Chapter V
Television Content Enrichment and Sharing: The Ambulant Annotator

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ABSTRACT

This chapter reports on the Ambulant Annotator, a middleware extension for Personal Digital Recorders (PDR), in the form of a lightweight authoring tool, which allows the viewer to personalize television content and share it with others. Traditionally, social interactive television research has focused on the provision of synchronous communication mechanisms between distributed peers in the form of direct communication channels (text or audio chats) or distributed control (joint television watching experience). This chapter considers a broader approach that enhances the connectedness between users by providing video sharing capabilities. The Ambulant Annotator empowers viewer-side enrichment of multimedia content in the form of video fragmentation, fragments annotation and enrichment. Once the user has created his personalized enriched version of the video content, the Ambulant Annotator provides mechanisms to share it with his social network by using asynchronous communication technologies. The video manipulation mechanisms presented in this chapter does not modify the original video material, but are encoded as separate overlays in such a way that Digital Rights Management (DRM) restrictions on content reuse are respected.
INTRODUCTION

Social interactive television research has, mostly, focused on providing the user with synchronous communication mechanisms while watching television. This chapter considers instead a broader definition of social television (Chorianopoulos, 2007), in which asynchronous communication methods such as media sharing are available. In order to provide a more connected experience, the shared media can be enriched and personalized by a number of media overlays such as audio commentaries (Cesar et al., 2008). We termed the end-user process of generating such enriched content as the Authoring from the Couch paradigm (Cesar et al., 2006) as a means to differentiate it from more formal multimedia authoring methods (Bulterman & Hardman, 2005). Authoring from the Couch corresponds to lightweight authoring (Kirk et al., 2007), while watching television content in order to enrich existing material and with the intention of sharing the resulted media content. This chapter discusses in detail this new paradigm and its innovative capabilities. The chapter is structured as follows. First, related work in the areas of multimedia authoring and multimedia sharing are reviewed. Then, a detailed description of the Authoring from the Couch paradigm is provided followed by a discussion on the current system architecture. Finally, the last section of the chapter proposes a number of extensions to the Authoring from the Couch paradigm to be explored in the future.

RELATED WORK

Contrary to the traditional role of television viewers as passive spectators, there are strong indications that there is room for more active television watching (Ursu et al., 2008; Agamanolis, 2008). However, according to recent research (Jensen, 2005; Chorianopoulos, 2008), it would not be the flavor of interactivity with complex applications that require concentration, long time spans, and distraction from television viewing. Instead, they point out that television applications should provide new interactivity models particularly designed for television. “Lazy interactivity is a low-attention-span paradigm designed for television viewers” (Jensen, 2005). That is, interactive applications intended for quick decision, short attention spans, handheld remotes, and instant gratification. Lazy interactivity thus requires a simpler interface involving minimal consumer effort. The contribution of this chapter is to provide a lazy interactive paradigm for content manipulation and sharing. On the one hand, the Authoring from the Couch paradigm empowers the user with manipulation functionality over television content, thus leveraging the user potential impact on the content he is consuming. On the other hand, the paradigm provides the user with sharing capabilities for communicating using media with his social network. This section is divided into two research trends: multimedia authoring systems and video sharing systems.

Multimedia Authoring Systems

Traditionally, the production and distribution of digital television content follow a one-way approach. First, high-quality material is captured using professional audiovisual devices (analogue and/or digital). Then, this raw material is converted into a digital format, if necessary, and edited using tools which operate at a low syntactic level, for example manipulating video as a sequence of frames and streams of un-interpreted audio. The television programs are then authored by aggregating the different media elements into one presentation, in which the layout characteristics of the visual elements are defined, and the interactivity points handled. Finally, the produced content is delivered through broadcasting stations to the end-user’s device for consumption.

All in all, authoring systems for interactive digital television assume the user to be seated