Urban Sensoria @ NIME

From sounds of the city to sounds from the city

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ABSTRACT
This workshop will explore a mixed scenario consisting of two goals: (1) presentation of research that relates to urban sensing with a particular focus on sound, and (2) an exploratory-creative component to allow workshop participants to use novel ubiquitous computing technologies to explore an area of Seoul/Dajeon, collect information, and work on a creative project. The workshop will thus aim to attract research contributions that relate to novel interfaces for urban sensing, and to have a hands-on experience to explore the use of various technologies in a creative process. In both cases we will specifically target the senses (sight, sound, smell, etc.), placing a particular focus on the creation of sounds from an urban environment, while emphasizing urban cultural heritage.

INTRODUCTION
Ubiquitous technologies and devices for personal capture, recording, and interaction in urban environments have reached a new stage largely triggered by the advent of social media. The sensing of urban spaces, in the widest sense, is largely intertwined with creative processes and rapid spread of various kinds of information in social media—people often capture their experiences in order to share them. Two important aspects of this evolve around the possibilities in the creation of user-generated content using various sensors, and the cultural value that such information may contain when it is shared and interacted with in social media platforms.

One of the most interesting shifts in the use of ubiquitous and digital technologies for capturing experiences is the increase in the number of possible ways in which experiences can be captured and shared. On one hand, the use of a variety of sensors (e.g., from basic cameras, to motion, temperature, and other sensors) enriches the possibilities in the creation of content. On the other hand, the "mix" of information that can be captured can also lead to greater in-sitiu *observation* and creation possibilities. In this sense, we can regard ubiquitous sensors as observational tools. In the context of the city, such sensors can serve several purposes. As we interact with the city's urban environment, the sensors can help us highlight certain experiences. In addition they can help us document, share, and ultimately preserve: the media collected by individuals can be of significant value to cultural institutions in documenting many aspects of specific urban spaces.

Driven by these observations, our motivation for the workshop is to provide a forum that will foster the exchange of ideas and experiences in relation to certain urban sensing issues. These include exploration of technical possibilities, both for the creation of content and as observational tools in urban spaces, as well as to explore how a focus on the senses can increase cultural awareness through the use of technology. In addition, the workshop will explore the process and methodologies used in creative processes that involve urban sensing with ubiquitous computing technologies. In terms of "use cases" the workshop will focus on cultural preservation: the collective sensing experiences of an area of a particular city can serve to document the city's cultural makeup at a particular point in time and can be of significant value for preservation institutions (imagine the ability to explore a large collection of personal sensing experiences of Seoul in the 1800s).

The goal of this workshop is twofold. First, to explore the use of ubiquitous computing for personal urban sensing. In particular, we would like to provide the space for the presentation of tools, techniques, and methods that focus on experiencing urban environments through the senses, and in alignment with NIME, on how such tools can be used to generate sounds and music *from sensing the city*. Specifically, this includes techniques and devices to deal with elements perceived through the senses (sight, sound, smell, touch, taste, balance, direction, etc.). Second, the workshop will explore the use of such tools, techniques, and various processes for the creation of content, preservation, and sharing of experiences.

The first goal will be achieved through a call for papers and research contributions. The second goal will be achieved through a series of actual activities carried out in Seoul/Dajeon with a group of participants in the workshop.

In the following sections we describe the scope of the call for contributions, and the process and activities for the creative part of the workshop.

PART I: TECHNICAL CONTRIBUTIONS
We will solicit technical contributions on several topics, including the following: ubiquitous recording, multimodal interfaces and interactions, mobile devices and interfaces, media capturing and sharing, urban computing and media, tools and open source software for mobile devices, case and user studies (all with a focus on sound, possibly intermixed with other media).

Submissions will be reviewed by at least three members of the program committee. We will aim for high-quality research contributions.

PART II: CREATIVE EXPLORATION

In this section we will ue the name Urban Sensoria in *italics* to refer to the creative part of the worksop. *Urban Sensoria* is an experimental method of experiencing and exploring the city. It is also a theoretical inquiry into cities, culture, memory, experience, and how it relates to traditional media and new technologies.

Urban Sensoria Concepts
The concepts that follow underlie the creative part of the workshop.

The City and Culture
The city is a physical representation of culture: the materials, the smells, the colours, the surfaces are all cultural manifestations. Culture is both the interface through which we sense everything and the machine through which the city is created and transformed. Each physical area develops its own unique forms. The initial layout of the city sets a stage, a breeding ground for things to grow. The city grows like the roots of a tree, in many directions, molded by the initial layout and local culture. The city is created by a multiplicity of individual expressions that influence each other and create a unique identity. An area of the city is a collective self, constantly evolving.

Senses and Memory
The city is experienced through the senses, but our sensory experiences are shaped and filtered by culture, so the city is an infinitely personal experience that exists as a memory that constantly changes as we experience it over and over again. Memory input depends entirely on the senses, and thus the city itself is a collection of sensed memories. But it is not a random or complete, methodical collection. Rather, it is a collection shaped by our own individual selves. A city is unique to every individual or group of individuals. The connection between the (collective) self and the city, whether by choice or by accident (nobody chooses their first city) is often inseparable. Memory is not of things past, it is of things present as it shapes what we sense and how we sense it. It determines everything we experience.

