

SONICFIELDS:
Online Soundscapes

by
AHMET GÜZERERLER

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ABSTRACT

SONICFIELDS:

Online Soundscapes

Ahmet Güzererler

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Keywords: Sound, Soundscape, Internet, Multimedia Browsing, Collective Intelligence

This research introduces Sonicfields, which is an online three-dimensional interactive web application.

Sonicfields is a collection of user-generated soundscapes that are designed by placing sounds into 3-D virtual spheres. These sonic-spheres are generated and shared with community by the registered users. Sonicfields provides an experience of exploration through dynamic space that consists of acousmatic* soundscapes that appear and disappear according to the navigational pattern of a user.

* Michel Chion describes the term in "Guide to Sound Objects." Acousmatic as "a rare word, derived from the Greek, and defined in the dictionary as: adjective, indicating a noise which is heard without the causes from which it originates being seen." (Chion, Michel. "Chion, Michel - Guide to Sound Objects." Scribd. <http://www.scribd.com/doc/19239704/Chion-Michel-Guide-to-Sound-Objects> (accessed August 2, 2010).)

Internet is a massive and constantly growing database. As a consequence of the growth in the content of Internet, browsing through this massive multi-media database is increasingly becoming more exhausting and time consuming. Eventually, the act of browsing is turned into an act of meandering.

Sonicfields provides an intuitive exploration through intelligently managed content based on the navigation path of the user. Sonicfields is a developing experiment and a prototype for a new generation of media/content browsing platforms that aim to be intuitive and intelligent. This research will analyze Sonicfields' collective intelligence driven content management system as well as its theoretical background.

ÖZET

SONICFIELDS:

Çevrimiçi Ses Ortamları

Ahmet Güzererler

Y.L., Görsel Sanatlar ve Görsel İletişim Tasarımı

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Bu çalışma, üç boyutlu etkileşimli bir web uygulaması olan Sonicfields'ı tanıtmaktadır.

Sonicfields, kayıtlı kullanıcıların sanal üç boyutlu uzayda, yüklediği sesleri yerleştirerek oluşturduğu ses ortamlarından oluşmaktadır. Kayıtlı kullanıcılar tarafından oluşturulan ses ortamları/küreleri sanal komünite ile paylaşılır. Sonicfields, ziyaretçilerine kayıtlı kullanıcılarının yarattığı ses kürelerinden oluşan sanal üç boyutlu uzayı dinamik olarak ziyaretçinin seyir rotasına göre yeniden yaratarak ona has bir ses deneyimi yaşatır.

İnternet içeriği sürekli büyüyen küresel bir veritabanıdır. İnternet içeriğindeki sürekli büyümenin sonucu olarak bu devesa multimedya veritabanında tarama giderek yorucu olmakta ve zaman almaktadır.

Sonicfields, kullanıcılarına kullanıcıların tarama rotalarına göre düzenlenmiş sezgisel bir içerik tarama deneyimi sunar. Sonicfields, hâlâ gelişmekte olan yeni nesil sezgisel multimedya/içerik tarama deneyi ve prototipidir. Bu çalışmada Sonicfield'ın teorik altyapısı ve kolektif zeka tabanlı veritabanı yönetim sistemi analiz edilecektir.

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INTRODUCTION

Prior to the Industrial Revolution and the development of industrial devices, the aesthetic elements regarding sound were limited; and noise, which is traditionally defined as “sound: especially one that lacks agreeable musical quality or is noticeably unpleasant” was not regarded as an aesthetic sonic feature. With the physiological, structural, and cultural changes brought about by the industrial age, regular/random sounds began to be considered as a potential bearer of aesthetic elements. These changes resulted in the introduction of new terms such as “Sound Object”, “Sound Event”, “Soundscape” etc.

My project, titled Sonicfields explores not only the various possibilities brought about with this shift in the conception of ‘the sonic’ but, also the role of the emerging web technologies and user interactions in this context. Sonicfields is a virtual soundscape design and sharing environment that offers a distinctive soundscape navigation experience through pre-existing user generated sonic-spheres. A user of Sonicfields experience registered users’ soundscapes by hovering around sonic-spheres. As the *flâneurs* of the nineteenth century was idly wandering through the cities, sonic *flâneurs* wanders through the virtual soundscapes. These sonic-spheres appear and disappear due to the dynamic architecture of Sonicfields and recall sonic-spheres from the databases according to collective intelligence based sonic-sphere categorization system. Sonicfields has a dynamic structure that enables users to construct their sonic space indirectly while they are exploring the Sonicfields, with their own routes. In the scope of this thesis, Sonicfields will be explored according to the theoretical bases of soundscape, virtual space exploration and collective intelligence.

With a brief introduction to the definitions and basic developments of the notions of noise, sound object and soundscape, the first chapter of this study starts with a study on the impact of Industrial Revolution on society and arts. As an outcome of this impact, the relevant aspects of the Futurist movement are discussed. Thus, providing a general historical context and a conceptual framework, developments in electroacoustic technologies such as sound generation and recording technologies are cited in order to

understand the relevance on the emerging acoustic ideas. The chapter continues by exploring the notions of sound object, soundscape and provides a frame for the analysis of contemporary personal soundscapes. It concludes by arguing that breaking the schizophonia (concept of schizophonia will be explained in chapter one) of contemporary society could be achieved by interactive soundscapes.

The following section of the study takes Charles Baudelaire's concept of *flâneur* and traces the possibilities to adapt it to contemporary use of the World Wide Web. Contemporary Internet structure and its users are analyzed in the context of *flâneur* referencing to both Charles Baudelaire and Walter Benjamin in order to understand the explorers of cyberspace and navigation paradigms at cyberspace. It is argued that the *flâneur* is revived in Cyberspace where static web users can be claimed to be the reincarnation of Walter Benjamin's *flâneur*, whereas social-web users are the reincarnation of Baudelaire's *flâneur*. This chapter also introduces notion of *sonic flâneur* and examines its theoretical background.

Relating the socio-historical analysis of the changes in the sonic realm with the idea of *flâneur* to form my project's conceptual background, this study goes on to explain the technical features of Sonicfields. This chapter especially underscores the offered intuitive navigation approach that is based on collective intelligence and participation. Social exploration of web and collective intelligence is further analyzed in an attempt to stress upon the fact that Sonicfields comes to signify an *approach* to navigating through and exploring the media in an age where there is overwhelming production of data. The research is concluded by explaining the contributions of Sonicfields to the current Internet exploration paradigms and discussing possible future features that can be added to Sonicfields.

CHAPTER 1

Noise, Sound Object and Soundscape

1.1 Introduction to Noise and Sound

This limited circle of pure sounds must be broken, and the infinite variety of “noise-sound” conquered.¹

Industrial revolution introduced mechanized factories as new means of production and industrial mass production. These factories were the first social encounter with industrial machines, their massive power and machine noise. The noise of industrial machine was striking and horrifying. As a consequence of Industrial Revolution and new means of production, social structure and urban culture changed. Industrial Revolution initiated mass production, machination of humanity, rapid acceleration on technological developments and the age of massive unity and standardization. All of stated changes led to the rise of a new society and new aesthetics. Mechanization in the production became the driving force of the economy as well as the changes in cultural and social structure. The shift in working conditions and working methodology of masses led to massive standardization and automation.

¹ Russolo, Luigi. "The Art of Noise." Scribd.
<http://www.scribd.com/doc/1280/The-Art-of-Noise> (accessed August 2, 2010).

Employees from different professions working in the same industrial setting, i.e. factories were treated under the same legislations, which would result in a process of automatization and homogenization that was similar to the standardized products produced by the factories. This phenomenon also caused the homogenization of labor, therefore generating the idea for possibility of Equivalence.

In 1905, Industrial assembly line was constructed and implemented at Ford Motor Company in Detroit, USA and spread through the factories of the world because of its contribution to the production capacity.

In the assembly line, each worker had to execute only one specific instruction; she must repeat the same action all week continuously. The repetition process provokes in the workers phenomena of alienation and detachment from the product...²

Processes of standardization and production improvements at the factories led to the automatization of workers' task and transform them to 'robot' like entities.

It is just the intersection or the interaction between fields and contexts of art, popular culture, science, and technological development in which circulates ideas and concepts of artificial life, super machine, super man and mechanized man that are associated with and articulated by a concept of robot. Asimov's introductory definition of a robot is simple enough, and generally acceptable. A robot is, according to him 'an artificial object that resembles a man.'³

The products of factories are detached from their creators –the workers. The product

² Dolan, Edwin G. "Alienation, Freedom, and Economic Organization." *Alienation, Freedom, and Economic Organization* 79.5 (1971): 1084-1094.

