Columbia Technology Ventures

A visual search system that dynamically aids the user during a video search queries

Technology #m08-103

As the amount of available digital media (images and videos) grows exponentially, finding efficient ways to interactively query large media databases remains a significant challenge. This technology embodies a highly responsive, low-latency interactive search system, CuZero, which dynamically aids the user during the query and returns results in a visually intuitive, spatially tiered manner. CuZero bridges the human-computer interface problem by maximizing the use of auto-recommendation systems and user freedom to examine many query options. The result is an environment in which the user can find relevant content in a video database by rapidly scanning many different query permutations without additional query reformulation.

CuZero enhances the ability of a user to find relevant content in a video database by employing guided query formulation and dynamic query adaptation

CuZero solves two primary sources of frustration that users of most visual search systems suffer from - query formulation and result inspection. The system employs a zero-latency process to aide in query formulation, as guided by text and concept-tag suggestions derived exclusively from the user’s entered query text. Relevant visual concepts discovered from various strategies (lexical mapping, statistical occurrence, and search result mining) are automatically recommended in real time after users enter each single word. CuZero also introduces an intuitive visualization system that allows users to navigate seamlessly in the concept space at-will.

CuZero was a contender in several performance-based evaluations and technical demos including the VideOlympics 2008 (winner “most informative query interface”), ICASSP 2009, and [CVPR] 2009(http://tab.computer.org/pamite/archive/cvpr2009/index.html ). In late 2008, CuZero had indexed and searched over 345 hours of broadcast news video, 285 hours of documentary video, 10 hours UAV surveillance video, and 14k geo-tagged Flickr images.

Lead Inventor:

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Applications:

- Search and explore complex data such as video clips, broadcast news, and video podcasts
- Visually intuitive search of personal media and data files on home PCs
- Search engines

Advantages:

- User-friendly interface that improves the odds of finding relevant search results in less time
- Search is aided by offering suggestions gleaned from tagged metadata
- Fast exploration of large data sets
- Efficient and fully engaging interactive search environment
- Able to “drill-down” to increasingly similar results or step back to see distantly-related items

Patent information:


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Related Publications:


Inventors

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