Abstract

"The value of the present moment" is one of the most important aspects of our everyday life; nevertheless it has been now and then rather disregarded. Due to the rhythm of today's world and its consequences on human existence, the man's concept of life is somewhat getting more distant from what is perceived as "living for now", despite the infinite stream of online information and all the current facilities related to real-time communication in verbal and visual terms.
Observing the contexts in which humans are present in different dimensions (from the physical ones, such as indoor and urban spaces, to the virtual ones, such as the operating system of a computer and the Web) we can rarely find any direct traces of the human's emotional states.

"ModMood" is an application that works on the basis of the users' immediate emotions. The system provides a dashboard with representation of the user's immediate emotional state; these representations may be in different forms, such as music, photography, graphics, etc.
The user can choose the representations that suit her/him best and combine them in the system interface: in the end it is the user who makes a composition of different representations of her/his emotions. Moreover, the application provides the possibility to choose the sources of the materials on which the representations are based.

In addition to the possibility of having varied representations of the user's emotional state, ModMood proposes a new concept in people's communication. Instead of being based on the typical verbal form, communication in ModMood relies on the representations of the people's immediate emotions. Of course, this

does not mean that users are not allowed to use words: for example while looking at the artistic representation of my friend's emotions and listening to a music track that has been selected by the system on the basis of his immediate mood, I can talk with him using ModMood's chat. However, the primary element on which the connection and communication between people is based is their mood and its representations, rather than words.

Consequently the first question that might come to mind is how ModMood is capable of detecting human emotions and generating different reads out of them. If a computer can directly recognize human emotional state and react to its changes, we might think it has a certain level of "intelligence".
Feelings could remain private as long as we want them to be that way or if we sufficiently conceal them from being known to others. In this case, the external recognizers can only observe feelings or reason about them, and these processes are subject to some levels of uncertainty. Despite this uncertainty, pulling out our own emotions as well as the others' is a necessity in social communication between humans and, in some cases, it is also necessary for behavioral health.
In order to study and develop systems and devices that can recognize, interpret, process, and simulate human affects, a new scientific field named "affective computing" has been conceived in the last few years. Affective computing is a strongly interdisciplinary effort spanning computer science, psychology, and cognitive sciences. The origins of the field may be traced as far back as to early philosophical enquiries into emotion.
The detection of emotional information begins with passive sensors that capture data about the user's physical state or behavior without interpreting the input. The data gathered is analogous to the cues humans use to perceive emotions in others. These data can then be analyzed in order to define the emotions of a person in a particular moment.

Based on emotion detection, ModMood follows two main objectives concerning a user's emotional state. The first one is to give user a reflex of her/his immediate emotional state that hopefully helps her/him to have a better self-understanding. This happens while the user is involved in a innovative procedure of making a composition of culturally-rich elements that correspond to her/his immediate mood.
The second one is related to new ways of communicating with others on the basis of the expression of emotions. ModMood enables the users to intercommunicate in different dimensions and, most of all, to have a constant emotional contact with each other while doing other activities on the computer.

Abstract in Italiano

"Il valore del momento presente" è uno degli aspetti principali del nostro vivere quotidiano; ciononostante si tratta di un aspetto che è stato a volte piuttosto trascurato. Il ritmo del mondo contemporaneo e le conseguenze che esso determina sull'esistenza umana fanno sì che il concetto di vita dell'uomo si stia in un certo senso allontanando da quello che può essere considerato il "vivere il momento", nonostante il flusso costante e infinito di informazioni online e i vantaggi attuali collegati alla comunicazione in tempo reale sia di tipo verbale sia di tipo visuale.

Osservando i contesti nei quali gli uomini sono presenti lungo dimensioni differenti (da quelli fisici, come gli spazi indoor o quelli urbani, a quelli virtuali, come il sistema operativo di un computer e il Web) possiamo raramente trovare una qualsiasi traccia diretta di stati emotivi umani.

"ModMood" è un'applicazione che opera sulla base della emozioni istantanee degli utenti. Il sistema fornisce una dashboard con rappresentazioni dello stato emotivo dell'utente; queste rappresentazioni possono assumere differenti forme quali musica, fotografia, elementi grafici, ecc.

