Content Creation Activity Support by Networked Sensing (CCASNS)

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Abstract. Networked sensing will enhance and enrich content creation activities by capturing the daily activities of people with sensors embedded in the environment, through user interfaces or by Web applications. In this light the authors proposed a workshop called Content Creation Activity Support by Networked Sensing (CCASNS) for The 5th International Conference on Networked Sensing Systems (INSS08). This paper describes the background of this workshop and its objectives. The interests and topics of the conference organizers are also mentioned.

Keywords: Networked Sensing, CSCW, Ubiquitous, Wearable, Sensor network, Web mining, Recommendation

1 Introduction

Humans have been involved in creative activities for eons: drawing pictures on walls in caves and creating pots decorated with various patterns. Various creative tools have been developed: paintbrushes, chisels, canvas, and so on. Human creations have been distributed worldwide, and creative techniques and tools both have evolved. Various new creations have arisen from worldwide interactions. Recently, digital creative tools and creations supported by the use of computers and the Internet have been spreading. Not only the potential of creative tools but also the speed and scope of the distribution of creations have increased extremely.

With the evolution of these technologies, User Generated Content (UGC) has received much attention worldwide. Simply put, UGC refers to content that is created by ordinary people, not by, for instance, professional artists or journalists. At

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Wikipedia, Q&A sites, and social bookmarking sites, huge masses of useful content are being created collectively through the efforts of many people. Such a process is often called ‘collective intelligence’ or the ‘wisdom of crowds’. Numerous visual creations are being uploaded to YouTube or Flickr. And new creations are being stimulated by other creations. Fischer has designated such creativity as ‘social creativity’ which is caused by interactions among people [4].

Networked sensing is expected to help us create various kinds of content based on our daily life activities. Networked sensing encompasses not only real-world sensing technologies such as those found in tangible interfaces, ubiquitous computing, or wearable computing, but also mining technologies used in cyberspace such as webspaces or social networking services. People are expressing themselves and their feelings in various forms: text (e.g., journals and poetry), images (e.g., drawings, computer graphics and photographs), sounds (e.g., clapping, singing, playing musical instruments), videos (e.g., video-blogs of daily life) or combinations of these media with various annotations.

Networked sensing will enhance and enrich the content creation activities of people by capturing their daily activities by means of sensors embedded in the environment, through user interfaces or by Web applications. Sensor data mining and pattern recognition are also important technologies for recognizing user activities or conditions, such as their interests and social networks, and the subsequent adding of annotations to such content. The design of online spaces for creating communities will also influence users’ motivations and incentives. Combining virtual spaces and real-world workshops will accelerate content-creation activities by supporting users as they learn various expression methodologies. Users will be stimulated by the content of others and will create content collaboratively. Cultural programs, which shape user activities from the perspective of a media society, will actively support sustainable content creation.

2 Workshop Objectives

The First International Workshop on Content Creation Activity Support by Networked Sensing (CCASNS) will be held on June 16, 2008[1]. This workshop will be held in conjunction with The 5th International Conference on Networked Sensing Systems (INSS08) [3] in Kanazawa, Japan.

In this workshop attendees will share their backgrounds and discuss networked sensing, content-creation activities, cyberspace, real-world workshops and cultural programs. Demonstrations as well as support systems deployed for the workshop itself are highly welcome.

Topics of interest include, but are not limited to, the following:

- Networked Sensing for user activity sensing
    - Various sensor types
    - Sensor networking and databases
    - Sensor data integration, mapping or visualization
- Sensor data mining
    - Mining, aggregation and integration of spatial and temporal data

    - Stream data processing and mining
- Web mining
    - Text mining, language processing, extraction of information from the Web
- Support systems for creative activities
    - Support for music, image, or video creation
    - Location-based services and geographic information systems
    - Experiments and case studies of deployment or sensor network s
- Design of cyber or real-world activities
    - Cultural programs and workshop programs
- User Study and Analysis for better system design
    - Cultural probes
    - Participatory design
    - Ethnography and video-based analysis

Workshop organizing committee:

- Takuichi Nishimura, AIST, Japan
- Satoshi Kurihara, Osaka University, Japan
- Miwa Fukino, Matsushita Electric Industrial Co., Ltd., Japan
- Yoshiyuki Nakamura, AIST, Japan

Workshop program committee:

- Takeshi Sunaga, Tama Art University, Japan
- Shin Mizukoshi, The University of Tokyo, Japan
- Koichi Hori, The University of Tokyo, Japan
- Kosuke Numa, The University of Tokyo, Japan
- Hironori Tomobe, AIST, Japan
- Tom Hope, AIST, Japan
- Masahiro Hamasaki, AIST, Japan

With a view toward holding a successful workshop, Drs. Fukino and Nishimura had several discussions on the workshop topics, and some of their comments are presented in sections 3 and 4.

3 Interests of Dr. Fukino

I would like to discuss the features and social aspects of creative activities to clarify and share the technological aspects required of content creation activity support systems. The key point of such support systems is that they will be augmented by networked sensing carefully designed for social content creation activities.

3.1 Content creation activities (CCA)

Relationship between tool usability for CCA and expression capability

I am interested in the relationships between CCA tools, both hardware and software, and whether the tools are easy for everyone to use and have professional level quality. For example, conventional musical instruments or cameras may take a longer time to learn how to use them properly, but once such abilities are acquired, professional level performance can be achieved. On the other hand, electronic musical instruments and digital cameras have recently become easy to use for everyone. What kind of tool will be the target of our CCA support system?

What emotions accompany expression or appreciation?