³ HORÁKOVÁ, Jana. The (Short) Robot Chronicle. On the 20th Century Cultural History of Robots. In I.Rudas ed. 15th International Workshop on Robotics in Alpe-Adria-Danube region. Proceedings. Budapest : Budapest Tech., 2006. ISBN 9637154485, pp. 241-248. 2006, Balatonfüred, Hungary. 191

that is in production - in this context of alienation and detachment - is no longer significant for workers because of their limited participation –each worker producing same parts of the multiple products- and the absence of his/her creative input.

Man became the extension of machine and likewise machine became the extension of man. Shift in the working style and obligatory dependency to machines affected the whole social physiology and social structure. Farmers of the past became the members of the standardized proletarian class and the residents of the newly restructured cities. “[C]ity immigration rates would have declined inevitably from the high levels achieved early in the First Industrial Revolution...”⁴

Futurist Manifesto by F. T. Marinetti, is written as a ‘modern’ answer to the re-emerging questionings about new aesthetics, the new relationship with the machines and the emerging new social structure of the new era. In Futurist Manifesto, Marinetti adored the power and speed of the machines, and ‘machinic’⁵ aesthetics as well, and he proposed humanity to be like machines, powerful and perfect.

We declare that the splendor of the world has been enriched by a new beauty: the beauty of speed. A racing automobile with its bonnet adorned with great tubes like serpents with explosive breath... a roaring motor car which seems to run on machine-gun fire, is more beautiful than the Victory of Samothrace...

We will glorify war - the world's only hygiene - militarism, patriotism, the destructive gesture of freedom-bringers, beautiful ideas worth dying for, and scorn for woman.⁶

The movement had spread to all the mediums in arts; in 1907 Ferruccio Busoni

⁴ Williamson, Jeffrey G.. "the importance of being a young adult." In *Coping with City Growth during the British Industrial Revolution*. New Ed ed. New York: Cambridge University Press, 2002. 38

⁵ Machinic: related with machines; from Marriem Webster Dictionary

⁶ Marinetti, F.T. "The Futurist Manifesto." University of Michigan, Center for the Study of Complex Systems. <http://cscs.umich.edu/~crshalizi/T4PM/futurist-manifesto.html> (accessed August 2, 2010).

published *Sketch for a New Aesthetic of Music* where “he discussed the use of electrical and other sound sources”⁷. Noises, primarily machine noise was enforcing the acoustic art traditions. Two years later, in 1909, an inspirational artist Luigine Russolo, originally painter wrote the manifesto called, 'The Art of Noises' in the context of Futurism. Manifesto introduces noise-sounds to the world of sonic arts. After the first wave of the industrial revolution, all the people especially those in the cities of industry, were exposed to overpopulated and overwhelming noises of machines which of none has existed a century ago.

“The little town of Verriesres must be one of the prettiest in the Franche-Comte. Its white houses with their steep, red tile roofs spread across a hillside... Scarcely inside the town; one is stunned by the racket of roaring machine that is frightful in its appearance. Twenty ponderous hammers, falling with a crash, which makes street shudder.”⁸

The presence of the machines were emphasized and materialized with their noises. Even though they were closed in the factory and not able to be seen from outside, their noise was all over the city. The vast change at the habitual soundscape through the new produced enhanced the acoustic vocabulary of humanity. Russolo argued that the limited range of musical instruments could no longer satisfy the modern acoustic thirst.⁹ He published the manifesto called ‘The Art of Noise’.

Ancient life was all silence. In the nineteenth century, with the invention of the machine, Noise was born. Today, Noise triumphs and reigns supreme over the sensibility of men.... This musical evolution is paralleled by the multiplication of

⁷ Bassingthwaite, Sarah L . "ELECTROACOUSTIC MUSIC FOR THE FLUTE ." Chapter II A BRIEF HISTORY OF ELECTROACOUSTIC MUSIC. <http://www.subliminal.org/flute/dissertation/ch02.html> (accessed October 2, 2010).

⁸ Schafer, R. Murray(Author). "The Industrial Revolution." In *The Soundscape: Our Sonic Environment and the Tuning of the World* [SOUNDSCAPE] [Paperback]. Dallas, TX: Destiny Books, 1993. 73.

⁹ Bozzolla, Angelo, and Caroline Tisdall. *Futurism* (World of Art Library). New York: Thames & Hudson, 1985. 114

machines, which collaborate with man on every front. Not only in the roaring atmosphere of major cities, but in the country too, which until yesterday was totally silent, the machine today has created such a variety and rivalry of noises that pure sound, in its exiguity and monotony, no longer arouses any feeling.... This limited circle of pure sounds must be broken, and the infinite variety of “noise-sound” conquered.¹⁰

1.2 Sound Object and Soundscape

The inventions and developments of electro-acoustic devices together with the emerged ideas opened a new era for sonic theory and creations. Following the developing electoro-acoustic technologies, during 1960s and 1970s, two fundamental interdisciplinary terminologies for sound analysis were invented: the notions of “sound object” (*l’object sonore*) and “soundscape”. Both “have three functions: description, explanation and interdisciplinarity”¹¹.

Electro-acoustics is a science that deals with the transformation of acoustic energy into electric energy or vice versa. The first electro-acoustic device - an electronic sound generator- was a non-musical instrument, telegraph invented during eighteen hundreds. At the end of ninetieth century and beginning of twentieth century, telephone, phonograph - which is the first sound recorder - and radio were invented. As a consequence of concepts in music, Leon Theremin in Leningrad introduced Theremin - one of the first electronic instruments.

The first commercial magnetic sound recording device, which was called "Magnetophon" introduced in 1935 by Allgemeine Elektrizitäts Gesellschaft (AEG). These electroacoustic devices were expanding the capabilities and imagination of

¹⁰Russolo, Luigi. "The Art of Noise." Scribd.
<http://www.scribd.com/doc/1280/The-Art-of-Noise> (accessed August 2, 2010).

¹¹Sonic Experience: A Guide To Everyday Sounds. illustrated edition ed.
Montreal: McGill-Queen's University Press, 2006. 3

artists. Each device was a totally new instrument to be explored. In 1939, while teaching at the Cornish School in Seattle, John Cage composed *Imaginary Landscape no.1*, which can be considered as the first composition to use electronically generated sounds. The composition contains sounds from muted piano, cymbal, and two variable-speed turntables playing records of test tones.

The Industrial Revolution introduced a multitude of new sounds with unhappy consequence for many of the natural and human sounds which they tended to obscure; and this development was extended into a second phase when Electronic Revolution added new effects of its own and introduced devices for packing sounds and transmitting them schizophonicly across time and space to live amplified or multiplied existences.¹²

Electro-acoustic equipments separated the sound from its original source and context. We discover much of what we hear was in reality only seen and explained by the context".¹³

This new opportunities in sound offered to creative artists and presented people the possibility of recording sounds of any kind, playing them repetitively, to edit and mix them with other sounds in any chosen context.

Radio technology provided the means for transmission of pre-recorded sound through very long distances compared to the natural penetration distance of sound. The radio sound could be disseminated across the globe. Electroacoustic offered the capability of detaching the sound from its original context in terms of space, time and source. This detached electroacoustic sound became de-contextualized and was able to be turned to a pure listening experience without any contextual references such as social, habitual references.

¹² Schafer, R. Murray(Author).The Soundscape: Our Sonic Environment and the Tuning of the World [SOUNDSCAPE] [Paperback]. Dallas, TX: Destiny Books, 1993. 71

¹³ Chion, Michel. "Chion, Michel - Guide to Sound Objects." Scribd. <http://www.scribd.com/doc/19239704/Chion-Michel-Guide-to-Sound-Objects> (accessed August 2, 2010). 11

Before electroacoustic devices, natural sound was containing habitual references such as the listener's environment, time of occurrence, original source and space. For example, one can intuitively assume that when a bark is heard, there is a dog nearby. This intuitive inference helped humanity to survive through ancient world, but in the contemporary electroacoustic society this inference is no longer valid. Today, electroacoustic technologies enable sounds to be carried, stored, re-mixed, replayed, altered, enhanced and detached from its source and environmental context both in real-time and in off-time. R. Murray Schafer named the separation of the sound from its original source by its reproduction of the sound through electroacoustic devices as schizophonia. "Schizophonia" refers to the split between the original sound and its electroacoustic transmission or reproduction.¹⁴

When you listen radio, you are a witness of the everlasting war between idea and appearance, between time and eternity, between human a divine... radio ...projects the most lovely music without regard into the most impossible places...¹⁵

Naturally, reproduction of a sound or its electroacoustic transmission through electroacoustic equipment only generates an acousmatic sound. Acousmatic, a rare word, derived from the Greek, is defined in the dictionary as: adjective, indicating a noise which is heard without the causes from which it originates being seen."¹⁶

By definition, there is no visual information regarding to the sound source and environment for the acousmatic sound, therefore the sound is not directed towards to visual context by the visual information.

