

# Ethical challenges in collaborative storytelling

Mu Mu Mark Rouncefield Yehia Elkhatib Steven Simpson Jacco Taal\* Nicholas Race

School of Computing and Communications, Lancaster University

Lancaster LA1 4WA, United Kingdom

\* Bitnomica

Molengraaftsingel 12, 2629JD Delft, The Netherlands

{i.lastname}@lancs.ac.uk, \*jacco@bitnomica.com

## ABSTRACT

Collaborative storytelling using user generated audio-visual narratives is becoming a popular medium for creative social sharing, hyper-local TV, and collective awareness. Through two storytelling user experiments, we recognized that the challenges around ethics and copyrights in managing user data are far more pressing than the simple technical feasibilities of a storytelling platform. Recognizing the importance of some actual and anticipated ethical problems we attempted to address the issue in our experiments using purpose-built technical features and a specifically designed consent form as the code of conduct. The resultant platform effectively maintains the life-cycle and dependencies of the narratives and composite user stories.

## 1. BACKGROUND OF VIDEO STORYTELLING EXPERIMENTS

The increasing availability and popularity of audio-visual recording capability on user devices has greatly expanded the medium of social interaction from pure text streams to photo albums and timelines towards richer narratives, especially around live events. Amateur video capturing has also evolved from personal chronicles to citizen journalism, collaborative creation, and storytelling of live social events. Unlike video mash-up systems [Saini2012], multimedia storytelling engages a much higher level of interaction during content capturing, sharing and editing. Reflecting the notion of *MM-hard*, which refers to multimedia problems that require human-level insights and perception that cannot be realized with a single algorithmic approach [Xie2014], Kelliher envisages the departure from the human's role as primarily increasing an algorithm's efficiency or facilitating a transaction, and considers the human also as an active and subversive force [Kelliher2014]. Recent studies also see trends of exploiting shared content (from other users) in providing additional perspectives to improve composite stories [Guimar2011].

In order to investigate how such open narrative platforms help in creating a knowledge-based community network for better social sharing, improved awareness, and social innovation, we developed an online storytelling ecosystem. It facilitates creative story authoring and sharing using a purpose-built mobile application, media processing

and analysis backend, a story-authoring engine, and web-based collaborative story editing application (Figure 1).

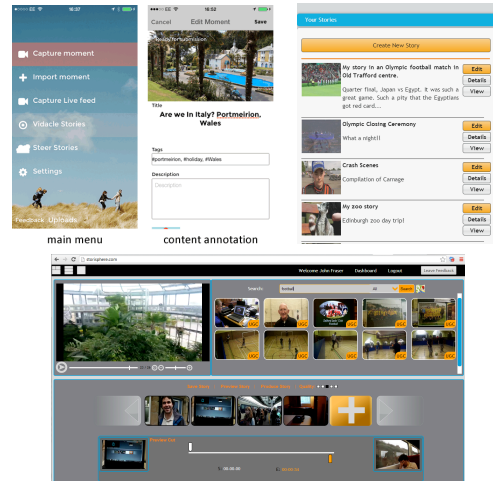


Figure 1 Content capturing, annotation, and sharing on mobile application and online video story editing service

## 2. EMERGING ETHICAL CHALLENGES

In preparation for public pilots, we organized a test during the Nightrace event at Schladming, Austria to evaluate the socio-technical aspects of the system. Several researchers from the UK and the Netherlands took part in the test. The consensus among the test participants is that storytelling of personal/group experience of an event is “*a very natural thing to do*”. Most participants found that using the storytelling system for capturing and sharing their own creations throughout the course of a live event made them feel that they were “*telling a live story to their friends*”. They were mostly adding the narratives while recording by talking to the microphone. Sometimes a member of a group spontaneously acted like a reporter and let the other group members talk about what had just happened.

One issue that was immediately raised from the first day of the test concerned the ethical challenges involved in the handling of experimental data. There are clearly a number of philosophical approaches to understanding ethics that are relevant to comprehending technological developments and deployments. Historically these have included [Kant1785, Kant1788] deontological approaches (as seen in various categorical imperatives); variants of some form of consequentialism (such as Mills’ utilitarianism [Mills2010])

and Aristotelian virtue ethics. Studies in computer ethics that adopt these standard approaches generally aim to outline, clarify and evaluate a range of ethically debatable practices through an application and defence of moral principles such as the categorical imperative, a calculation of consequences or reference to particular virtues.

