Introduction to the Minitrack on Digital Documents in the Office and Education

Lynn Wilcox
Fuji Xerox Palo Alto Laboratory
3400 Hillview Ave., Palo Alto, CA 94304.
Wilcox@PAL.Xerox.com

Digital media uses in the office and classroom continue to increase. Speeches given by corporate officers are recorded and stored on the Web so workers can access them on demand. Meetings and presentations are recorded and placed on Web sites for later reference. Rather than requiring workers to attend training classes at specific locations and times, companies are now recording training materials and letting users access the information as needed. Digital video is also becoming common in real-time applications such as distance learning. Students can view classroom video online while interacting with the instructor through text chat windows.

This new type of rich, augmented media use suggests new paradigms for user interaction. For this type of new media to succeed, conventions and protocols must be established between users so that the communication is effective.

This suite of six papers spans a broad range of interests, suggesting the broad scope of future work as video enters the school and workplace.

Microsoft’s Collaboration and Multimedia Systems Group reports in their paper “Asynchronous collaboration around multimedia and its application to on-demand training” on methods they have evolved over several iterations of their multiperson, network-based multimedia browsing / reading / annotation service.

This kind of work is the best of longitudinal study, building on the successes (and building away from the failures) of earlier systems, then studying the new tools for effectiveness in real settings. A key insight is that usability in such systems is a key factor for their continued use and success.

The next paper, from IBM’s USER Group at the Almaden Research Center, is “Towards automatic real time preparation of on-line video proceedings for conference talks and presentations” and shows how to almost completely automate the process of capturing presentations for later access and use. This non-trivial task solves a previously very difficult and labor-intensive problem: that of creating indexed video intended for learning and later use for in distant or time-shifted places.

Daniel M. Russell
IBM Almaden Research Center
650 Harry Rd., San Jose, CA 95120
daniel2@us.IBM.com

Next, a team from The University of Science and Technology (Taiwan), Florida International University and U. Miami (Coral Gables) summarize their recent work on creating a high-quality TV signal over ordinary networks. (“A live TV-quality distant learning multimedia presentation system for education.”)

The challenge presented here was to create and maintain a high-quality signal while preserving the possibility of different paths through the media content.

In the vein of transforming video from more than just audio + video in a file, the second IBM Almaden paper (“Hierarchical brushing in a collection of video data”) shows a simple way to gain a rapid overview of a video’s internal structure – where shot boundaries and important features become visually salient and manipulable during search & browsing.

And finally, the paper from Fuji Xerox’s Palo Alto Lab (“Flycam: Practical panoramic video and automatic camera control”) shows their new panoramic camera and ways in which it can be used as a new kind of video stream. With the data captured in these panoramas, it’s reasonably straightforward to automatically track object motion, and potentially much more.

The research discussed in these papers leads the way to a new era in communication, where users are not forced to be in the same place at the same time to achieve the advantages of sight and sound. New kinds of video will be created, indexed, browsable and used in new settings.

During the past year, several high-visibility businesses have begun to populate the market with tools for capture, indexing and use (especially in educational markets). We believe that the use of video for training purposes will continue to explode, especially given the tools to capture and automatically index such media. With this, we fully expect new kinds of media literacy to develop, in both academic and professional settings.