Greek masters also used acousmatic situation to disturb the visual attention by absence

¹⁴ Schafer, R. Murray(Author). "The Industrial Revolution." In *The Soundscape: Our Sonic Environment and the Tuning of the World* [SOUNDSCAPE] [Paperback]. Dallas, TX: Destiny Books, 1993 . 90

¹⁵ Schafer, R. Murray(Author). "The Industrial Revolution." In *The Soundscape: Our Sonic Environment and the Tuning of the World* [SOUNDSCAPE] [Paperback]. Dallas, TX: Destiny Books, 1993 . 92

¹⁶ Ibid.

of the speaker. As discussed in the case of schizophonia, which means reproduction of the sound by electroacoustic equipment, electroacoustic reproduction sound detaches a sound from its occurrence time, space and source. Hence, in the case of ancient Greek, acousmatic experience cannot detach sound from the belonged time and space. Therefore the acousmatic situation is much more enhanced by the electroacoustic equipment.

“Acousmatic situation changes the way that we hear. By isolating the sound from the “audio visual complex” to which initially belonged, acousmatic listening creates favorable conditions for reduced listening which concentrates on the sound for its own sake, as sound object, independently of its causes or its meanings (although reduced listening can also take place, but with greater difficulty, in a listening situation.)”¹⁷

In an audio-visual complex, the dominance and restriction by visual information over auditory perception obstructs sound events to be listened without any contextual references. Therefore sounds cannot be listened for sound own sakes. Hence, “the acousmatic truly allows sound reveal itself in its dimensions.”¹⁸

The perception of the sound is restricted with the environmental references of the visual; the use of Foley recordings at movies/animations is a good example for this. When the audience watches an explosion, they do not think about crash of woods, even though they hear it: the visual context affects the perception of sound. The sounds cannot be listened and analyzed independently of the visual context. Therefore in such a situation sound becomes the extension of the visually presented space.

Acousmatic sounds open the way to “reduced listening” according to Pierre Schaeffer. He defined reduced listening as a mode of listening where the sound exists as a sound object for the sake of sound by removing its real or supposed source and the meaning it may convey. Reduced listening is a mode of listening where one only experiences the

¹⁷ Ibid.

¹⁸ Chion, Michel, Claudia Gorbman, and Walter Murch. *Audio-Vision*. Columbia: Columbia University Press, 1994.

sound object, not the sound body, not the content of the sound nor the context that the sound belongs.

Therefore ideal “*reduced listening*” is an exceptional mode of listening; in order to achieve reduced listening, one must clear all of the habitual references from the sound or combination of sounds. Sound carries these references within itself; these references cannot be totally ignored and eliminated by training. But listener can shift her/his interest and attention from sound to sound object. Reduced listening emerged as a new mode of listening after development of sound recording technologies. On the other hand, reduced listening also initiates questions about the source and the environment of the recorded sounds. Therefore reduced listening can only be achieved by training via repetitive listening of the same sound events through electro-acoustic equipment.

Pierre Schaeffer presented the term “Sound Object” in the theory of *Musique Concrete*. Sound object basically is a sonic experience that can be only archived through reduced listening. Sound object is not sound body or the referential information that it contains. It is the experience that one gets while listening to the purified¹⁹ sound through reduced listening. “There is no sound object: there is a perception, an auditory experience, through which I aim another object.”²⁰

Since sound object is a personal experience, there is no unique and single definition or classification. Sound objects are classified by their identification that refers to the higher level of context, and sound objects are described by their structural elements. In order to define and classify sound objects Pierre Schafer led the research on sound objects and published “A Guide to Sound Objects”.

¹⁹refers to the sound experience achieved by reduced listening; not trying to gather referential information; listening the sound

²⁰Chion, Michel. "Chion, Michel - Guide to Sound Objects." <http://www.scribd.com/doc/19239704/Chion-Michel-Guide-to-Sound-Objects> (accessed August 2, 2010). 4

Schafer constructs a sound environment as one would a musical composition – a masterpiece of nature. In this sense, term soundscape does not simply refer to a “sound environment”; more specially, it refers to what is perceptible as an aesthetic unit in a sound milieu.²¹

The term soundscape was coined by R.Murray Schafer for describing one’s sonic environment that contains every random sound that presents at the moment. Soundscape is an interactive environment; it is a field of sonic interactions. Travelling through physical soundscape is like taking “snapshots of sound”. The listener intuitively listens to the sounds to understand the environment, and the questions concerning the environment prevent the listener to be in the state of reduced listening. Through a soundscape, every sound event gathers and concludes a composition. “Soundscapes are always variable in space and time, and can be viewed from a global to a local situation.”²² The position of the listener also interacts with the perceived soundscape since it is combination of sound events in the 3-D space; for any listener every point is a different experience since every sound will be perceived as different points in 3D space; each point has its own composition.

In any perceived sound complex, the smallest sound piece that cannot be winnowed is called sound event. The term “Sound Event” is different than “Sound Object” since sound object is self-sufficient, independent from context and without any interaction with the environment or other sound complexes; the term “Sound Object” is like a laboratory specimen. Therefore, soundscape is a combination of sound events that create a contextual composition. Soundscape is always a reference to the sonic environment; it is a “snapshot of sounds”. Soundscape is a combination of interacting sound events in the space.

²¹ Sonic Experience: A Guide To Everyday Sounds. illustrated edition ed. Montreal: McGill-Queen's University Press, 2006.4

²²Raimbault, Manon, and Danièle Dubois. "Cities." Urban soundscapes: Experiences and Knowledge 22, no. 5 (2005): 339-350

1.3 Interactive Sound/Soundscape

In modern cities, there is a longing for private space, including sound environments. Most of the private sound space has been lost with the emerging of highly populated cities that bring their own chaotic sound as background and rhythm to people's lives.

This chaotic city sound, in terms of the oppositional dialectic of countryside versus the city that has been introduced at the beginning of this research, is less natural and more artificial. It is a reflection of the alienated life in a soundscape that is no longer linked to its origins. In terms of sound environment, the high use of portable music players such as smart phones and portable mp3 players can be considered as a result of the longing for a private space in a cityscape that deprives its individuals of any isolation and privacy. These devices create sound walls, like portable rooms or personal/portable muzak²³,

Radio, as has already been stated in the previous section, creates a schizophrenic situation by separating the sound and the source. Although the mentioned portable electro-acoustic technologies are state of art, they are being used as contemporary versions of Walkmans²⁴ that creates a phenomenon of schiziphonia due to the formation of a separation between the individual and the environmental soundscape/context within which the individual operates.

Sonicfields is an interactive digital environment that enables an experience of wandering through user-generated soundscapes. Although Sonicfields uses

²³ Schafer, R. Murray (Author). *The Soundscape: Our Sonic Environment and the Tuning of the World* [SOUNDSCAPE] [Paperback]. Dallas, TX: Destiny Books, 1993. 96

²⁴ Walkman refers to portable music listening units such as Ipods, Phones, portable mp3 players

recorded/uploaded sounds, it is not a schizophrenic environment. The sound complex is produced immediately during the creative/causal interaction of the user/listener within Sonicfields. Sonicfields merges the roles of production and consumption by eliminating the division of labor and promoting the new figure of consumer/user/creator.

CHAPTER 2

Data Flâneur

2.1 Birth and Evolution of the Flâneur

The modern city originated new roles for its urban residents. Charles Baudelaire notifies a distinctive character among others, the *flâneur*. The concept of *flâneur* – stroller, idler, walker - was outlined by Baudelaire in *The Painter of Modern Life*, 1864. After him various philosophers and writers examined the urban culture and redefined *flâneur* as it changed. Urban *flâneur* was commonly characterized as an idle intellectual and free probe that was a well-dressed man, strolling leisurely through the Parisian arcades at the nineteenth century with the aim of experiencing the city and definition may continue as, “a shopper with no intention to buy, an intellectual parasite of the arcade. Traditionally the traits that mark the *flâneur* are wealth, education, and idleness.”²⁵

In this chapter an analogy between the Internet user and *flâneur* will be drawn.

²⁵Lindgren, Simon. "Walter Benjamin and the Virtual: Politics, Art, and Mediation in the Age of Global Culture." *Transformations* November, no. 15 (2007). http://www.transformationsjournal.org/journal/issue_15/editorial.shtml (accessed August 2, 2010).

Historical evolution of Internet and *data flâneur* will be discussed based on the structural and techno-cultural examinations.