L'utente può scegliere le rappresentazioni che lo soddisfano maggiormente e combinarle all'interno dell'interfaccia dl sistema: alla fine è l'utente che crea una composizione di differenti rappresentazioni delle proprie emozioni. Inoltre, l'applicazione fornisce la possibilità di scegliere le sorgenti dei materiali sulle quali le rappresentazioni sono basate.

In aggiunta alla possibilità di avere diverse rappresentazioni dello stato emotivo dell'utente, ModMood propone un nuovo concetto di comunicazione tra persone. Anziché essere basato sulla classica forma verbale, la comunicazione in ModMood si basa sulle rappresentazioni delle emozioni del momento delle persone. Ciò non significa che gli utenti non possano usare le parole: per esempio, mentre sto osservando la rappresentazione artistica delle emozioni di un mio amico e sto ascoltando una traccia musicale che è stata selezionata dal sistema sulla base del suo stato d'animo del momento, posso parlare con lui attraverso la chat di ModMood. Tuttavia, l'elemento principale sul quale la connessione e la comunicazione tra le persone sono basati non sono le parole, bensì i loro stati d'animo e le loro rappresentazioni.

Pertanto, la prima domanda che può sorgere è come ModMood possa rilevare le emozioni umane e generarne differenti rappresentazioni. Se un computer può riconoscere direttamente lo stato emotivo umano e reagire alle sue variazioni, possiamo pensare che sia dotato di un certo livello di "intelligenza".

Le emozioni possono rimanere privati finché lo riteniamo opportuno o se riusciamo a tenerle deliberatamente nascoste agli altri. In questo caso dei sistemi di riconoscimento esterni possono solo osservare queste emozioni o effettuare dei ragionamenti su di essi, e questi processi saranno sempre caratterizzati da differenti livelli di incertezza. Nonostante questa incertezza, manifestare le nostre

emozioni così come percepire quelle degli altri è una necessità della comunicazione sociale tra esseri umani e, in alcuni casi, è anche una necessità per la salute comportamentale degli individui.

Per potere studiare e e sviluppare sistemi e dispositivi che possano riconoscere, interpretare, processare e simulare le emozioni umane negli ultimi anni è stato definito un nuovo settore scientifico denominato "affective computing". Si tratta di un settore fortemente interdisciplinare che si estende dall'informatica alla psicologia e alle scienze cognitive. Le origini di questo settore possono essere rintracciate nelle prime ricerche filosofiche sulle emozioni.

Rilevare informazioni di tipo emozionale richiede prima di tutto di disporre di sensori passivi che raccolgano dati circa lo stato fisico dell'utente o il suo comportamento senza interpretare l'input. I dati raccolti sono analoghi ai segnali che gli esseri umani utilizzano per distinguere le emozioni di altri esseri umani. Questi dati possono essere poi analizzati per definire le emozioni di una persona in uno specifico momento.

ModMood si basa sul rilevamento delle emozioni, perseguendo due obiettivi principali in riferimento allo stato emotivo di un utente. Il primo è di fornire all'utente un riflesso del proprio stato emotivo che lo possa per esempio aiutare ad avere una migliore comprensione di sé. Ciò avviene mentre l'utente è coinvolto in una procedura innovativa di creazione di una composizione di elementi culturalmente significativi che ovviamente trovano una corrispondenza con il suo stato d'animo.

Il secondo è collegato a nuove modalità di comunicazione con altri utenti sulla base dell'espressione delle emozioni. ModMood permette agli utenti di comunicare lungo differenti dimensioni e, soprattutto, di avere un costante contatto emotivo con altri utenti mentre vengono svolgono altre attività con il computer.

Part One: Research

Outline of the Research

The Research body has three predominant components:
In order to create a system based on emotions and accordingly define structures for human intercommunication regarding the emotions, thorough comprehension of the term "emotion" and its associates is needed. **Emotional Aspects** talks about the essence of emotion and mood and gives precise definitions of different categories of the emotions which are counted as the raw material in this project. Subsequently the term "Nonverbal Communication" is under debate which is the starting point of the actualizing the project in terms of reading one's emotions without words.

