

# Sensing and Making Sense: Collaborative Ethno- Methods of Content Creation

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**Abstract.** This paper presents a discussion of methodologies of studying contents creation. Its focus is on the meanings of ‘creation’ and ‘sensing’ from a real-world social perspective. Previous work on analyzing social interaction with technologies is briefly explored with suggestions for how this may apply to future research.

**Keywords:** Content creation, HCI, ethnomethodology, video-analysis, meaning, context, CSCW

## 1 Introduction

Networked sensing technologies are at the heart of revolutionary advances in the relationship between humans and their environment. The complementary development of research fields such as pervasive or ubiquitous computing [12] builds on this technology to create worlds in which humans create and access information in new ways. Though we may approach networked sensing research from a technical standpoint, the results of development will undoubtedly see radical changes occur in the social life of its users, which must also be assessed. Clearly, as is evidenced by the introduction of other technologies in history, the changes brought about by developments in networked sensing will be wide reaching. One of the aspects of social life affected will be ‘culture’, understood in this paper as both ‘everyday life’ and those parts of social life we often associate with the term: art, music and other forms of human expression.

This paper approaches the issue of networked sensing and contents creation from a particularly ‘social’ standpoint. I suggest that it is only by recognizing this side of the technology that the applications of our innovations and developments will be accepted and trusted by direct users and other members of the public.

## 2 Making Sense

‘Sensing’ in the context of sensor networks and contents creation has two meanings. The first is the more obvious (or overt) meaning of the collection of various types of data, which, in computerized form, can be analyzed, assessed and evaluated. Included in this type of data might be users’ location or orientation [5, 10], including the inference of gestures and other behaviors [1]. Sensors may be attached to bodies in order to provide additional knowledge for medical practice or assessment [9]. They are often hidden or ‘unobtrusive’, a benefit of which is that specific skills need not be learned in order to use them [13].

When we imagine these types of data combined with other forms, such as the type and rate of upload, downloading, creating or reading images in online environments, it is not difficult to see the potential transformative social effects. Some have raised concerns about the ever-increasing ‘surveillance’—of both public and private social space—that these types of sensor networks and databases might engender [8]. Yet, if used responsibly, there is great potential for human benefits, one of which will be the enablement of community-generated artistic expression and the creation of other content. Indeed there is great potential for the generation of data-driven ‘collective memories’ [4], which may form the basis for further expression.

There is, however, another meaning of ‘sensing’ in this research, which is less obviously ‘technical’: ‘making sense’. This is most obvious in the application of networked sensing, where users must make sense of the results of the sensing, of the existence of sensors, databases and interfaces. Particularly, when networked sensing is used in settings with more than one individual involved, users must make sense of the actions of other users and of their communication (both with humans and with computers) via sensors. Indeed, it has been argued that some human actions can only be made sense of by other humans [2], suggesting that only with analysis of human conduct can we see the whole picture.

Clearly, then, efforts must be made to examine this social aspect of networked sensing in the context of content creation. Users create content and make sense of others’ content. They may collaboratively produce content, reflect on it and engage with it in ways which will incorporate both sensing technology and social understanding. I therefore make two proposals. First, that analysis of behavior may fruitfully be driven by ethnomethodology, which is in a broad sense the study of how people make sense of the world [3], and second, that it should incorporate both social and technical aspects of use (or perhaps more radically, the ‘socio-technical’ [7]).

## 3 Methods

Published studies of computer use reflect the broad range of backgrounds, fields and disciplines that became interested in the interactions between computers and humans since the mid twentieth century. These include quantitative studies of use based on general social categories (such as gender, age etc), to detailed experimental observations of menu selection, mouse-click rate, eye movement etc. [11]

In addition to being of benefit to interface designers, the results of this type of sensing may be useful for the analysis of social interaction in groups. Examples may include the detection of particular speech patterns, which could help social scientists to pick up relevant speech extracts for later qualitative analysis. Networked sensing may also be of use to researchers in video based qualitative analysis, where data of location, orientation, gesture and speech could be combined, providing a fuller picture of human behavior than is often available.



Fig. 1. Users making sense of visualized data

I have conducted previous research that begins to explain the features of interaction with interfaces in small groups ('micro-communities'), from the perspective of ethnomethodology. This has suggested that the formation of the groups and their understanding of themselves is negotiated and mediated by the technology [6], but has so far focused on single interfaces (see Figure 1). The methods used—video-based conversation analysis in combination with log data from sensors—has proved to be productive in capturing the 'ethno-methods' of use and sense making. Future work will build on these methods, examining content creation in groups, and between different ages and identities. It is expected that this research will empower users to create meaningful and expressive content together.

#### **4 Discussion**

Networked sensing may be expected to influence all areas of social life including content creation. Human beings observably make sense of the world in different ways to the computerized analysis of sensor data. This paper has suggested that part of a research program into networked sensing and the creation of content must consequently take account of these different ways of making sense with sensors. IN

this way will we will more successfully aid the creation of meaningful, expressive content.

**Acknowledgments.** Part of this work was supported by CREST, JST.

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