Baudelaire defined the *flâneur* in 1864 as:

The crowd is his - *flâneur's* - element, as the air is that of birds and water of fishes. His passion and his profession are to become one flesh with the crowd. For the perfect flâneur, for the passionate spectator, it is an immense joy to set up house in the heart of the multitude, amid the ebb and flow of movement, in the midst of the fugitive and the infinite. To be away from home and yet to feel oneself everywhere at home; to see the world, to be at the centre of the world, and yet to remain hidden from the world - impartial natures which the tongue can but clumsily define.²⁶

Flâneur evolved together with urban culture. In the nineteenth century modern cities were still young, *flâneur* was described by a passion and ambition for becoming one with the city. As the urban life was getting mature, the notion of culture of unity changed with realization of the self. After fifty years self-aware *flâneur* explicitly refused to be one with the crowd. Walter Benjamin defined the *flâneur* as:

Empathy is the nature of the intoxication to which the flâneur abandons himself in the crowd. He enjoys the incomparable privilege of being himself and someone else as he sees fit. Like a roving soul in search of a body, he enters another person whenever he wishes.²⁷

In the middle of the nineteenth century, urban city was at a premature state; the rural culture did not place completely with the modern urban culture. For this transition a better understanding of the urban city was needed. *Flâneur* was a key element for

²⁶"Social Space: Places of Entertainment." Home Page.
http://employees.oneonta.edu/farberas/arth/ARTH_220/social_space.html
(accessed August 2, 2010)

²⁷ "The Flâneur - The Arcades Project Project or The Rhetoric of Hypertext by Heather Marcelle Crickenberger." Marcelle Crickenberger - Art Gallery.
<http://www.thelemming.com/lemming/dissertation-web/home/flâneur.html>
(accessed August 2, 2010)

understanding the urban city; s/he is the true experiencer of the city.

Modern urban *flâneur* withdrew from the city scenery due the evolving urban life and degradation of public spaces. Public spaces have lost their attraction as a result of individualist movement and emerging of commoditized public spaces. “The goal of the society has changed from creation of ideal city to creation of ideal homes.”²⁸

Individualism had a great impact on the downfall of public spaces by promoting the idea that people should build ideal homes instead of creating the ideal city. As a consequence of this and of the quest for perfect spaces, traditional public spaces (squares, piazzas, streets etc.) have been deserted in favor of shopping malls replicating and simulating aspects of public spaces and private organizational and management controls. The shopping malls where people can buy products to create their ideal homes present themselves as the ideal public spaces for social interactions. Shopping malls took these roles from the traditional public space of the degraded city and designed new private-public spaces shaping the public’s desires for consumption and communication.

Individualist movements drove people away from the collective and social culture and directed them to construct a personal ideal world. This transformation of the public space resulted in a re-shaping of the notion and practice of individuality in social life. The inclination towards a shift from a collective to individual outlook on life had its effect on the construction of the ideal world. The individuality became more and more associated with consumption.

Individualism is a calm and considered feeling which disposes, each citizen isolate himself from the mass of his fellows and withdraw into the circle of family and friends; with his little society formed to his taste, he gladly leaves the

²⁸ Charles Baudelaire, *The Painter of Modern Life*, New York: Da Capo Press, 1964.

greater society to look after himself.²⁹

The shopping malls became the mediators between people's desire for the ideal space and the faltering of the public city in preserving public order. People have been going to shopping malls not only for the shopping experience but "to socialize or stay cool in a warm day"³⁰ or to give away the care of their children to free childcare services.

One of the defining characteristics of *flâneur* is the state of idleness. Her/His idleness has been disturbed with constant stimuli's at the commoditized public spaces and s/he has lost her/his attention to other components of the city/public space.

Flanerie is a kind of reading the street, in which faces, shop fronts, shop windows, café terraces, street cars, automobiles and trees become a wealth of equally valid letters of alphabet that together result in words, sentences and pages of an ever-new book. In order to engage in flanerie, one must not have anything too definite in mind.³¹

The *flâneur* was strolling/travelling through the city with the guidance of her/his idleness that sails over the different city components either as a dissolved or discrete entity in the crowds. The *flâneur* has evolved during the commoditization process of public space. S/he has dissolved in the shopping malls and lost his interest on the city and the crowd. The evolved *flâneur* has limited control of her/his attention because s/he is overdosed with advertorial stimuli and become aimless shopper. The evolved city flâneur is not a free probe as mentioned in Walter Benjamin and Charles Baudelaire's writings.

²⁹ Crang, Mike, Phil Crang, and Jon May. "From city space to cyberspace." In *Virtual Geographies Bodies, space and relations*. London: Routledge, 1999. 112-130.

³⁰ Ibid.

³¹ Tester, Keith, and David Frisby. "The flâneur in social theory." In *The Flâneur*. New York: Routledge, 1994. 81-110

2.2 *The Flâneur in the Contemporary Age*

The arcades of the nineteenth-century were also sites where virtual travel was experienced. They were actually the breeding ground for the aimless roaming flâneur, who were 'passionate spectators' of the urban landscape in the nineteenth century. The flâneur found that the shop window was the proscenium for visual intoxication, the site of seduction for consumer desire.³²

In contemporary society as a consequence of public space degradation, in contrast to modern age, the individual has become dependent/addicted to “home-brought media”. “Early home-brought media” (refers to the “home-brought media” before 1990s) such as television, newspaper, radio and magazines were not interactive or participatory. These types of media had one-sided information flow. The reader/listener/spectator could only receive limited information; s/he could not comment, discuss or search from different sources or the related topics instantaneously. “Early home-brought” media did not provide any kinds of interactivity. The provided information was fully in control of the content generators.

What the tavern offered long before television or newspapers was a source of along with opportunity to question, protest, sound out, supplement, and form opinion locally and collectively. And these active and individual forms of participation are essential to a government of the people. An efficient home-delivery media system, in contrast, tends to make shut-ins of otherwise healthy individuals; the more people receive news in isolation, more they become susceptible to manipulation by those who control the media.³³

With the rise of personal computers and Internet after mid 1990s, online digital media was transformed from itself from being a military or scientific tool to home-brought media that connects the users of the world. Today personal computers (PC) have become the one of the most significant media in terms of information sources and reach.

³²Barnes, Gaylene. "Passage of the Flâneur.2." Raynbird Productions. http://www.raynbird.com/essays/Passage_Flâneur.html (accessed August 2, 2010).

³³Crang, Mike, Phil Crang, and Jon May. "From city space to cyberspace." In *Virtual Geographies Bodies, space and relations*. London: Routledge, 1999. 112-130.

Digital media has played an important role in social communication and interactions by means of human computer interactions (HCI). These forms of mediated interactions have favored the growth of a society that is based on participation, sharing and re-mixing.

World Wide Web has connected the world within the digital environment by enabling the data transfer between connected computer stations and created a virtual version other mediums in the digital environments. Virtual forms of various mediums have been remediated and “republished”³⁴ through the Internet across the world. With one click one can travel between various information sources; one can visit a museum in South Africa, at the same time from a different browser window you can watch a concert of the Beatles in London played forty years ago. Digital media break the barriers of both space and time. William Gibson first mentioned cyberspace in his referential book called “Neuromancer”, and describes it as follows:

Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation. A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the non-space of the mind, clusters and constellations of data. Like city lights, receding...³⁵

Digital media can virtually mediate any physical media within themselves and distribute immediately.

Cybernetics is the alchemy of our age: the computer is the universal solvent into which of all difference of media dissolves into a pulsing stream of bits and

³⁴ Bolter, Jay David, and Richard Grusin. *Remediation: Understanding New Media*. 1st ed. London: The Mit Press, 2000.

³⁵ Gibson, William. *Neuromancer*. 20 Annual ed. New York: Ace Hardcover, 2004.

bytes.³⁶

Internet created a space that is timeless and physically unlimited. It is limited only by the means of connection speed, bandwidth and server's storage. Online Cyberspace created a world within which instantaneously, one can be wherever s/he wants, shares documents and communicates with individuals or masses.

Until very recently real estate business, has no real competition. You always had to go places and to do things. There was no alternative. You went to school, you went to shopping, you went to conferences... Now you can do these things, and more, without going anywhere – not any physical space, anyway. You can do them in cyberspace.³⁷

2.2.1 The Flâneur of the “Premature Web”

The early paradigms of commercial Web had a static structure. The first version of Web applications/websites was a simplistic remediation of physical mediums. The structure of these websites allowed limited participation, limited interactions and was without “mashups”^{**}. An example of this static structure is the first versions of the newspaper websites. They did not have much difference from the actual newspapers; there was no additional feature added to their early versions. The content generators as in the other kind of home-brought media were few compared to the users of Internet; the culture of Premature Web applications/sites was not participatory^{***}. Internet architecture was

³⁶ The Digital Dialectic: New Essays on New Media (Leonardo Books). New Ed ed. London: The Mit Press, 2000.

