Peripheral Interaction in the context of DJing

Mayur Karnik

Madeira Interactive Technologies Institute, University of Madeira

mayurkarnik@gmail.com

Abstract. DJs constantly negotiate between their social and technical roles while performing and often encounter conflicts in their needs to interact with the audience vis-à-vis their tools. In recent times, HCI researchers have focused on tools and systems for DJs to manage interactions with their audience. However, there is a need to design 'calm' systems that help the DJ manage their social interactions better and that has minimal interference with their primary tasks. Interpreting this problem through the lens of Peripheral Interaction holds the promise to suggest appropriate solutions that might lead to a better understanding of the broader fields of crowd computer interaction and designing for spectators.

Keywords: Peripheral Interaction, DJs, Nightclubs

1 Introduction

DJs adopt a wide variety of social and technical roles while performing in nightclubs. As musicians operating in an inherently technology-led domain, their performances involve interacting with tools and their audience [1]. These interactions often occur in busy settings and compete with each other putting a strain on the DJ's attention. DJs could benefit from immediate feedback from the audience while performing, but tend to avoid direct interaction since doing so interferes with their more important tasks such as browsing music libraries, manipulating controls to manage the music stream, etc. Moreover, the context of their work (usually dark settings) makes it difficult for them to easily shift their attention back and forth between their tools and the audience, resulting in scenarios where the audience interaction becomes limited to body gestures and direct observations of the crowd. An interpretation of this problem through the lens of 'Peripheral Interaction' could point to new ways of approaching this design space and consequently contribute to a richer understanding of the broader fields of crowd-computer interaction [2] and designing for spectators [3].

2 Related Work

HCI researchers have shown considerable interest in recent times in understanding the needs and work contexts of DJs and proposed technologies for them to manage

their work better. Gates et al. classify some of the early works as nightclub specific interactive technologies in the domains of audience-centered applications, DJ-centered applications, and applications for DJ-audience interaction. These applications took advantage of sensors, mobile devices and communication technologies in the form of playful applications, performative spaces, automation and mixing tools, and systems based on bio-feedback [1]. More recently, Ahmed et al. conducted ethnographic studies around DJs and give a good account of the more recent studies around DJs that proposed multi-modal prototypes (e.g. wireless, mobile, haptic, and multi-touch) as DJ tools [4].

However, we argue that most of these proposals require the DJ to pay direct attention to the tools and hence run the risk of interfering with the intensive primary task of a DJ: playing music.

3 Observations

Our previous work briefly describes some in-situ observations on how the resident DJs we studied negotiate their social interactions while performing [5]. We noted that the DJ's social circles acted as a resource for receiving feedback. It highlights the need to differentiate the different degrees of relationships that a DJ has amongst the audience. We are interested in exploring how technology can help the DJ manage a two-way interaction with the audience in a 'calm' [6] way, without a substantial increase in his or her cognitive load.

As part of this process, the lead author of this work has been engaged in long term ethnographic studies of DJs and, in the spirit of overt 'participant observation', has performed 12 gigs over the last two years in the capacity of both a DJ and a VJ. In one of the recent VJ gigs, an interesting phenomenon was observed; people familiar to the VJ rolled empty plastic bottles to his feet to draw his attention, which they needed to show appreciation of particular moments during the performance. Others in the audience observed and imitated this behavior and it gradually turned into a playful and socially acceptable way of expressing appreciation. Another observation was that while VJs project and control visuals directly based on the music, the DJs often are unable to see the projected visuals because of a need to direct their attention to their primary task. Both these observations point to the need for understanding the periphery of their attention and how some of these social interactions can be supported by designing non-intrusive interfaces.

4 Peripheral Interaction

We are currently working on a few design directions that have resulted into a number of concepts for the nightclub settings. One of the concepts is a tangible interface or an interactive system for the DJs that would be connected to projectors beaming colored blobs downwards onto the crowds on the dance floor. The DJs will be able to interact with sections of the crowd by mainupating these color blob projections. However, one of our primary concerns is to design the interaction paradigms in such a way

that they are playful and useful but at the same time have minimal interference with the DJ's interaction with the music making tools.

The presentation at the workshop will be structured around a series of edited video snippets illustrating performers' behavior as they seek to engage audience members as a secondary task to their core performance activities.

References

1. Carrie Gates, Sriram Subramanian, and Carl Gutwin. 2006. DJs' perspectives on interaction and awareness in nightclubs. In Proceedings of the 6th conference on Designing Interactive systems (DIS '06). ACM, New York, NY, USA, 70-79.
2. Barry Brown, Kenton O'Hara, Timothy Kindberg, and Amanda Williams. 2009. Crowd computer interaction. In CHI '09 Extended Abstracts on Human Factors in Computing Systems (CHI EA '09). ACM, New York, NY, USA, 4755-4758.
3. Stuart Reeves, Scott Sherwood, and Barry Brown. 2010. Designing for crowds. In Proceedings of the 6th Nordic Conference on Human-Computer Interaction: Extending Boundaries (NordiCHI '10). ACM, New York, NY, USA, 393-402.
4. Ahmed Ahmed, Steve Benford, and Andy Crabtree. 2012. Digging in the crates: an ethnographic study of DJS' work. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12). ACM, New York, NY, USA, 1805-1814.
5. Mayur Karnik, Ian Oakley, and Valentina Nisi. 2013. Performing online and offline: How DJs use social networks. To appear in Proceedings of Interact 2013, Cape Town.
6. Weiser, M. and Brown, J.S. The Coming Age of Calm Technology. In Beyond Calculation: the next fifty years of computing. Springer-Verlag, (1997), 75–85.