

Eventstreaming: Connecting streamers and viewers at the Silicon Valley Comic Con

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Live events are happening all around the world all the time. People are using mobile livestreaming tools (Periscope, Facebook Live, Livestream, etc.) to broadcast those events over video and audio. How can we connect viewers with livestreams of events in which they are interested? How can we help viewers leverage multiple livestreams coming from an event to find the perspective they find interesting? How can we create a user experience that enables them to participate in the event remotely, not just passively watch it? We explored these ideas using commercially available apps and services to *eventstream* the Silicon Valley Comic Con [4].

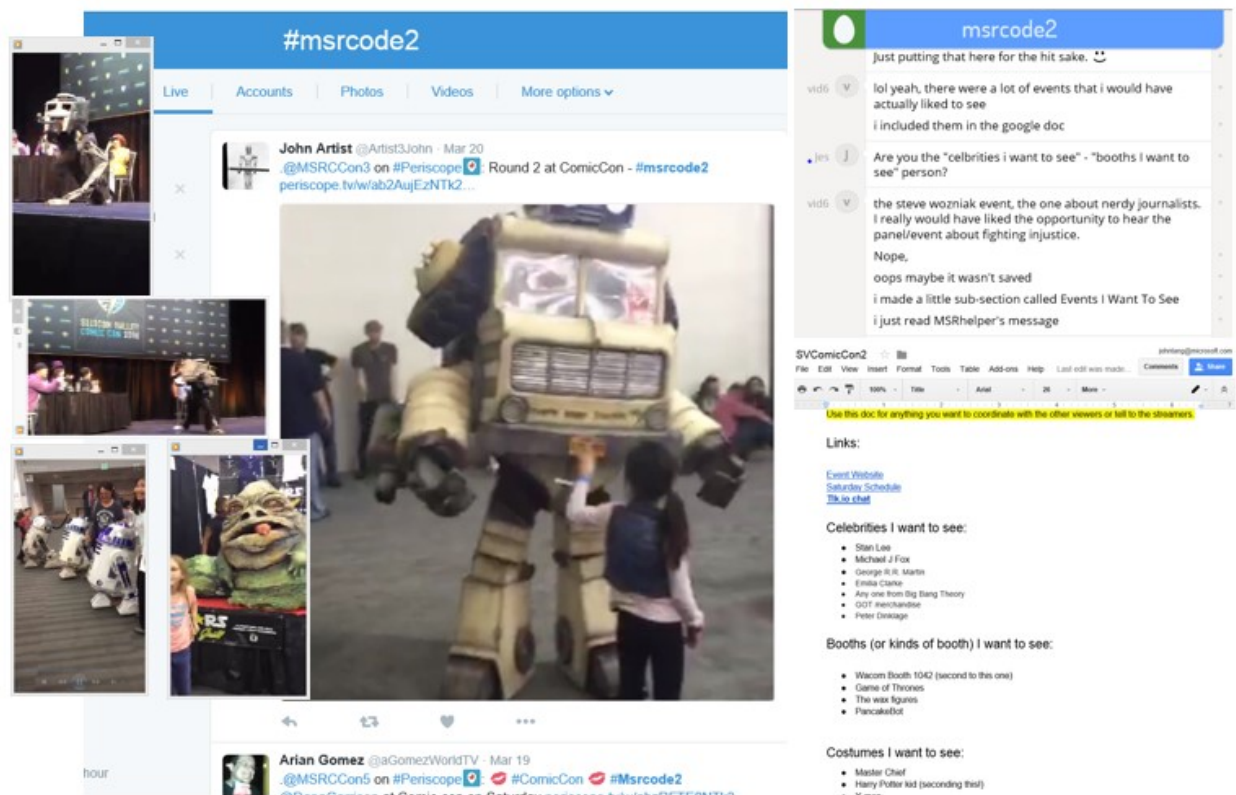


Figure 1 shows the Silicon Valley Comic Con eventstream user experience. We chose a Comic Con as an example of a large-scale event that had many different activities going on in parallel and the potential for a large number of viewers. We recruited five experienced Periscope streamers to stream from the Comic Con using Periscope on their own mobile device. By including a special hashtag in the title of their livestreams (e.g., #msrcode2), we could collect all the streams into one Twitter search query, shown in the center of Figure 1 along with several Periscope livestreams along the left. We also created a shared text chat (e.g., <https://tlk.io/msrcode2>, top right of Figure 1) to enable direct communication among any viewers and streamers of any of the streams. Since we expected that the number of viewers might grow

into the hundreds if not thousands [1, 6], we created a shared Google Doc (bottom right of Figure 1) to provide a shared space to organize information and coordinate among all the viewers and streamers. We asked each streamer to bring a companion with them to monitor the text chat and Google Doc and relay any relevant information back to the streamer. Both streamer and companion were given a \$200 gift card gratuity each for their afternoon of service. We recruited viewers using Amazon Mechanical Turk by launching an mTurk task about 5 minutes before each streaming session. The task directed the viewer to the appropriate URL links to monitor all the Periscope streams from Comic Con, participate in the event-wide text chat, and edit the Google Doc. The task asked the viewer to view any of the Comic Con livestreams for at least 30 minutes, then complete a survey for an \$8 credit.