³⁷ The Digital Dialectic: New Essays on New Media (Leonardo Books). New Ed ed. London: The Mit Press, 2000.113

* * *”mash-ups” defined as combining or rendering content in novel forms. For example, street addresses present in a classified advertisement database are linked with a map Web site to visualize the locations. Such cross-site linkage captures the generic concept of creating additional links between records of any semi-structured database with another database. Graham, Cormode, Krishnamurthy, Blancher “Key Differences between Web1.0 and Web2.0” 2005

* ** Henry Jenkins describes participatory culture as “Participatory culture is

mainly designed to have one directional information flow; it was not interactive. The fluidity of digital media and the possibilities of Internet could not be explored and used at its full capacities due to the freshness of media and technological limitations. Therefore I call early years of commercial Web as “Premature Web” during the text.

The content of cyberspace was at the hands of few computer elite (a.k.a. computer geeks). The social interactions were based on instant messaging in the platforms such as chat rooms programs (mIRC, ICQ) and MUDs (Multi User Dungeons). There was no permanent content that was created by the regular user.

The first edition of Web Studies began with a story about how I didn't get into the Internet at first, in the mid-1990s, because it seemed too nerdy. Bloody Internet, I said: full of computer geeks swapping episode guides for Babylon Five. This was, of course, intended to reassure ‘cool’ readers that they weren't reading a book aimed at an audience of computer scientists and boys who go to sci-fi conventions. Today, such apologies are not necessary: the Web is so much a part of everyday life - and, in particular, so often at the heart of popular culture, or used to communicate pop culture - that there is no need to justify it, or be embarrassed.³⁸).

For the ordinary user, World Wide Web (WWW) was a space, which s/he can wander around, navigate and explore, but s/he could not be a part of premature Web. The users of premature Web were called ‘Web Surfers’ because of the lack of interaction and participation. Also they could be considered as data *flâneurs* that are distinct from the crowd.

emerging as the culture absorbs and responds to the explosion of new media technologies that make it possible for average consumers to archive, annotate, appropriate, and recirculate media content in powerful new ways. A focus on expanding access to new technologies carries us only so far if we do not also foster the skills and cultural knowledge necessary to deploy those tools toward our own ends.”

http://www.henryjenkins.org/2006/10/confronting_the_challenges_of.html
(accessed August 2, 2010).

³⁸Lindgren, Simon. "Walter Benjamin and the Virtual: Politics, Art, and Mediation in the Age of Global Culture." *Transformations* November, no. 15 (2007).

http://www.transformationsjournal.org/journal/issue_15/editorial.shtml
(accessed August 2, 2010).

Due to the structural changes on the WWW and newly established services, in 2004 Tim O'Reilly used the term Web 2.0 for the current structure of WWW.

“Web 2.0” is a term that is used to denote several different concepts: Web sites based on a particular set of technologies such as AJAX; Web sites which incorporate a strong social component, involving user profiles, friend links; Web sites which encourage user-generated content in the form of text, video, and photo postings along with comments, tags, and ratings; or just Web sites that have gained popularity in recent years and are subject to fevered speculations about valuations and IPO prospects. Nevertheless, these various categories have significant intersections, and so it is meaningful to talk broadly about the class of Web 2.0 sites without excessive ambiguity about which definition is being used.³⁹

2.2.2 A Comparative Analysis Between Premature Web User and Contemporary Web User

The users of the premature Web were passive users, they were not able to create content and participate in the structuring of the web. There was no participation and content generation by vast number of users. The content was created by the web-masters of the related sites or by a few privileged users.

The key feature of contemporary Web provides services such as social networking, content creation and publishing through services such as Google Co. and Facebook. But it does not only consist of websites that are created to be visited and observed; on the contrary it is all about participation of masses.

Services such as social networks and blogs have created the most significant impact on social communication and re-structuring the Web. Contemporary Web is basically a virtual common public space that consists of different websites. These sites represent different virtual communities and cultures. The users are the content generators of the

³⁹ Graham, Cormode, Krishnamurthy, Blancher “Key Differences between Web1.0 and Web2.0” 2005

Web; each site encourages its community to update their profile and to share content. The main power of contemporary Web is the users. Hereafter in this text, the term “social Web” is used instead of contemporary Web. Since it is about participation, the virtual content is established as a result of an accumulation of individual or collective user activities. People post ideas, share media and communicate constantly with vast number of users so called virtual friends through their virtual communal grounds (websites).

In Web 1.0, all links and pages can be treated essentially equally, whereas trying to understand a Web 2.0 site in detail requires looking at different link types (friend links, navigation links etc.) and page types (user pages, content pages etc.), which are rarely explicitly marked as such in a machine-readable fashion.⁴⁰

Premature Web consisted of totally independent websites and platforms. Early browser technology did not support rich media applications therefore there was a need for software that connect to the server, such as Ultima Online, ICQ, mIRC, which has no connectivity with other services, databases or websites. All websites were at the same layer and reachability to each other. On the other hand, today, there is a layering at the content of the web to the subscriptions to the services. The services and websites are reachable and robust only if they are offered by the same or contracted companies: for example a single Gmail Account is enough for usage of all Google’s services or one can use her/his Facebook account. In the social Web, layering of the websites and links became possible due to communal structure and “balkanization” process. Thus people in one social network can communicate frequently with those friends who spend more time on other social networks.

Artificial separation into tribes is encouraged by some of the Social Web sites that want to maximize and retain the set of members inside their “electronic fence”. However, there is a counter-current due to the prevalent link⁴¹-. Social Web created the consumer-producer. Social networks and Internet services that take direct or indirect data force users to dissolve in the cyber society in order to be an observer.

⁴⁰ Ibid.

⁴¹ Ibid.

Web1.0 sites tend to cover a single topic and do not require users to log in to access them. Web2.0 sites promote intra-site activities, often requiring users to log in and build links to others on the site. When users have logged in, sites can more easily track individual's browsing habits, and serve up personalized content. Users are encouraged to create an account in order to more fully engage with the site—some sites require accounts to post comments, others require accounts before any content is visible. Navigation links are often directed solely within the site, and where user content is allowed, external links may be made difficult or impossible to add.

Social networks, media sharing websites, and blogs offer almost unlimited freedom of expression (in terms of both content—depending on the country of residency- and format of the media) and a free-publishing environment, which was not offered before. The main idea behind this is being constantly connected to the web and being in a constant communication with vast number of users, i.e. virtual friends who generate the content of the sites. Therefore one has to dissolve in the virtual society in order to explore.

By providing so many data and links, web promotes the situation of idleness and with the immediacy of the travel through websites, the *flâneur* has reincarnated at the digital world. Geert Lovink describes the present day's *flâneur* as data *flâneur* and continues as:

Wrapped in the finest facts and the most senseless gadgets, the new dandy deregulates the time economy of the info = money managers... if the anonymous crowd in the streets was the audience of the Boulevard dandy, the logged-in Net-users are that of the data dandy.⁴²

The users* of premature Web and social Web have a common characteristic as they both involve an exploration and investigation process of the cyberspace. Moreover both types of users navigate through the cyberspace to explore with the help of the offered

⁴²Manovich, Lev. *The Language of New Media* (Leonardo Books). 2000. Reprint, London: The Mit Press, 2002. 277

* Contemporary web user is referring to an average user that uses current services, at least search engines and emails.

links; they jump from one site to other like data *flâneurs*.

Premature Web was a static space without interactions that affect the content of the websites. It offered an experience of navigation through an apathetic space to the actions of its users. As a consequence, a regular user -data *flâneur*- was never able to be a part of the cyberspace. S/he became an observer and was not able to be a part in the cyberspace. On the other hand the dynamics of contemporary Internet is totally different. The content of Social Web is directly or indirectly generated by users totally or partially (servers trace the actions of users and generate user-specific content accordingly, Google AdWords or Facebook Suggestions about virtual social environment can be taken as examples). The user registers to services such as emails, social networks and only by then s/he can explore the content that was created by the virtual community. As soon as data *flâneur* connects the Social Web, s/he starts to communicate with the service servers and leave online traces. Data *flâneur* becomes the producer of his consumption as a consequence dissolves in in Social Web.

The following chapter is about my online immersive media project titled Sonicfields. The chapter continues with an introduction to concept of sonic *flâneur*, which is derived from data *flâneur* of the contemporary Web. The transformation of data *flâneur* into sonic/media *flâneur* through Sonicfields' approach of navigation on media databases will be discussed.

