Media Crate: A Tangible Interface for Live Media Production

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Abstract

Live media production – the presentation of audio-visual content at events such as conferences and concerts – is a high intensity task where a small production team must interact with an amalgamation of separate hardware tools to transform and direct a variety of media sources to outputs such as large screens, preview monitors, and web-casts. We present Media Crate, a tangible tabletop interface crafted in response to the key actions and needs of live media producers. In this poster we give a description of the Media Crate's interface, from conception to evaluation, through construction. We also discuss how our experience of live media production impacted on the design.

1 Introduction

Live media producers present audio-visual media to audiences at live events; these can vary from small conferences, where back-drops for speakers are presented using a simple laptop and digital projector, to stadium-sized events where as many as 10 members of a team will present media over 20 or more outputs. Media production teams gain control of the variety of inputs and outputs required for the modern day audio-visual through a skillfully connected collection of hardware devices; many of which were designed for use in isolation. Although set-ups such as these enable the creation of highly polished and professional results, they lead to a situation where the interactions of the team are dictated by the need to work around technically complex and often unsuitable hardware configurations.

We present the Media Crate, a tangible tabletop interface for collaborative live media production based on tangible objects [1]. In response to observations and our personal experience of the domain, the Media Crate has interactions which are crafted around the key actions and needs of the live media production team. We also describe an initial deployment of Media Crate at a week long live event where live media producers were given the chance to compare the system to their traditional hardware set-ups. The Media Crate demonstrates how the design of both tangible and tabletop interfaces can be grounded in real world applications.

2 The Media Crate

Our observations of live media production highlighted the need to work with a range of varying media inputs and outputs; access to which is realized using complex combinations of hardware playback and presentation devices. As a consequence the work of the producers may be distributed across an array of hardware interfaces each requiring their own unique methods of control; this has the potential to increase the cognitive load on the producers greatly. In addition, in many cases the devices are not designed to be used in the combinations required of the producer and therefore large amounts of time can be spent ensuring that devices are connected and synchronized correctly; this may distract from the the media production at hand. Finally, many of the devices require a skilled operator; this can prevent novice members of the production team from contributing to the work-flow and lead to divisions between teams where control of certain media sources and output was dependent of specific producers.

3 The Interface

The finite actions essential to live media production appear to be direct and focused around the achievement of simple goals. For example, a producer may display a media item on an output source, or change the order of video sequence. Thus, the Media Crate interface is based upon finite interactions which each represent an essential action of media production. Where possible these are realized through the manipulation of small tangible tile objects. The key interactions are Output and Preview, Properties Edit and Control, the Cue List, the Collection, and Copy/Paste.

Figure 1. The Media Crate interface.

4 Related Work

Live media production in commonly achieved through the combination of hardware playback and output devices combined using hardware solutions such as the Edirol V4 vision mixer [2]. Such components provide tangible control of media which is tailored to the source they represent and create an equipment set-up which can display any media type for which a hardware playback device can be purchased. Set-ups such as these however distribute control of media across a wide range of devices, making synchronization of simultaneous action difficult, and also often require a high level of knowledge to operate each device. A Software based solution to live media production is proposed by MediaShout [4]; the system gives aggregated control of media similar to that of the Media Crate however the interface is WIMP based making collaborative production difficult. Additionally Media Shout defines a different interface for each varied media source thus the system does not afford the fluid and general interaction techniques made possible by the Media Crate's cue abstraction.

5 Deployment and Reflections

To asses the suitability of the interface design, the Media Crate was presented to a group of 6 producers in a afternoon co-evaluation in our lab. The producers were given a set of tasks to complete with the interface and were asked to comment on their experience. The tasks involved a set of discrete steps, each representing one stage in the process of setting up and displaying a cue. The tasks were designed to be flexible enough to give the producers the freedom to be creative in their use of the interface but also to ensure that all elements of the interface were experienced at some level. In addition to informal discussions during the session the producers were also presented with questionnaires which probed into their experiences of the tangibles, collaboration, and the interface in general.

To gain insights into the effectiveness of the Media Crate in facilitating the primary actions of the live media producer an initial deployment of the system was carried out in the environment the Media Crate was designed for; a high tension, multi-user media production in a venue unknown to the designer (ECG Conference, Welsh Theatre, Llandudno, Wales). Both the Media Crate and the traditional equipment of the production team at the conference were set up side by side. The two systems remained in place for the week-long event and members of the 40 strong media production and technical team were encouraged to experiment with the interface and shadow the traditional equipment set-up during the live event. In order to allow the users' experience with the Media Crate to be as realistic as possible, the unit was transported, set up, configured and operated by the same producers who would be operating the traditional video set-up at the event. As all members of the team were from different backgrounds, both technically and conceptually, it was hoped that varied feedback on the system would be inspired throughout the study.

6 Future Work

The responses of live media producers to the system during our initial evaluation proved positive highlighting the potential for the continued development of the Media Crate. This continued development will firstly tackle issues and potential improvements to the interface highlighted in the evaluation session. Additionally the development and evaluation of the Media Crate highlighted interesting streams of research which can be explored with continued work on the system; for instance the support of collaboration in high-tension scenarios such as Live Media Production.

As part of this future work, more detailed and planned evaluations are to take place, including both test and live scenarios. Aspects that are to be looked into include: different ways to use tangibles to control media, research into the basic building blocks of collaborative media presentation, hardware considerations for more usable and advanced versions of the unit, possibly replacing the use of reacTiVision [3].

References

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