Reading the emotions by means of machine is a complex interdisciplinary task. In the chapter **Technological Feasibilities**, an overview of the potential solutions is proposed based on breaking down the black box and try to firstly rationalize every single sub-problem and secondly find practical sub-solutions exploiting different approaches to the technologies in the area of computer science. The referring technologies are basically "Affective Computing" in order to detect and analyze the emotions, "Semantic Web" and its associates in order to find a correspondence between the relevant elements in different contexts and "API & Mashup" technology in order to make the final image that is a composition of different materials. Subsequently, due to the use of some graphics in solution, some color (as the main element of the graphics) correspondences to the emotions have been defined

The last chapter **Criticism of Social Networks and Their Consequences** argues some principal social affairs regarding the today's human sociacommunication circumstances regarding the effect of social networks and their consequences and the informatic opportunities brought by Web 2.0 and its associates. Accordingly some social threats in terms of personal information reveal, privacy and security and lack of intimacy in the relation of users of such networks are discussed.

1. Emotional Aspects

Preface

The visualization of emotions is a creative area in conceptual and aesthetic terms as it is derived from immediate emotions of a person. all the people on earth have definitely different emotional characteristics and the emotions of each single person are changing instantly every moment therefore the variety of the feelings of all in each certain moment is considerably high. Regarding the "self graphics" the dynamic composition of such immediate ever-changing elements (emotion derived) would be impressive. Apart from the variety of the outputs in each category (quote, photo, etc), the potential mashup combinations of these unique expressions of emotions would be particular by itself.

1.1. What is Emotion?

Emotion is the complex psychophysiological experience of an individual's state of mind as interacting with biochemical and environmental influences. In humans, emotion fundamentally involves "physiological arousal, expressive behaviors, and conscious experience". Emotion is associated with mood, temperament, personality and disposition, and motivation

There are basic and complex categories, where some basic emotions can be modified in some way to form complex emotions (Paul Ekman[1]). In one model, the complex emotions could arise from cultural conditioning or association combined with the basic emotions. Alternatively, analogous to the way primary colors combine, primary emotions could blend to form the full spectrum of human emotional experience. For example interpersonal anger and disgust could blend to form contempt. (see table 1&2)

Robert Pluttchik[2] proposed a three-dimensional "circumplex model" which describes the relations among emotions. This model is similar to a color wheel. The vertical dimension represents intensity, and the circle represents degrees of similarity among the emotions. He posited eight primary emotion dimensions arranged as four pairs of opposites. Some have also argued for the existence of meta-emotions which are emotions about emotions.[3]

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[1] Paul Ekman (born February 15, 1934) is a psychologist who has been a pioneer in the study of emotions and their relation to facial expressions. He has been considered one of the 100 most eminent psychologists of the twentieth century.[1] The background of Ekman's research analyzes the development of human traits and states over time

[2] (21 October 1927 – 29 April 2006) was professor emeritus at the Albert Einstein College of Medicine and adjunct professor at the University of South Florida and he was also a psychologist. His research interests include the study of emotions, the study of suicide and violence, and the study of the psychotherapy process.

[3]see chapter: 2.3 Visual Correlations in terms of color page

stimulus events	cognition	feeling state	overt behavior	effect
threat	danger	fear	escape	safety
obstacle	enemy	anger	attack	destroy obstacle
gain of valued object	possess	joy	retain or repeat	gain resources
loos of valued object	abandonment	sadness	cry	reattach to lost object
member of ones's group	friend	acceptance	groom	mutual support
unpalatable object	poison	disgust	vomit	eject poison
new territory	examine	expectation	map	knowledge of territory
unexpected event	what is it?	surprise	stop	gain time to orient

table 1. basic emotions or feeling states
Generally, humans seek to re-establish an equilibrium state in their inner emotional life.
In human experience it is common to use the term "emotion" to describe the feeling state,
but in fact emotion is considerably more complex.