CHAPTER 3

Sonicfields

3.1 Sonicfields.net as an Interactive Web Platform

We have also sound-houses. Where we practice and demonstrate all sounds and their generation. We have harmonies, which you have not, of quarter-sounds and lesser slides of sounds. Driver's instruments of music likewise to you unknown, some sweeter than any you have; together with bells and rings that are dainty and sweet.⁴³

Sonicfields is a web application for 3D soundscapes exploration, soundscape design and sharing. Sonicfields is like a combination of virtual sound-houses in *New Atlantis* (1623), Francis Bacon's utopia. Instead of sound-rooms, Sonicfields consists of user-generated sound-spheres. Each pre-registered users of the system is given a sonic-sphere. These sound-spheres consist of acousmatic sounds that had been uploaded and placed in 3D sonic-spheres to design soundscapes that express the owners' sound spaces, imaginary soundscapes by them.

⁴³ Francis Bacon in Schafer, R. Murray, *The Soundscape: Our Sonic Environment and the Tuning of the World* [SOUNDSCAPE] (Dallas, TX: Destiny Books, 1993), 244.

Sonicfields is a dynamic environment that re-calls sound-spheres from its meshed databases. In the meshed databases, information by users, i.e. votes, uploaded sounds, sound tags, users favorites, similarity scores, account information, are stored. This information is used for the creation of Sonicfields.

Sonicfields is not revealed totally and directly to the navigating users; they have to explore it according to navigational choices and preferences. Current users' preferences of both navigational and user/sound specific searches reveal a unique sound world that is dependent on user interactions.

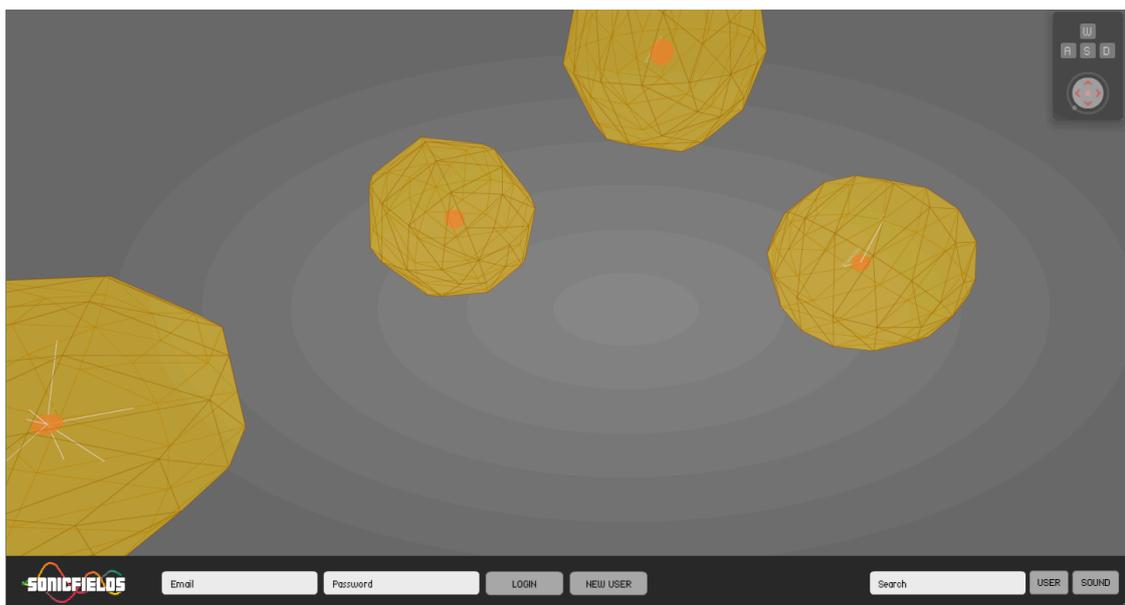


Figure 1. Screenshot from Sonicfields.net

3.1.1 Navigation Controls

Sonicfields is designed as a spatial sound environment in order to provide an immersive 3D sonic environment experience. The navigation with a mouse and a keyboard on a 2D screen in a 3D virtual environment is artificial in terms of both user navigation experience and navigation tool. In order to achieve an intrinsic 3D navigation experience in 2D computer screen - at least familiar to computer gamers- Sonicfields navigational controls have been configured in a similar fashion with a traditional first person shooter game.



Figure 2. Navigational Control Panel

In a traditional first person shooter game, a computer keyboard controls the movements of the player's view in space. The control keys have the following functions, which are also used for navigating in Sonicfields:

W - Move forward, A - Move right, S – Move downward, D – Move Left

The mouse controls the direction of the gaze. In order to change the direction of the sonic *flâneur*'s gaze in the soundscape, the mouse has to be moved while holding the mouse's left button.

Additionally, indicated components were added to enhance the navigation abilities of the user and prevent navigational confusion in the user/virtual flâneur due to the absence of gravitational references. In order to explain the keyboard configuration and notify the user about her/his movements in the space, Sonicfields has been equipped with virtual keys. The virtual keys light up when the user moves through the sonic space.

Sonicfields has a single interaction language for focusing the gaze of the sonic *flâneur* through the sonic space: double click. All objects (user-balls, sound-objects and sonic-spheres) in sonic-spheres are interactive. Double-clicking on any one of these objects will take the user to the object to be explored and will make the object become the focus of the attention of the sonic *flâneur*.

3.1.2 Birth of the Sonic Flâneur

As soon as a user connects to Sonicfields (www.sonicfields.net), s/he transforms to a sonic *flâneur*. When a user enters Sonicfields, s/he is surrounded by sonic-spheres and eventually starts to explore the sonic environment. Sonicfields consists of acousmatic sounds and undifferential sonic-spheres and it does not contain any visual references except for their names of the sounds (unless the user wants to examine the sound). The absence of visual references helps users to experience the sound and soundscapes via reduced listening and enables them to experiment with the sound environment. A registered user can experience the sound by placing it within its 3D sonic-sphere and wander around the sound/s, to enhance the understanding of the sounds and their interactions.

Sonicfields is an endless exploration environment due to its dynamic structure. As the sound and the image of the sonic-spheres fade away, new spheres appear in the field of vision according to the sonic *flâneurs*' navigational preferences. This dynamic process and acousmatic environment result in a continuous act of exploration on the user's side, transforming him/her to a sonic *flâneur*.

User of Sonicfields can achieve the state of reduced listening and experience the sound and soundscapes in an interactive environment. The reduced mode of listening is difficult to achieve in an interactive environment as it enhances the experience of sound and soundscapes. The environment of Sonicfields is in a constant state of change and it gives the user the opportunity to explore without limits. Like an urban *flâneur* that explores and experiences the city, or like a data *flâneur* that navigates through the virtual spaces, a sonic *flâneur* in Sonicfields could experience the sounds and soundscapes separately in an act of wandering and exploration.

3.1.3 Connecting to Sonicfields

Whether registered or not, as soon as a user connects to Sonicfields, s/he is surrounded by sonic-spheres that appear in the order of the last date of update (last updated sphere is positioned closest to the viewer). This first encounter with Sonicfields models the production of sound and its disappearance in virtual space over time. This approach maps the time with the virtual distance so that the users can trace the history - memory of sonic-spheres.

As in representation of the memory of sounds, the closest sounds are the ones that are heard and remembered best; in Sonicfields the last updated sounds are the traces of a narrative that the sonic *flâneur* can untangle.

Sonicfields attempts to construct a virtual space that sonic *flâneur* searches/needs by tracing previously visited sonic-spheres. The sonic-spheres appear in the order of similarity scores, the previously visited sonic-sphere being in the place of the vanished ones. Sonicfields becomes a space of neighborhood where similar sonic-spheres with

the visited ones congregate during the user interaction and provide a virtual world that re-arrange itself in parallel with the route of navigation and updates itself constantly. This landscape of similarities and closely connected sonic-spheres are generated through a selection made by the Pearson Correlation Algorithm and collective tag rating system, which are analyzed later in this chapter.

All sonic *flâneurs* establish the tagging information database collectively by rating the tags of the sounds. The database is used for Pearson Analysis for calculating user-to-user similarity scores.



Figure 3. Sound Object and Sound Panel

Revealing similar sonic-spheres result in a homogenized exploration of whole of the body of Sonicfields. The sonic *flâneur* is also offered a choice of a “random walk” to provide undirected exploration of Sonicfields’ databases also to prevent a possibility of exploration of a limited homogenized portion of Sonicfields.

Registered users are given a sonic-sphere where they place their sound and create their personal soundscapes. The users are the only owners of their sonic-sphere. The sonic-

spheres have unlimited space, as users increase the number of sounds in their sonic-spheres. The sonic-spheres expand proportionally, in order to give the opportunity of creating independent soundscapes that do not interfere with each other.

