
Designing Reconfigurable Televisual Experiences

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Abstract

Modern TV viewing has moved away from the traditional shared living room and sofa experience towards consumption on an ever-evolving set of devices, in a variety of locations, as individuals, or as physically co-located and geographically dispersed groups. However, the consumption of broadcast media still remains a relatively linear experience, fixed at production time. Significant interest has surfaced within the broadcast industry into the production of non-linear, context specific forms of media presentation. The design of these interactive and reconfigurable televisual experiences at a public facing level requires a user-centered approach. Through the collaboration of researchers, designers, practitioners and stakeholders within the television industry, this workshop will provide a focused day for the design of future reconfigurable televisual experiences.

Author Keywords

Interactive television; Non-linearity; Object-based media; User-centered design

ACM Classification Keywords

H.5.m [Information interfaces and presentation]: Miscellaneous

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DIS'17 Companion, June 10-14, 2017, Edinburgh, United Kingdom
ACM 978-1-4503-4991-8/17/06
<http://dx.doi.org/10.1145/3064857.3064867>

Background

The technologies utilised for the public consumption of broadcast media have undergone significant recent transformation. Media convergence has now reached a level of maturity which enables the seamless communication between multiple devices and smart environments, and for the social sharing of user-generated content (UGC). This shift in viewing practices, and rise in interactive technologies, requires the production of televisual experiences and the design of their consumption to be considered as a more user-focussed and interactive medium [1].

Web-based technologies have been adopted by the industry through the rise of services such as video-on-demand (VOD). The ability for viewers to watch VOD, and the greater choice of programs available immediately for consumption through content personalisation has significantly altered the viewing practices of the public. Alongside this, the recent increase in the consumption of video content on social media platforms has caused television viewing to become a more socially shared past-time.

However, televisual experiences still remain relatively linear and centered around a primary *broadcast*, with programmes being fixed at production. In addition, socially aware and enabling technologies have yet to be given as much weight in the tapestry of the viewing experience. Again, although examples of second-screen, or companion apps, have begun to surface in mainstream broadcast, they remain supplementary to, and disconnected from, the viewing experience, rather than shaping or altering the trajectory of the narrative or the presentation of the content itself.

Workshop Motivation

There has been significant research within the TVX/ iTV community into the development of interactive, non-linear and socially shared televisual productions [1, 4]. Researchers have developed technologies and production tools for the professional authorship of interactive and non-linear narratives [8].

More recently, stakeholders within the television industry have begun to reconsider the production of content to allow for the design of more reconfigurable experiences. The British Broadcasting Company (BBC), are actively engaged in the promotion of Object-Based Media (OBM) [7], referring to media with the ability to reconfigure itself based upon the device, environment and/or context it is being consumed in; these range from traditional media consumption devices to smart environments and IoT appliances, lights and sensors and multiple screens. The formulation of media assets as objects allows for the implementation of user-focussed, multi-context, non linear presentation of television. There is also a growing body of research within the iTV community into multi-screen experiences [3, 9] and socially produced production [6].

These new technologies enable the delivery of interactive and social, non-linear, televisual experiences at a publicly consumed level. The seamless communication afforded between devices and smart environments enable the production, sharing and presentation of television to be explored in new and innovative directions. Through the media convergence of television and web-based technology, there is now the ability for the introduction of more interactive, non-linear, and social experiences in broadcasting at a professional, mass-consumed level. However, their design and implementation beyond the confines of small-scale research test-cases, is still relatively unexplored.

The application of user-centered design principles will be fundamental to the future integration of these technologies into the public consumption of broadcast media. Chorianopoulos [2] emphasises the importance of design principles which focus upon the affective dimension of television consumption. [2] argues that users' subjective satisfaction is at odds with efficiency, highlighting the most suitable features for iTV applications to be *viewer as a director, infotainment, participatory content authoring and diverse content sources*.

Providing further agency to viewers, through amateur production tools and user generated content (UGC) is a growing area of research. Tools such as *Bootlegger* [6] apply professional media workflows to enable high-quality amateur production of video content. Using readily available technology and a synthesis of film-making conventions and visual communication, the system coordinates distributed amateurs into an improvised film crew, suggesting shots, collating footage and generating rich context-based metadata, resulting in OBM. The convergence of non-linear narratives and UGC could open up possibilities for new forms of content, for example *The Johnny Cash Project* [5], and address challenges of non-linear production, such as combinatorial explosion [4].

Topics of Interest

This workshop will focus upon user-centered design approaches, highlighting new opportunities for the design of interactive, social, reconfigurable and multi-context broadcast for the consumption and production of media. This exciting design space will be navigated in order to explore the future design of non-linear, multi-context televisual experiences. Our workshop invites submissions that inform the design of this space in any of the following areas.

Workflows and Tools

The consumption of non-linear televisual experiences will require a reconsideration of traditional broadcasting production methods. Potential questions of interest within this area could include the following: *How can UGC be integrated into the television distribution chain? How can tools for the editing of UGC be designed? How does the contextual situation of the viewer effect the delivery of the broadcast?* With viewers consuming content across multiple devices and in different viewing environments, *how can productions be designed to adapt to such situations?*

Personalisation

The further integration of content personalisation into the delivery of broadcast media would allow for more context specific viewing experiences. Questions within this area may include: *How can the integration of smart environments alleviate the obtrusive nature of communication with another peer while watching television with others? What effect does the personalisation of viewing experiences have upon the shared viewing experience? What are the privacy concerns for personalised content when viewing with others?*

Multi-Platform Consumption and Control

Media is now consumed on multiple devices and in different contexts. Connectivity through smart environments and IoT devices provide more information to broadcasters and new forms of interaction to viewers. Questions within this area could include: *How can the design of second screen experiences be integrated into the production of iTV? How can cross-device experiences be designed to be unobtrusive to the viewing experience? At what level can communication between devices be used to interact with the narrative or structure of the program? what are the*

problems associated with continuity of narrative in multi-platform viewing?

Intelligent Systems

Through the increase in data available to broadcasters and the developments made in machine learning and artificial intelligence technologies, the integration of intelligent systems may be beneficial to the development of future iTV experiences. Alongside this, the increase in complexity required for the production of non-linear broadcasting could be alleviated. Questions arising in this area may address the following: *How can data analytics be applied to personalisation of the viewing experience? Could AI methods such as decision making, procedural generation and autonomous systems be applied to the presentation and production of iTV? How can mixed-initiative user interfaces be applied to the production of iTV experiences? What role could AI play in personalised narrative?*

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