At first, people would be rather very impressed by digital artwork created using brand-new CCA technology, but then they would quickly get used to it. One of the reasons for this is that it is technology that impresses people and not the variation of artwork. But new tools such as electronic musical instruments are the results of improvements to conventional analog tools. I am wondering if such new digital tools will stimulate creativity more than conventional tools and be able to create a variety of artworks with better expression.

Ability to appreciate artworks

Compared to non-professionals, professionals have a higher ability to appreciate artworks. A painter can identify the drawing media used when looking at a picture. A conductor of an orchestra can clearly appreciate the sound of each musical instrument. Can a non-professional person achieve such appreciation ability by using easy-to-use instruments? The appreciation ability of content consumers seems to be increasing gradually, but the question is how does it increase and what kind of framework is at work? Do we have richer emotions by acquiring higher appreciation ability? Human attention or consciousness may be related to appreciation ability.

Role of new media to pass "the way" (dou) onto others

A traditional Japanese master teacher personally leads and directs apprentices towards knighthood, samurai, and in some schools such as flower arrangement (kadou), tea ceremony (sadou), or calligraphy (shodou). In the learning process, not only the use of tools but also moral discipline is instructed. The Japanese term "dou," or "the way" to real mastery, is used for such schools. One can study using books or videos but the amount of information is much less than that received from a master. What are the crucial issues for CCA support systems to assume such roles in schools?

What kind of "way" (or "dou") should a person engaged in CCA acquire?

Recently we have become able to share and re-create large amounts of artworks on the Internet and networked sensors, but problems such as intellectual property rights and moral issues have also became larger. I think a new type of "dou" is necessary for wider social creativity.

3.2 About Content Creation Activity Support Systems

What kind of Support?

User preferences are an important element of CCA support systems. Amazon and LastFM utilize user logs for recommendations. But the analysis of human instincts related to primitive emotions should be considered important.And what

kind of information will support users' CCA? The system will supply what users demand. What else will stimulate users' imaginations and creative activities?

How to support CCA?

Are there any ultra bird's-eye views that would make the most of information from ubiquitous sensor networks and help us gain new user feedback? New methods for displaying and handling large amounts of information are also important. I would like to see some examples of these.

When is appropriate?

Appropriate timing is important for CCA support. Even if the support system can sense the user's situation and provide appropriate information for support, it is important that the support timing be annoyance-free.

4 Interests of Dr. Nishimura

4.1 Conventional Content Creation Processes

I am interested in conventional content creation processes for designing new CCA support systems. First, a model of the human system should be helpful. Humans have various abilities such as intelligence, physical abilities, and emotions. Abilities to feel, sense, think logically, create, and imagine are also related and have important roles for CCA. While enjoying CCA, humans interactively enhance or increase their abilities, and change their stance relative to life, morals, etc. Such models of human systems should be combined with social models because social collaboration and interaction have influenced social creativity throughout the world for eons. I think such models have been discussed in other research fields such as [5]. Moreover insights into communications, coaching theory, community practices, etc. would be helpful.

Creations may take many forms. And there are various fields in which to compete and share those artworks such as museums, school competitions and online sites. The design of such forms of artwork and the fields based on the content creation model mentioned above must be just as important as designing the tools for creation.

4.2 Content Creation Activity Support Platform

I think we need to define a detailed model of social creativity and the design of a CCA support system. But the system must be designed for various kinds of users of differing and changing roles. Users using the system and consuming artworks can be gradually navigated to create content themselves as shown in Figure 1. First users may just browse artworks, and then gradually begin to add comments or tags. Then they start creating themselves because of the impact of some artwork, invitations from their friends, encountering a nice couch, etc. Finally they may lead the instruction for novices and manage real-world meetings. The system includes augmented interfaces and content re-creation and co-creation media. This media must be carefully designed for the targeted users and purposes. The system should be modified by users, for users, and by system developers who will discover the hidden needs of users. Feedback from users is very important because the system cannot completely log all usage

interactions and users' intentions. The improvement process will continue according to the service phase until the end of the process's life.

I would like to discover a new platform for CCASNS. The system should be able to memorize the creation process and clarify intellectual property rights for created artworks. I am looking forward to discussing these topics.

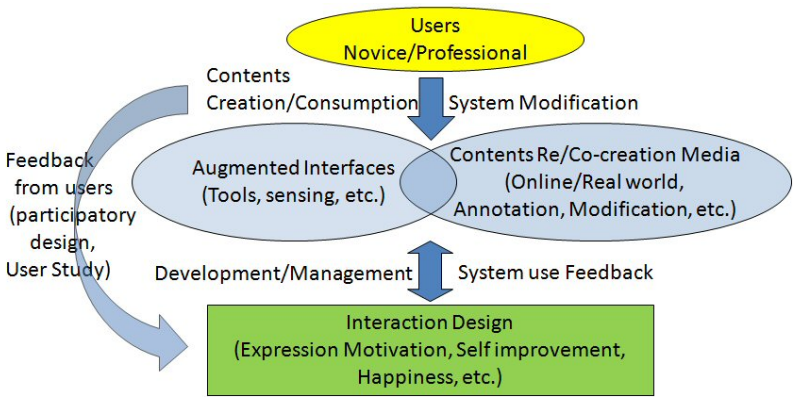

Figure 1 An example of a Content Creation Activity Support Platform

5 Conclusion

We must confess that we have not yet fully surveyed the content creation process and CCA support system. However, by the time our workshop is held, we intend to continue to investigate further and we hope to achieve a fruitful discussion with the help of professional attendees from various research fields.

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