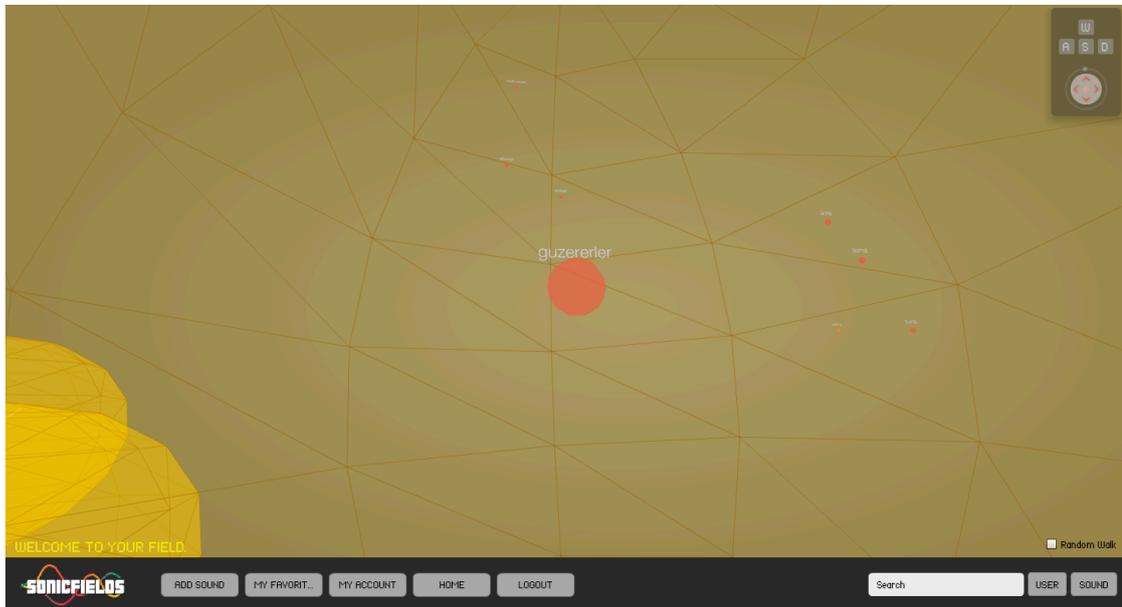


Figure 4. Home-Sphere

Registered users can add sound objects to their personal sonic-spheres by uploading sounds from their computers to the Sonicfields' server. The users can also add sound objects that they choose/need/like from other users' sonic-spheres.

The users can drag and drop the sounds in 3D space and place them in order to create and design soundscapes in their personal soundscapes. Users are encouraged to use tags for their sounds so that the information can be used in determining the sonic-sphere similarity scores. Another advantage of tagging is the opportunity to find sounds by tag search.

Sonic-spheres cannot be included in the information databases of user-to-user similarity analyses unless they contain sound tags. Contained tags of sonic-sphere are turned into the content of the related sonic-sphere at the information databases to be used in user-

to-user similarity analyses. The tag content of the sound together with the name of the sound is used also in sound searches. One can find the sounds by searching its tags or its name.

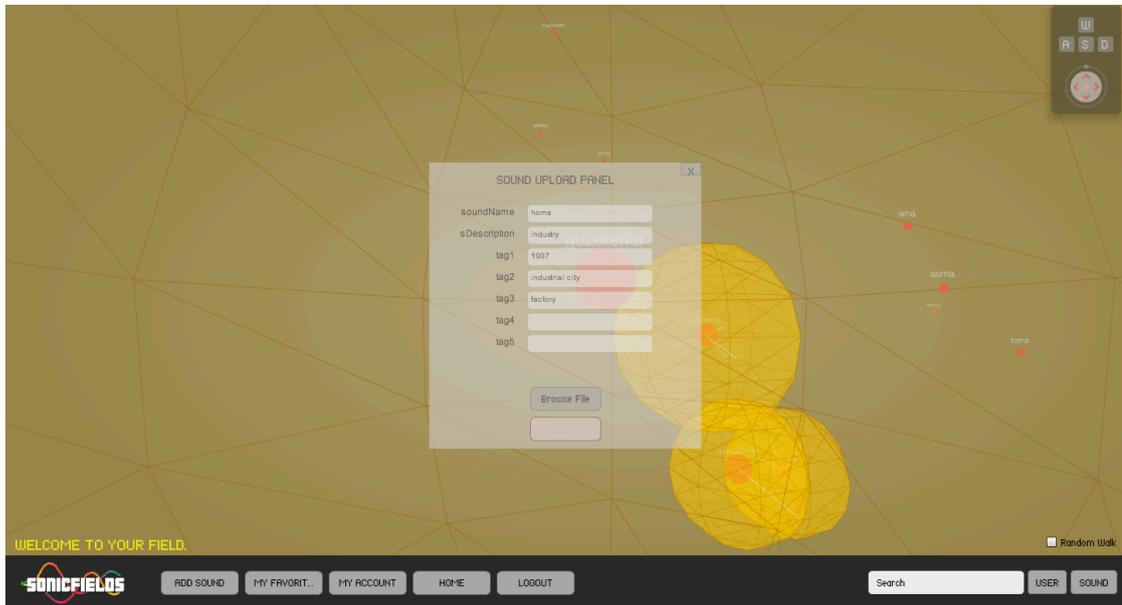


Figure 5. Sound Upload Panel

3.2 Collective Intelligence and Social Decision Making

3.2.1 History of Related Media

Social Web is structured on the people's participation into creating the content of WWW, such as uploading comments, tags and creative/amateur outputs. WWW is a non-physical and totally abstract space without any spatial references and guidance. It is easy for data *flâneur* to be lost in vast information space without guidance. Search engines and social interactions become lighthouses for the exploration and browsing the WWW.

Social book markings tools are excellent resource of discovery tools; when searching for a particular subject, you may see that other users tagged a particular Web page and other sites under similar tags. This will allow you collective list of resources from all the users who share the same research interests. [T]hese tools are searchable, and they facilitate the development of communities of interest and expertise....[T]hey built by people like you and us. They are democratic and inclusive, but as they provide a snapshot of current users' behavior.⁴⁴

Social bookmarking websites such as delicious.com, stumbleUpon etc. are created. Data *flâneurs* use these services to explore the WWW with the guidance of the masses (active user of the services); the members of the services can share their tags and comments about the websites. Such services generate a database which masses, as their registered users, fill in. Hence a depending on the database, collective intelligence is created in order to serve better. As the number of active users increases better results appear.

What makes Delicious worth using as a community-based tool, however, is the tags section. Or each bookmark, users can assign tags. Once that tag is placed, a separate URL will be created for a new bookmarks that are given that tag, no matter who bookmarked it. This is where community-sharing features come in.⁴⁵

Collective intelligence basically means coming to conclusions from analyzing vast number of data driven from people by surveying or surreptitiously tracing. WWW can be considered as a “virtual panopticon” due to the stored traces of users. Social Web offered different sorts of services to its registered users. In return, these companies reach the knowledge of masses by tracing their online footprints and habits. For example Google uses the online traces of the users who constantly leave traces to the search engines, i.e. the search queries. This gives Google the ability of displaying user specific advertisements (Google AdWords) according to the advertisements' content relevance levels with the search query.

⁴⁴ Barksy, E, and M Purdon. "Introducing Web 2.0: social networking and social bookmarking for health librarians." *Journal of the Canadian Health Libraries Association* 24, no. 1 (2006): 65-67.
<http://circle.library.ubc.ca/bitstream/handle/2429/499/c06-024.pdf?sequence=1>
(accessed August 2, 2010).

⁴⁵ Ibid.

At all times, people are using the Internet for making purchases, doing research, seeking out entertainment, and building their own web sites. All of this behavior can be monitored and used to derive information without ever having to interrupt the user's intentions by asking him questions.⁴⁶

Search engines also use embedded tags called "meta tags" in order to refine their searches. "Meta tags" are embedded to the site by the webmaster/s in order to be indexed as related tags/search words. The Meta tag approach has a downside, which is the webmaster/s' inability to guess all the possible tags that users could relate with the site.

However, due to search engine spam, this practice has lost favor. The most recent instance of this idea is Google Co-op,⁴ where Google encourages site owners to label their sites with "topics." Co-op allows Google to refine search results based on this additional information.

3.2.2 Collective intelligence and Similarity Functions in Sonicfields

Sonicfields consists of sonic-spheres, which contain sound objects. Current technology does not offer an automatic sound search or an automatized tagging system for snippets of sounds to be categorized according to content. The challenging part of the Sonicfields Project is relating sonic-spheres' content and defining the sounds through a collective tagging system. The tags of the sounds create the profile of the registered user in the information databases that are used for similarity analyses. Therefore only the owner can define and change his sonic identity.