advanced emotion	composed of	advanced opposite
optimism	anticipation + joy	disappointment
love	joy + acceptance	remorse
submission	acceptance + fear	contempt
awe	fear + surprise	aggressiveness
disappointment	surprise + sadness	optimism
remorse	sadness + disgust	love
contempt	disgust + anger	submission
aggressiveness	anger + anticipation	awe

table 2. advanced emotions

love	happiness	anger	sadness	fear

table 3. primal emotions

Another conceptual model of emotions is Primal Emotions. Some people narrow down emotions into tight categories for simplicity

act love	act happiness	act anger	act sadness	act fear
threat	danger	fear	escape	safety
obstacle	enemy	anger	attack	destroy obstacle
gain of valued object	possess	joy	retain or repeat	gain resources
loos of valued object	abandonment	sadness	cry	reattach to lost object
member of ones's group	friend	acceptance	groom	mutual support
unpalatable object	poison	disgust	vomit	eject poison
new territory	examine	expectation	map	knowledge of territory

table 4. emotion acts
primal emotions build up to complex mental conditions that you don't feel but rather are

General Principles for Working with Emotions

- Recognizing emotions is the basis of self-knowledge and interaction.
- Emotions are connected with your own memories and observations, bringing them into your mind when needed.
- It is possible to experience deep joy only after you have recognized and lived through the negative emotions stored in your subconscious and your body.
- The possible emotional locks will open in their own time without breaking the ego only in a mutually respectful, safe and loving atmosphere.
- Repressed emotions may break out as symptoms in the body, crying, gestures, expressions, dreams or exaggerations in the emotional life.
- An emotion that has not been dealt with will come up to the conscious level when a person is ready to cope with it.

- Working with emotions may be more exhausting than mental or physical struggle.
- While the breathing is becoming freer it will also create a freer expression of emotions – and vice versa.
- Emotions can lead you astray or hide behind each other.
- Inner healing is possible.
- Our own beliefs, attitudes and verbalizing of our thoughts crucially affect our emotional lives.
- Faith is not dependent on emotions.

1.2. What Is Mood?

A mood is a relatively long lasting emotional state. Moods differ from simple emotions in that they are less specific, less intense, and less likely to be triggered by a particular stimulus or event.

Moods generally have either a positive or negative valence. In other words, people typically speak of being in a good mood or a bad mood. Unlike acute, emotional feelings like fear and surprise, moods often last for hours or days.

Mood also differs from temperament or personality traits which are even longer lasting. Nevertheless, personality traits such as optimism and neuroticism predispose certain types of moods. Long term disturbances of mood such as depression and bipolar disorder are considered mood disorders. Mood is an internal, subjective state, but it often can be inferred from posture and other behaviors.

A recent meta-analysis found that, contrary to the stereotype of the suffering artist, creativity is enhanced most by positive moods that are activating and associated with approach motivation (e.g. happiness), rather than those that are deactivating and associated with avoidance motivation (e.g. relaxation). Negative, deactivating moods with an approach motivation (e.g. sadness) were not associated with creativity, but negative, activating moods with avoidance motivation (e.g. fear, anxiety) were associated with lower levels of creativity.

1.3. Emotion Classification

In fact No definitive taxonomy of emotions exists, though numerous taxonomies have been proposed such as:

• Cognitive versus non-cognitive emotions

• Instinctual emotions (from the amygdala), versus cognitive emotions (from the prefrontal cortex).

• Categorization based on duration: Some emotions occur over a period of seconds (for example, surprise), whereas others can last years (for example, love).

Another neurological approach, described by Bud Craig, distinguishes between two classes of emotion.

"Classical emotions" include lust, anger and fear, and they are feelings evoked by environmental stimuli, which motivate us (in these examples, respectively, to copulate/fight/flee).

"Homeostatic emotions" are feelings evoked by internal body states, which modulate our behavior. Thirst, hunger, feeling hot or cold (core temperature), feeling sleep deprived, salt hunger and air hunger are all examples of homeostatic emotion; each is a signal from a body system saying "Things aren't right down here. Drink/eat/move into the shade/put on something warm/sleep/lick salty rocks/breathe." We begin to feel a homeostatic emotion when one of these systems drifts out of balance, and the feeling prompts us to do what is necessary to restore that system to balance. Pain is a homeostatic emotion telling us "Things aren't right here. Withdraw and protect.