Despite some logistical complexities, we constructed a multi-stream event experience around the Silicon Valley Comic Con. There were up to six concurrent streams with up to 75 concurrent viewers of the set of streams. Viewers took advantage of selecting the stream of most interest to them, and shared what they found across all the streams in the text chat and Google Doc to help others find their stream of interest. One survey comment from a viewer demonstrated their enthusiasm for the experience: *There is nothing really that could have made my experience better aside from actually being there.*

Comic Con was such a large scale event that no single streamer could cover the entire event. There was some interaction among the viewers and the streamers about what parts of the Comic Con they wanted to see. But having the companion relay messages to the streamer added too much delay and diffused the sense of engagement among the streamers and viewers. As one viewer comment in the survey expressed: *It would be nice to "tap the streamer on the shoulder so to speak" and have them respond more quickly at times.* There was also confusion about how to direct comments to specific streamers, since the chat and Google Doc spanned all of the streamers, and the viewers were not practiced at identifying whom they were directing their comments toward. While there was some benefit to letting the streamer focus on streaming while the companion sorted through the feedback, the mediation through the companion interfered with the sense of engagement.

We had hoped that broad interest in the Comic Con event and the huge range of things to discover at it would lead to some self-organizing coordination. We expected that viewers might request to see specific things available at Comic Con and streamers would respond by looking for those items. Instead, what mainly happened is that viewers reacted to things they enjoyed seeing. This did lead to some awareness among the streamers about what others were discovering at Comic Con, and what was popular among the viewers. However, beyond the friction of mediating discussed above, we discovered other obstacles to the kind of self-organizing interaction that we expected, described below.

We were deliberately sparse in instructing or structuring the interaction among the streamers and the viewers. We tried to simulate the situation where people who are independently streaming at the same event discover the other streamers without advance planning. The viewers also spontaneously discover the multiple streamers and viewers of those streams. While for the field study, we met with the streamers at the beginning of the event to go through the logistics of the streaming sessions and how the companions were to monitor the viewer feedback, we wanted to test the notion of an impromptu community forming around a shared interest in streaming and viewing an event. Thus, we gave minimal instruction on how to stream and minimum structure in the Google Doc in advance. However, perhaps more prompts or nudges are needed in the user experience to invoke interaction among the viewers and streamers. The streamers expressed that they would have liked to have started with a plan which

delegated different streamers to cover different areas or types of content. While examples of self-organizing communities exist, such as Wikipedia editing [3], it may be challenging to expect that to happen in real-time during live events. Still, one viewer commented: *I would love sort of a way for users to vote on what they want to see... multiple viewers would probably agree on wanting to see something, which could be the most important for the streamer.* Perhaps more prompts for spurring on interaction are needed within the mechanisms for connecting streamers and viewers.

Methodologically, while we were able to simulate the eventstreaming experience in terms of numbers of streamers and viewers in our field study, hiring them lacks the inherent interests and motivations that would naturally occur in an event. As reflected in one survey comment by a viewer: *One of the streamers obviously had no idea about geek culture or characters; you really need to have someone who understands what they're talking about to stream events like these.* While our field study helped us understand some things about the mechanics of the interaction in eventstreaming, the missing intrinsic motivations of the streamers and viewers limits what we can learn about it. We need to explore methods for studying actual large-scale events as they occur.

We explored eventstreaming because prior research in mobile livestreaming practices identified an interesting opportunity when multiple livestreams come from the same location at the same time [5]. Eventstreaming at Comic Con went beyond a prior research prototype that showed three concurrent livestreams from a jazz festival [2] by covering a larger scale event with six concurrent streamers without needing any special hardware or software for either the streamers or the viewers. We believe that livestreaming these events will help surface breaking news, even *before* it is picked up by the mainstream news media. It will also enable remote people to participate in many events that are *overlooked* by up by mainstream news media. These could include local political rallies, social protests, college or amateur sporting events, business conventions and trade shows, amateur concerts, etc.

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Bio

John Tang is a Senior Researcher in the neXus group of Microsoft Research. We are an industry research group that explores connecting people over distance using rich media (video and audio). Our research on eventstreaming aims to investigate new research questions around how mobile livestreaming can be used to support impromptu communities around shared interests in live events. We see this intersection of social media and live events as a new opportunity for remote shared experiences.