Sonicfields has a very different structure than social bookmarking sites, which do not interrupt the content of the related sites or do not change the Meta tags. In Sonicfields, the tags become the Meta data and can only be created and changed by the owner. In

⁴⁶ Segaran, Toby(Author). Programming Collective Intelligence: Building Smart Web 2.0 Applications [PROGRAMMING COLLECTIVE INTELLIGENCE] [Paperback]. Sebastopol: O'Reilly Media, 2007.

social bookmarking sites one can suggest tags, but this, contrary to Sonicfields, does not affect the meta data of those websites. In the case that the suggested tags surpass the original tags, the owner loses the control over her/his sonic-profile. Therefore Sonicfields proposes tag-rating system.

Since the perception of sound is abstract and personal, the tags are based on weak associations that reflect personal interpretations of sound and on loose linkages between users. Therefore the relevance of the tag rating system is opened to the whole of the Sonicfields' community. This approach generates tag ratings for each tag according to its relevance with its sound; these tag ratings are the result of communal participation to voting. Users' own tags, combined with their ratings, which are based on collective decision of the community, are used to calculate user-to-user similarity scores. This offers a possibility to understand the relationships that define the sonic-spheres' correlation to each other.

The similarity analysis in building a collective intelligent system is based on analyzing data derived from users' inputs on existing sound materials, and its purpose is to define specifically similarities between sonic-spheres. Therefore, the function is depicted from the calculations based on tags and relevance ratings submitted to the system by its participating voters, whereas the relevance ratings are set to verify descriptive relation of a sound object with its corresponding tag. Such a collective autonomous controlling system is basically required within the system not only in order to describe a sound event semantically but also to develop an effective filtering mechanism that would stand as an invisible system moderator.

In Sonicfields, Pearson Correlation Score Analysis on the data sets of user tags and on the ratings of the tags are used to determine the user-to-user similarities. Basically, Pearson Correlation Score is calculated between two sets of data by determining of the best fitting line. Slope of the best fitting line is called Pearson Correlation Score.

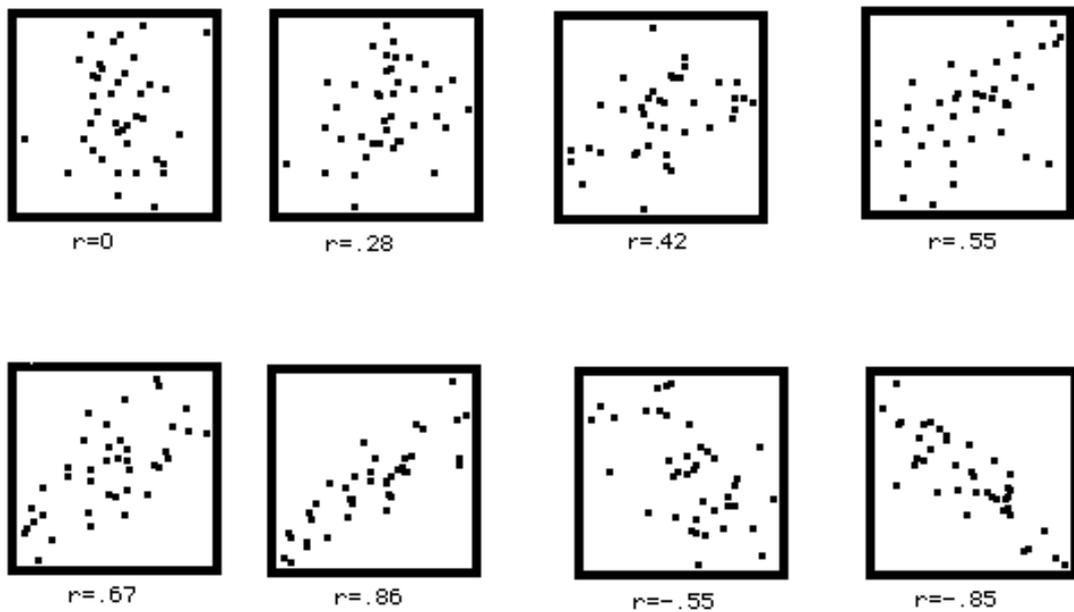


Figure 6. Graphics for Pearson Correlation Scores⁴⁷

Pearson Correlation Score varies from -1 to 1. Slopes of both 1 and -1 represent perfect linear relationship where 1 reveals a directly proportional relationship and -1 represents an inversely proportional relationship. As the slope converges to 0, the dependency drops and slope of 0 represents total irrelevance. In Sonicfields Project, similarity is accepted as a value depended on positive linear relationships.

All of the tags and their ratings in the sonic-spheres generate the data set of the users. Pearson Correlation Score between arbitrary users consists of the distinct tags in the sonic-spheres and their probability of occurrence in the spheres. The probability of each distinct tag of users is calculated by deriving the weighted mean where the coefficients are set as the tags ratings, and dividing it to the total number of tags in the spheres.

⁴⁷ Graphs are taken from <http://davidmlane.com/hyperstat/A67908.html> (accessed August 2, 2010).

for each distinct tag

 calculate the weighted probability

 insert to dataset of user

weighted probability(distinct tag A)

 Sum all rating for tag

 Divide the sum to the number of tag A

similarity = Pearson Correlation Score Function(dataset1, dataset2)

CONCLUSION

Industrial revolution initiated an intense relationship between humanity and machine. This relationship became obligatory and resulted in revolutionary movements in the field of arts. The revolution of sonic arts started with the massive change in soundscape of humanity. Traditional musical instruments were not able to produce the expanded sound spectrum. Therefore, there was a need for instruments, machines that produce new sounds in an expanding sound spectrum to express the newly emerging emotions and everyday experiences.

Electroacoustic devices enabled the separation of sound from the source and context. Consequently John Cage and the artists of Musique Concrete started to use regular/random sounds and, noises in their artistic creations. The ability to create sounds independent from time and space provided the artists with the opportunity to create artificial soundscapes. Together with the developing visual technologies, artist got closer to materialize the imaginations that converge with reality. For example, Philips Pavilion at Expo 58' in Brussels resulted from the transformation of construction/implementation of virtualities.

Digital communication technologies enhanced the creation of virtualities in diverse areas ranging from art to culture and society. Cyberspace has expanded its dimensions and the number of its residents with the rise of personal computers and Internet at mid 1990s. Social structures and communities started mediating in digital media. *Flâneur* is mediated to data *flâneur*. Now WWW is a space that is being explored with the links, social bookmarks and search engines. But cyberspace is not static; it is in constant development, as evidenced by the shifts from static Web to social Web and by the

emerging semantic Web. As the technologies change, the web structure, its users -data *flâneurs*- also change and adapt accordingly.

By definition, all soundscapes are interactive in terms of perceived sounds. Generally, the perceiver/listener of soundscape has no control over the sounds that are contained in that soundscape. Also s/he is exposed to soundscapes that are not designed except rare occasions and places.

Sonicfields is raised as an answer to the two main questions:

What if we could affect soundscape of the environment while wandering?

What if we could design our own soundscapes on WWW?

Sonicfields is constructed as a dynamic 3D virtual space where users navigate through sonic-spheres that are designed as soundscape by registered users. As soon as a user connects Sonicfields, s/he becomes a sonic *flâneur* due to the sonic exploration and sonic experience that are offered. Sonicfields rearranges these sonic-spheres according to a sonic *flâneur*'s navigational patterns therefore the sonic *flâneur* has a direct effect on the soundscape.

Sonicfields' databases grow as users register and upload new content. Navigation through constantly growing massive database becomes an encumbrance. Sonicfields offers an intuitive exploration for the sonic *flâneurs* as a result of collective participation to the user-to-user similarity analysis by tag rating system. Sounds have tags that are created by the owners; these tags are rated by the community according to the tags' relevance with the sounds. The sound tags of the sonic-spheres are used as data for the similarity scores between sonic-spheres. These scores are calculated by using Pearson Analysis.

Current architecture of Sonicfields is constructed with user centric sonic-spheres. Furthermore, semantic approach could be added as a feature for intuitive search and

sound exploration. Instead of user-centric sonic-spheres, tag-centric sonic-spheres could be constructed with related sounds. A potential problem with the semantic approach is that sonic *flâneur* can be overwhelmed by sounds of the same kind and the possibility of differentiation between sounds can diminish.

The approach of Sonicfields could be applied to any kind of virtual media such as video, image, text, etc. Sonicfields offers the exploration of designed space that is generated according to data *flâneurs'* preferences. It is an alternative approach for navigation through information space, different from the text-based search..

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