1.4. Disciplinary Approaches to Emotions

Many different disciplines have produced work on the emotions. Human sciences study the role of emotions in mental processes, disorders, and neural mechanisms. In psychiatry, emotions are examined as part of the discipline's study and treatment of mental disorders in humans. Psychology examines emotions from a scientific perspective by treating them as mental processes and behavior and they explore the underlying physiological and neurological processes. In neuroscience sub-fields such as social neuroscience and affective neuroscience, scientists study the neural mechanisms of emotion by combining neuroscience with the psychological study of personality, emotion, and mood. In linguistics, the expression of emotion may change to the meaning of sounds. In education, the role of emotions in relation to learning are examined.

Social sciences often examine emotion for the role that it plays in human culture and social interactions. In sociology, emotions are examined for the role they play in human society, social patterns and interactions, and culture. In anthropology, the study of humanity, scholars use ethnography to undertake contextual analyses and cross-cultural comparisons of a range of human activities; some anthropology studies examine the role of emotions in human activities. In the field of communication sciences, critical organizational scholars have examined the role of emotions in organizations, from the perspectives of managers, employees, and even customers.

In economics, the social science that studies the production, distribution, and consumption of goods and services, emotions are analyzed in some sub-fields of microeconomics, in order to assess the role of emotions on purchase decision-making and risk perception. In criminology, a social science approach to the study of crime, scholars often draw on behavioral sciences, sociology, and psychology; emotions are examined in criminology issues such as anomie theory and studies of "toughness", aggressive behavior, and hooliganism. In law, which underpins civil obedience, politics, economics and society, evidence about people's emotions is often raised in tort law claims for compensation and in criminal law prosecutions against alleged lawbreakers (as evidence of the defendant's state of mind during trials, sentencing, and parole hearings). In political science, emotions are examined in a number of sub-fields, such as the analysis of voter decision-making.

In philosophy, emotions are studied in sub-fields such as ethics, the philosophy of art (for example, sensory-emotional values, and matters of taste and sentimentality), and the philosophy of music (see also Music and emotion). In history, scholars examine documents and other sources to interpret and analyze

past activities; speculation on the emotional state of the authors of historical documents is one of the tools of interpretation. In literature and film-making, the expression of emotion is the cornerstone of genres such as drama, melodrama, and romance. In communication studies, scholars study the role that emotion plays in the dissemination of ideas and messages. Emotion is also studied in non-human animals in ethology, a branch of zoology which focuses on the scientific study of animal behavior. Ethology is a combination of laboratory and field science, with strong ties to ecology and evolution. Ethologists often study one type of behavior (for example, aggression) in a number of unrelated animal

AND...

The psychology of inner and outer space

In popular psychology, inner space refers to thoughts, imagery, dreams, attitudes, and feelings, while outer space refers to the external environment. Such dichotomy is artificial and pernicious, leading to the proposition that spiritual growth occurs by expansion of inner space through exercise, transcendental meditation, self-hypnosis, the judicious use of drugs, and so on. Pastors alerted to this insidious psychology know that to separate existence from its milieu is both illogical and dangerous. The more insular the person, the more impersonal the society. Results can be tragic. Being an integrated inner person is to be a productive outer person. Otherwise the erosion of psychological and spiritual well-being is inevitable.

AND...

Authentic Emotion Detection in Real-Time Video

In this work we presented our efforts in creating an authentic facial expression database based on spontaneous emotions. We created a video kiosk with a hidden camera which displayed segments of movies and was filming several subjects that showed spontaneous emotions. One of our main contribution in this work was to create a database in which the facial expressions correspond to the true emotional state of the subjects. As far as we are aware this is the first attempt to create such a database and our intention is to make it available to the scientific community.