Self and Experience
A new city is experienced, inevitably, as seen through the self and compared with the cities that have shaped that self. This connection between the self and the city is what makes us identify with a particular physical space of a particular city. But the sensory experience of the city can be determined by many different factors: we can choose a form of navigation (walking, running, driving, flying, crawling), and a speed (slow, medium, fast), and we can choose a sensory focus (smell the city, observe it, listen to its sounds, to strangers' conversations). We can also determine how we navigate through the city-we may explore it randomly given its physical constraints, follow shortest paths to reach places, look for markers or monuments, or simply follow sensory intuition (how many times have you followed smells in a city?).

Urban Sensoria Process
The creative part of the workshop consists of a series of meetings and explorations in a section of the city. The specific details of the schedule are flexible and will be arranged based on space and scheduling constraints. The general process, however, is described next.

- There is a first meeting in which the basic concepts above are presented by the organizer. In addition, there will be a presentation of the tools available for participants in the workshop. These may include, for example, tools described in the technical part of the workshop (e.g., authors may submit a paper describing an application and it could be used in the creative part of the workshop). At this first meeting, a geographic area of the city is often selected (e.g., an area of a few blocks, often of important historical significance).

- After the first meeting, participants go outside to "explore" the selected area of the city, documenting and creating content. Participants may do the exploration in small groups or individually

- Subsequently, the group meets and people share their experiences in "exploring" the city, and their experiences with the technology used. In addition, they "edit" the content gathered and work towards creating something tangible with it.

- The process repeats: exploration, meeting, exploration. By the end of the workshop, participants will have created a project and used technology to document and collect "experiences."

The outcomes of the creative part of the workshop vary depending on the tools used, and the interests of the individuals. The results in previous workshops have ranged from "simple" photo essays, to blogs, to interactive installations, interactive maps, and videos, among others. In all of the workshops attendees tend to generate a significant amount of materials (GPS traces, photos, videos, sound recordings), and use various tools to process them.

For this NIME-specific workshop we will emphasize sounds, either as sensory *inputs* or *outputs*.

Previous Workshops
The *urban sensoria* creative workshop has been held in Tokyo, Barcelona, Singapore, Medellin, Manizales, and Oulu. These have been held in conjunction with major new media art festivals (ISEA, BAC, Festival Internacional de la Imagen, etc.). This is the first time, however, in which the workshop is proposed as a mixed workshop that has two components (technical *and* creative).

WORKSHOP ATTENDEES

Previous *Urban Sensoria* workshops have had participants ranging from 15 to 50. For the creative workshops, there are no specific requirements in terms of area of expertise. The workshops have been inter-disciplinary, with an interesting mix between new media artists, engineers, architects, and people with no technical background. For the technical part of the workshop we expect the "traditional" audience of NIME, so there are no special restrictions. We will, of course, welcome participants who wish to build their own mobile "apps" or systems and use them actively during the creative part of the workshop.

Organizer Bio

Alejandro (Alex) Jaimes is an artist and research scientist in Human-Centered Computing. At Yahoo! Research in Barcelona he manages the Social Media Engagement and Learning for Multimedia and Vision groups. He created the *Urban Sensoria* workshop in 2005 initially as part of Urban Typhoon Workshop- an interdisciplinary workshop dealing with culture and urbanism. Among other projects, at Yahoo! He leads ARCOMEM, a European IP project that focuses on cultural preservation. His technical interests include social and human-centered computing, data mining and machine learning, social network analysis, user modeling, user engagement, multimedia experience, camera-based interaction, and appropriate technology and emerging markets. Dr. Jaimes is the founder of the ACM Multimedia Interactive Art program, chair of the WWW 2013 Practice and Experience track, Industry Track chair for ACM RecSys 2010 and UMAP 2013/2009, and panels chair for KDD 2009. He was program co-chair of ACM Multimedia 2008, co-editor of the IEEE Trans. on Multimedia Special issue on Integration of Context and Content for Multimedia Management (2008), and a founding member of the IEEE CS Taskforce on Human-Centered Computing. His work has led to over 70 technical publications in international conferences and journals, and to numerous contributions to MPEG-7. He has been granted several patents, and serves in the program committee of several international conferences. He has been an invited speaker at Practitioner Web Analytics 2010, CIVR 2010, ECML-PKDD 2010 and KDD 2009 and (Industry tracks), ACM Recommender Systems 2008 (panel), DAGM 2008 (keynote), 2007 ICCV Workshop on HCI, and several others. Before joining Yahoo! Dr. Jaimes was a visiting professor at U. Carlos III in Madrid and founded and managed the User Modeling and Data Mining group at Telefónica Research. Prior to that Dr. Jaimes was Scientific Manager at IDIAP-EPFL (Switzerland), and was previously at Fuji Xerox (Japan), IBM TJ Watson (USA), IBM Tokyo Research Laboratory (Japan), Siemens Corporate Research (USA), and AT&T Bell Laboratories (USA). Dr. Jaimes received a Ph.D. in Electrical Engineering (2003) and a M.S. in Computer Science from Columbia U. (1997) in NYC.