leverages a search engine [1] to provide retrieval based on a fusion of text, image and semantic features, along with a bespoke collaborative module, which handles '*division of labour'* - the coordination of users and assignment of results for examination.

Search is initiated via a laptop interface, after which the search is controlled solely via Apple iPod Touch devices. These are used to present results to searchers for examination. Relevance judgments on shots are made independently by each member of the search group (see Fig 1). As judgments are made, the collaborative module intelligently reformulates and re-ranks video shots.

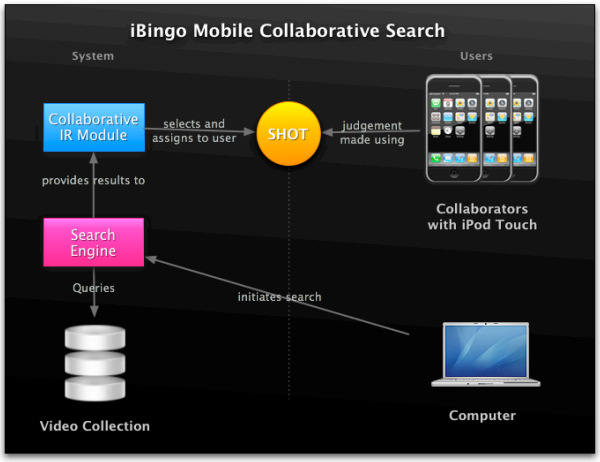

Figure 1. Overview of the Collaborative Search System.

While alternative collaborative platforms such as the Mitsubishi DiamondTouch tabletop [2] or a Microsoft Surface are typically favoured for collaboration and coordination tasks, as the iPod touch is portable it allows for a unique collaborative search experience. Unlike tabletop and desktop computer collaborative search tools, an iPod touch is mobile and portable allowing for freeform, unconstrained searching. While searching, our users can move around their environment without restriction or choose to sit around a table or sofa together. They can easily discuss judgments or show their screen to another user and perhaps even swap or share iPods. Given the freeform experience enabled between searchers, their iPods and the collaboration engine, we have labeled this system '*iBingo*'

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REFERENCES

[1] Wilkins P, Adamek T, *et al.* K-Space at TRECVid 2007. In Proceedings of TRECVid 2007, NIST, Gaithersburg, Md.

[2] Smeaton, A.F., Lee H., Foley, C. and Mc Givney, S. Collaborative Video Searching on a Tabletop. *Multimedia Systems Journal,* 12(4), 2006, pp. 375-39.

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