These different principles have worked their way into any defence or justification of research but are, perhaps, especially notable and noticeable in recent years in their application to data gathering and the treatment of data. In conventional user experiments, one or multiple investigators lead the test procedures or user interviews, and the user responses or any material generated from the interviews are strictly anonymized, securely stored, and made accessible to a few named researchers. Only relevant elements or abstracted information from an experiment are made available for the research activities. In the UK, any personal information acquired during an experiment will be maintained according to the UK Data Protection Act<sup>1</sup>, which indicates that:

*Everyone responsible for using data has to follow strict rules called 'data protection principles'. They must make sure the information is:*

- *used fairly and lawfully.*
- *used for limited, specifically stated purposes.*
- *used in a way that is adequate, relevant and not excessive.*
- *accurate.*
- *kept for no longer than is absolutely necessary.*
- *handled according to people's data protection rights.*
- *kept safe and secure.*
- *not transferred outside the UK without adequate protection.*

Unfortunately, fulfilling the aforementioned principles in managing user data in a narrative storytelling experiment has proven to be very difficult for the following reasons:

- 1) It is not feasible to completely anonymize user content of this nature. Experiment participants often name each other in the video recordings as they usually do in daily life. People address each other using real names, nicknames, and relationships, etc. One method to fully resolve this is to assign pseudonyms prior to the test and ask participants to memorize and use only the pseudonyms whenever a user recording takes place. However, this would greatly affect the user experience and the test. Ideally, we would like users to behave as usual with minimal external influence so that our findings are applicable to real-world scenarios. This is in conflict with the need for anonymity.
- 2) Any conversations that are supposedly private or off-record are in fact on-record. As part of a social experience, many private conversations between participants (either in the foreground or background) during the course of the pilot are recorded. For instance,

users may comment on the behavior of other people at the live event, or simply gossip. In our tests, such narratives accounted for only a very small portion of the user data, yet objectively profiling and isolating them from the remaining user conversations, which are lengthy and intricate, is laborious.

- 3) User data must be open for collaborative storytelling. Since the objective of our pilot is to investigate collaborative story authoring in creative communities, shared user data must be kept open for exploration, retrieval and reuse (for composite stories) in user community. This means that a pilot participant can search for any shared user data and choose to use it for his/her own video story, guided by the user agreement. Due to the volume of the user data generated during the live events, it is not feasible for the pilot investigators to manage every piece of user content before the pilot ends. Although the experimentation platform resides in the UK, a pilot can be based on an event in one or multiple places in the world. Users may also join the pilot from a location other than the event to contribute with different perspectives, as an essential part of the collaborative storytelling experiment. The geographical constraints on the access of user data are therefore not applicable.

What these problems point to is that while current computer ethics guidelines may prove suitable for dealing with existing and well recognized moral issues, there remains some concern over computer-related practices that are not (yet) morally controversial, that are what Brey terms 'morally opaque' [Brey2000], either because they are unfamiliar or because they are not recognized as moral issues but, nevertheless, seem to have some (possible future) moral import. What this seems to point to is that other, more recent, ethical stances appear to have become relevant with the design and deployment of ICT – in particular ideas about 'disclosive' ethics [Brey2000] (whether values can be built into the design of a technology); ideas about 'anticipatory technology ethics' [Brey2011] (the extent to which we might be able to predict future, possible morally dubious, uses of new technologies) and the overall framework of 'responsible research and innovation' where it is necessary for the researchers to address the wider implications of technological innovations [Stahl2014].

### 3. SOLUTIONS AND RESULTS

With these ethical challenges in mind, we organized the second pilot at Silverstone, UK during the British Grand Prix Formula 1 racing event on 6<sup>th</sup> July 2014<sup>2</sup>. The pilot involves two groups of members of the public as the participants. Group 1 is a family of three plus one friend who are long-term Formula 1 fans on their first trip to the Silverstone GP. They are invited for Vauxhall "VXR

---

<sup>1</sup> <http://www.legislation.gov.uk/ukpga/1998/29/contents>

---

<sup>2</sup> [http://www.formula1.com/races/in\\_detail/great\\_britain\\_924](http://www.formula1.com/races/in_detail/great_britain_924)

Power Events” which allows exclusive access to certain areas of the Silverstone circuit during the event. Group 2 is a family of two plus one friend who are frequent Formula 1 visitors. The two user groups do not know each other (Figure 2). We address the ethical challenges described in Section 2 using a combination of technical support and tailored user consent. The idea is to explore the balance between ethics and data openness. The pilot thus became a vehicle to investigate not only a technical proof of concept but also the ethical model for such community-driven experiments with user-generated audio-visual narrative content as the main experimental data.



