Video interaction - Making broadcasting a successful social media

Abstract
Video has slowly been gaining popularity as a social media. We are now witnessing a step where capture and live broadcasts is released from the constraints of the desktop computer, which further accentuate issues such as video literacy, collaboration, hybridity, utility and privacy, that needs to be addressed in order to make video useful for large user groups.

Keywords
Video, user generated, live broadcast, webcast, mobile, social media, webcasting, amateurs

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Human Factors

Introduction
Video traffic has quickly become the bulk of data communication on the Internet. This medium is now moving beyond consumption of TV and movies, and become integrated with other interactive services and social media [1]. A new type of social media, displaying live broadcasts from mobile devices, is becoming increasingly popular. Mobile video sharing broadcasting applications differ from earlier webcam technologies in
that the cameras are wireless, which enables capturing content from anywhere within the reach of a mobile network, and extended physical control of the device for doing camerawork. They also differ from video conferencing systems since their web applications typically let people browse through live broadcasts, access archived clips and follow and interact with individual users, a model familiar from other forms of social media on the internet. Since the launch of the first application in 2005, these services have grown in popularity and numbers. There are at least nine services in the area to date, among which qik.com, bambuser.com and ustream.tv are the most widely used. In parallel, services like Apple’s FaceTime have brought live video streaming to a much simpler level in social networks. However, video as part of interactive and user generated services, has been largely unstudied and we argue that there is a need to analyze their suitability as social media.

In addition to live video systems, other applications and services allow users to capture their environment and share them with wider populations. Both YouTube and Facebook have simple mobile interfaces for uploading just-captured content, even from mobile devices, and sharing views of current experiences with wide audiences, also for later consumption. As television moves to an video on-demand system with millions of choices of previously produced work, mobile broadcasting should be aware of this trend to avoid the issues of limited audience and scheduling issues that come with a live broadcast.

Live video sharing applications has acquired some attention in research. Juhlin et al [4] has provided a qualitative content analysis of mobile broadcasting. Reponen [8] conducted a field experiment to investigate how it supports group communication. Bergstrand and Landgren [2] conducted a design investigation to explore how live video could be used in rescue operations. The possibilities of extending the concept to include multiple cameras have been suggested to support citizen journalism [9] as well as for VJing [3].

Video as social media is interesting and an emerging user practice but research points to a number of challenges that need to be addressed in order to establish video as a prolific social medium. For example, people struggle with finding interesting topics to broadcast, and managing the camera in a way that present it in a broadcastable way. Providing the opportunity to broadcast live video from almost anywhere is not enough, and there is now a need to discuss the barriers and resources for this area. In order to investigate video interaction further, we suggest that the workshop participants discuss e.g. the following topics:

**Consumption and utility:** Overarching the typical HCI question of usability for video-based systems lies the perhaps more fundamental question of such system’s utility and usefulness. It is not enough to point to interesting interactional mechanisms or display formats, but we need to ask what values the use of video media adds to the users. Mobile broadcasting services enables a unique combination of mobility and live streaming in a consumer device. Control over visual and audio content selected from multiple visual feeds, the temporal aspects of broadcasting image sequences (e.g. instant replay) is creating new possibilities. The effects of this on broadcasters cannot be dismissed, with potential commercial impacts, for example on content branding,
broadcaster guidelines on content provision and advertising models.

**Designing for variability in use practices and use contexts:** The success of video interaction depends on how well the systems fit with use practices and use contexts. First, the system needs to support users narrative demands. Applications that are used to cover an amateur sailing race might need to include other features than a system covering a crisis situation. Second, supporting user generated video might depend on integrating video production in new use practices, and move video techniques from disciplined and trained professionals to amateurs who differ both in their motivational setup as well as in their and competence.

**Novel hybrid formats:** The ability to experience remote events, as they happen, is a strong perceived value in live video, from traditional live television to newer forms of online and mobile media. Broadcasting capabilities in inexpensive camera phones mean that the range of events that can be shared, and experienced remotely, in real time is multiplied. Looking at the mediation of live events, video and audio have been the dominant media. But the proliferation of sensors, GPS and mapping devices is another source of real time data. Combining these sources with video into hybrid formats could produce more diverse ways of experiencing remote contexts.

**Co-ordination and awareness:** Mobile broadcasting is closely related to the research on video communication, where this media’s ability to provide awareness of collaborate activities has been a long-term concern. Drawing on recent research on supporting aggregation of multiple live videos them, as well as enabling collaboration between broadcasters, would enable richer view on the event, and potentially more viewers [3]. Yahoo Research has shown one example based on matching background audio [5]. Extending the medium to provide more complex broadcasts partly depends on the development of new coordination mechanisms in the production setting. Furthermore, live broadcasts are hard to find and they often receive minimal audiences but the numbers increase with integration into other social media platforms. These new services could provide support also for collaborative distribution tasks.

**Interactivity:** Interacting with video material became popular, with recent advances in image processing. This technology enables e.g. augmented layers of information for selected objects; addition of clickable hotspots on video or conversational videos. Live video brings new challenges and a need for novel types of interaction to the field.

**Technical quality:** Emerging broadcasting reiterates the issue of acceptable image quality. Achieving better quality than what we currently have is a constant challenge due to technical limitations like limited network bandwidth and throughput and limited processing resources. In mobile broadcasting, it is necessary to consider delays and latency, which affects whether we perceive following an event live or not.

**New ways of accounting for video practices:** Emergent video practices challenge the way we have previously conceptualised visualisations. We struggle to represent such practices with the available media vocabulary such as “television/video” or “production/consumption.” then, using available media theory risks to flatten out
our understanding of transformations in the media landscape.

Methodological issues: One of the challenges in developing and evaluating mobile video services and technology is finding a suitable technological level. There is always a new platform, better quality, etc. around the corner, but we need to compromise. Handling these generation gaps is a challenge for evaluations and design.

Video Literacy: A new generation of users is growing up for whom video is an easily accessible and commonly used media, for both consumption and production. However, the educational system is still relying heavily on consumption and production of text, and fostering literacies in relation to older media [Kress, 2003]. We need to explore the ways in which the widespread use of video among the young poses new challenges on the educational system.

Ecosystem: Although this medium emerged out of new capabilities in handsets and telecom networks, it is already integrated in the larger economy of internet services. Companies are working out their business models in the online video domain. Video streams are embedded on web sites and integrated into social media, enabling wider viewership but also making them subject to copyright and other legal issues.

Privacy: Mobile video sharing can be applied in any mobile network setting. When the material is made available on social platforms this reaches out to a broad spectrum of our everyday lives. How does this distribution of mobile video affect issues of how we are consuming and being exposed to video? Considering that videos are easy to share digitally, we need additional discussion on how mobile videos also impact our perception of intimacy and privacy.

References