

FXPAL Collaborative Exploratory Video Search System

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ABSTRACT

This paper describes FXPAL's collaborative, exploratory interactive video search application. We introduce a new approach to information retrieval: algorithmic mediation in support of intentional, synchronous collaborative exploratory search. Using our system, two or more users with a common information need search together, simultaneously. The collaborative system provides tools, user interfaces and, most importantly, algorithmically-mediated retrieval to focus, enhance and augment the team's search and communication activities.

Categories and Subject Descriptors

H.3.3. [Information Storage and Retrieval]: Information Search and Retrieval – *search process, retrieval models.*

General Terms

Algorithms, Design, Experimentation, Human Factors.

Keywords

TRECVID, Video search, Interactive, Collaborative

1. INTRODUCTION

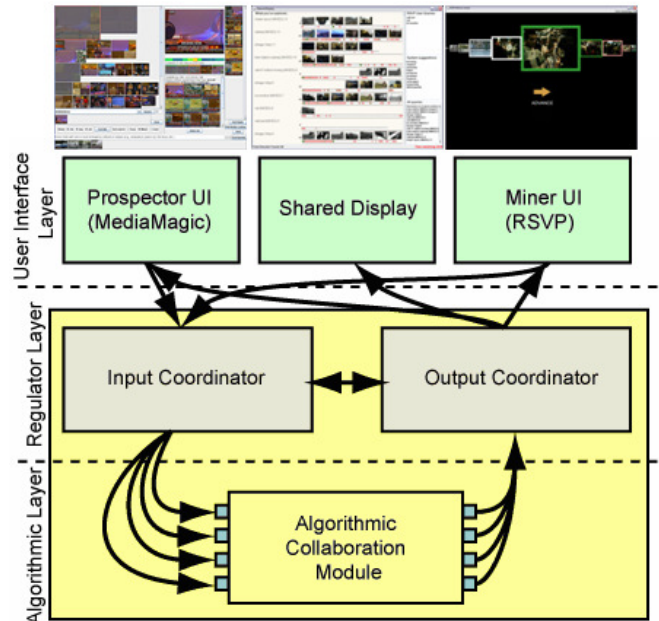
FXPAL has participated in the TRECVID [2] interactive search task since 2004. In previous years our approaches have focused on rich interfaces and algorithms for a single user [1]. This year we introduce collaborative search with algorithmic mediation. This is an important new direction for search collaboration that can lead to innovation in both information retrieval algorithms and in user interfaces.

2. ARCHITECTURE

Our system comprises three modules. A user interface layer provides query and evaluation tools appropriate to the task. A regulator layer handles the in-and-out flow of searcher activity and is responsible for actively implementing the roles or subtasks assigned to each searcher. The algorithmic layer provides intelligent mediation to bring to each searcher's attention information and patterns in the data of which neither searcher would have been aware had they been working alone.

3. ROLES: PROSPECTOR AND MINER

Many roles and associated task types are possible; our current system allows collaborating users to assume the complementary



roles we dubbed *Prospector* and *Miner*. The *Prospector* opens new avenues for exploration into a data collection with the MediaMagic[1] interface, while the *Miner* ensures that rich veins of information are explored through an RSVP interface. These roles are supported by the affordances of their different user interfaces and by underlying algorithms that connect them.

4. ALGORITHMIC MEDIATION

During a search session a *Prospector* continually runs new queries. However, the *Prospector* typically does not evaluate every single retrieved shot. The *miner* picks up where the *prospector* leaves off by examining unseen shots determined by the algorithmic collaboration module which continually re-ranks unjudged shots based on the ongoing search activity of both users. This insures that search activity is coordinated with no manual effort, and that relevant pathways are sufficiently and seamlessly explored.

[1] J. Adcock, M. Cooper, A. Girgensohn, L. Wilcox. Interactive Video Search Using Multilevel Indexing. CIVR 2005, 205-214

[2] TRECVID: TREC video retrieval evaluation Workshop (2001-2007). <http://www-nlpir.nist.gov/projects/trecvid/>