**Figure 2 Participating members of the public**

### 3.1 Technical features

When a user requests to “unshare” an uploaded content due to any reason, or when the content or the usage of any user uploads breach the user agreement, it is essential to efficiently decommission the relevant content and any derivative media assets. Such functions are not technically challenging when user content is self-contained with no interdependency. However within creative storytelling experiment, any user content may be inherited for composite stories, and any composite stories may in turn be used for new composite stories. This is a common issue in video sharing services such as YouTube, where we see enormous amounts of duplicate or near-duplicate content.

We employed a new design in video authoring that allows editing using a manifest, a lightweight text-based document that describes the internal structure of audio-visual content. This design allows the content to be effectively decoupled from dependent stories, and hence problematic content could be easily retired from the system.

### 3.2 User consent

Prior to the experiment, we organized a number of discussion sessions with the prospective participants and came up with an official user study consent form (Figure 3) to be signed by the participants. The consent form describes the purpose of the experiment and the scope of exploitation of the content generated by the participants during the experiment. It specifies that user involvement in this study will require recording audio-visual content and that the content, along with any associated metadata (e.g., geo-location) for the study, will be uploaded to the storytelling platform and be publicly accessible for research related to the topic of community storytelling. We emphasize that participant’s name will not be publicly associated with the uploading of any content without consent. The consent form also suggests that if a user interview is needed to

better understand the context behind any shared content, the user’s responses to the interview will be completely anonymized where appropriate. Only cursory information about the identity (e.g., gender) will be used.

**User Study Consent Form**  
[Community storytelling]

The European Commission sponsored xxx project<sup>1</sup> and xxx University invites you to participate in a research study relating to community storytelling. The purpose of the study is to understand how mobile and multimedia technologies help users to capture and share their experience in live social events.

Your involvement in this study will require you to record audio-visual content. The content you record, along with any associated metadata (such as geographical location) for the study, will be uploaded to the xxx storytelling platform. The uploaded content will be publicly accessible and used for research activities related to the topic of community storytelling. Your name will not be publicly associated with the uploading of any content without your consent. The researchers may interview you to better understand the context behind your shared content. Your responses to the interview will be anonymised. Only cursory information about your identity (such as gender) will be used.

In order to take part in the study please read the following statement and sign if you agree to participate.

'I freely and voluntarily consent to be a participant in the research on the topic of community storytelling to be conducted by xxx University and the xxx project. Specifically, I have been asked to record my trip to the 2014 Formula 1 British Grand Prix and my recordings, along with associated metadata, will be uploaded to the xxx storytelling platform for research purposes.

I understand that if at any time during the task I feel unable or unwilling to continue, I am free to leave. I understand that my participation in this study is completely voluntary, and I may withdraw from it at any time without negative consequences. In addition, should I not wish to answer any particular question, I am free to decline. Should I not wish to have any of my content publicly accessible, I can have the corresponding content removed. My name will not be explicitly linked to any research materials, and I will not be explicitly identified or identifiable in any report subsequently produced by xxx University and/or the xxx project.

I have read and understood the above consent to participate in this study. My signature is not a waiver of any legal rights.'

**Figure 3 Consent form (excerpt)**

The form also ensures participant’s rights to withdraw from the pilot and decline to answer any questions. Should any participant not wish to have any of his/her content publicly accessible or used by other participants, corresponding content will be removed upon request. This is enabled by the manifest feature described in Section 3.1.

### 3.3 Public experiment at live event

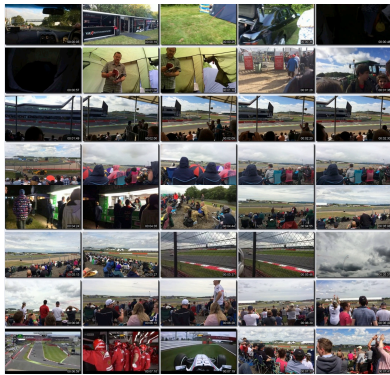
During the course of the experiments, composite stories were created and repeatedly edited by many individuals. One example demonstrates the experience of a group of participants through their personal and unique perspectives of the trip. The story was made by group 1 using 37 media assets and involved more than 100 revisions (Figure 4). It demonstrates how the storytelling platform assists users in creating an engaging story. Most of the content used for the story was originally captured by the same user group, though the storyteller did adopt footage shot by user group 2 with a great viewing angle about an evening event, which both user groups attended coincidentally.

In the user interviews participants suggested “*the true best way of watching the F1 race is to ‘sit at home and watch it on television’*”. They continued by saying that “*the official broadcasters have the best access to all viewing angles so that viewers can keep track of incidents and accidents during the race as well as the background stories from reporters, while people at the Silverstone circuit normally*

*have only the view of the race at a corner*". Our participants believe that *"the true F1 racing experience lies in the F1 atmosphere which gives you the experience of being with the crowd, enjoying the live sound of the F1 engine, walking on the F1 track, going to the evening events, etc."* The user feedback vindicates the design principles of our storytelling platform, which is not made to replace or challenge conventional broadcasters but to assist individuals or small communities in recreating their personal experience by assembling pieces of highlights at a live event. This observation illustrates the magnitude of the social and technological challenges on ethics for future creative media driven by the citizens and communities.

#### 4. CONCLUSIONS AND FUTURE WORK

Creative storytelling is becoming a popular medium for social sharing, hyper-local TV, and collective awareness. Through two storytelling user experiments, we recognized



**Figure 4 Silverstone Formula One user story**

that the challenges around ethics and copyright in managing user data are far more pressing than the technical feasibilities to implement a storytelling platform. We address this issue in our experiments using a specifically designed consent form stating our code of conduct. We also invested on technical features tailored to effectively maintain the life-cycle and dependencies of the narratives and composite stories created by the user community. But we are also aware of our limitations. It seems clear that we still have some way to go in thinking through the ethical consequences of our research – particularly in terms of “anticipatory technology ethics” and responsible research and innovation. In term of anticipatory technology ethics, we need to consider and reflect on ethical issues at a number of levels – most notably that of the overall technology, the particular artifact and the application level – a reflection that is likely to produce a range of anticipated ethical issues concerning such things, for example, as privacy, anonymity and the development of facial recognition software [Acquisti]. In terms of responsible research and innovation, our experiences in the trials have encouraged aspects of responsible design: the use of reflective practice; an emphasis on user participation and dialogue as an aspect of inclusion; a concern with values in

design and deployment and an awareness of the possibility of unintended consequences in deployment and evaluation as Grimpe et al. suggest, “as technology achieves greater potency and reach, then it would seem the designer’s conscience needs also to extend to take in the wider knock-on effects of their creations, and to consider consequences across a greater numbers of settings, people and circumstances in which unintended transformations are possible.” [Grimpe2014]

#### 5. ACKNOWLEDGEMENT

The work presented is supported by the European Commission within the FP7 Project STEER (grant no 318343) and FI-CONTENT 2 (grant no 603662).

#### 6. REFERENCES

- [Acquisti] <http://blog.ted.com/the-future-of-facial-recognition-7-fascinating-facts/>
- [Aristotle2007] Aristotle, The Nicomachean Ethics, Filiquarian Publishing, LLC, 2007.
- [Brey2000] Brey, P. Disclosive computer ethics. ACM SIGCAS Computers and Society, 30(4), 10-16. 2000
- [Brey2011] Brey, P. A. Anticipatory Technology Ethics for emerging IT. CEPE 2011: Crossing Boundaries, 13. 2011
- [Grimpe2014] Grimpe, B., Hartwood, M., & Jirotk, M. Towards a closer dialogue between policy and practice: responsible design in HCI. In Proceedings of the ACM conference on Human factors in computing systems. 2014.
- [Guimar2011] Guimarães, R., Cesar, P., Bulterman, D., Zsombori, V., and Kegel. I., Creating personalized memories from social events: community-based support for multi-camera recordings of school concerts, Proceedings of the ACM international conference on Multimedia, 2011
- [Kant1785] Kant, I. Groundwork of the Metaphysics of Morals. Wikisource. 1785
- [Kant1788] Kant, I. Critique of Practical Reason. Wikisource. 1788
- [Kelliher2014] Kelliher. A., Critical Multimedia. IEEE Multimedia, 21(4). 2014
- [Mill2010], J. S. Utilitarianism. Broadview Press. 2010
- [Saini2012] Saini, M., Gadde, R., Yan, S. and Ooi, W. MoViMash: Online Mobile Video Mashup. In Proceedings of the ACM International Conference on Multimedia. 2012
- [Stahl2014] Stahl, B. C., Eden, G., Jirotk, M., & Coeckelbergh, M. From Computer Ethics to Responsible Research and Innovation in ICT: The transition of reference discourses informing ethics-related research in information systems. Information & Management, 51(6), 810-818. 2014
- [Xie2014] Xie, L., Shamma, D., Snoek, C., Content is Dead ... Long Live Content: The New Age of Multimedia-Hard Problems. IEEE Multimedia, 12(1). 2014