Furthermore, we tested and compared a wide range of classifiers from the machine learning communities. We also considered the use of voting classification schemes such as bagging and boosting to improve the classification results of the classifiers. We demonstrated the classifiers for facial expression recognition using our authentic database. Finally, we integrated the classifiers and a face tracking system to build a real time facial expression recognition system. (Sun et al., 2002)

1.5. Nonverbal Communication (Emotions without Words)

(NVC) is usually understood as the process of communication through sending and receiving wordless messages. i.e, language is not the only source of communication, there are other means also. NVC can be communicated through gestures and touch (Haptic communication), by body language or posture, by facial expression and eye contact. NVC can be communicated through object communication such as clothing, hairstyles or even architecture, symbols and info-graphics.

Speech contains nonverbal elements known as paralanguage, including voice quality, emotion and speaking style, as well as prosodic features such as rhythm, intonation and stress. Dance is also regarded as a nonverbal communication. Likewise, written texts have nonverbal elements such as handwriting style, spatial arrangement of words, or the use of emoticons. The classification of nonverbal communication:

Facial Expressions

Facial Expression results from one or more motions or positions of the muscles of the face. These movements convey the emotional state of the individual to observers. Facial expressions are a form of nonverbal communication. They are a primary means of conveying social information among humans, but also occur in most other mammals and some other animal species. Facial expressions and their significance in the perceiver can, to some extent, vary between cultures.

Humans can adopt a facial expression as a voluntary action. However, because expressions are closely tied to emotion, they are more often involuntary. It can be

nearly impossible to avoid expressions for certain emotions, even when it would be strongly desirable to do so;[citation needed] a person who is trying to avoid insult to an individual he or she finds highly unattractive might nevertheless show a brief expression of disgust before being able to reassume a neutral expression.[citation needed] The close link between emotion and expression can also work in the other direction; it has been observed that voluntarily assuming an expression can actually cause the associated emotion.[citation needed]

Some expressions can be accurately interpreted even between members of different species- anger and extreme contentment being the primary examples. Others, however, are difficult to interpret even in familiar individuals. For instance, disgust and fear can be tough to tell apart.[citation needed]

Because faces have only a limited range of movement, expressions rely upon fairly minuscule differences in the proportion and relative position of facial features, and reading them requires considerable sensitivity to same. Some faces

are often falsely read as expressing some emotion, even when they are neutral, because their proportions naturally resemble those another face would temporarily assume when emoting.

AND...

The Facial Expression Recognition (Based on Neurofuzzy Network)

In our former research on emotion recognition, a rule-based system was created, characterizing a user's emotional state in terms of the six universal, or archetypal, expressions (joy, surprise, fear, anger, disgust, sadness). We have created rules in terms of the MPEG-4, FAPs (Facial Animation Parameters) for each of these expressions, by analysing the FAPs extracted from the facial expressions of the Ekman dataset (Raouzaiou et al., 2002). This dataset contains several images for every one of the six archetypal expressions, which, however, are rather exaggerated. A result of this fact is that the rules extracted from this dataset if used in real data, cannot have accurate results, especially if the subject is not very expressive.

Quadrants Newer psychological studies claim that the use of quadrants of emotion's wheel (Whissel, 1989) instead of the six archetypal expressions is more accurate. (see Fig 2) So the creation of rules for every one of the first-three quadrants—no emotion is lying in the fourth quadrant—was necessary. A newer statistical analysis, taking into account the results of Whissel's study and in particular the activation parameter, was realised. In order to do this, we translate facial muscle movements The activation–emotion space. into FAPs. FAPs of

expressions of every quadrant are also experimentally verified through analysis of prototype datasets. In order to make comparisons with real expression sequences, we model FAPs employed in the facial expression formation through the movement of particular Feature Points (FPs)—the selected FPs can be automatically detected from real images or video sequences. In the next step, we estimate the range of variation of each FAP. This is achieved by analyzing real images and video sequences as well as by animating synthesized examples. TIn order to use these rules in a system dealing with the continuous activation–emotion space and fuzzy representation, we transformed the rules replacing the range of variation with the terms high, medium, low after having normalized the corresponding partitions. (Raouzaiou et al., 2005)
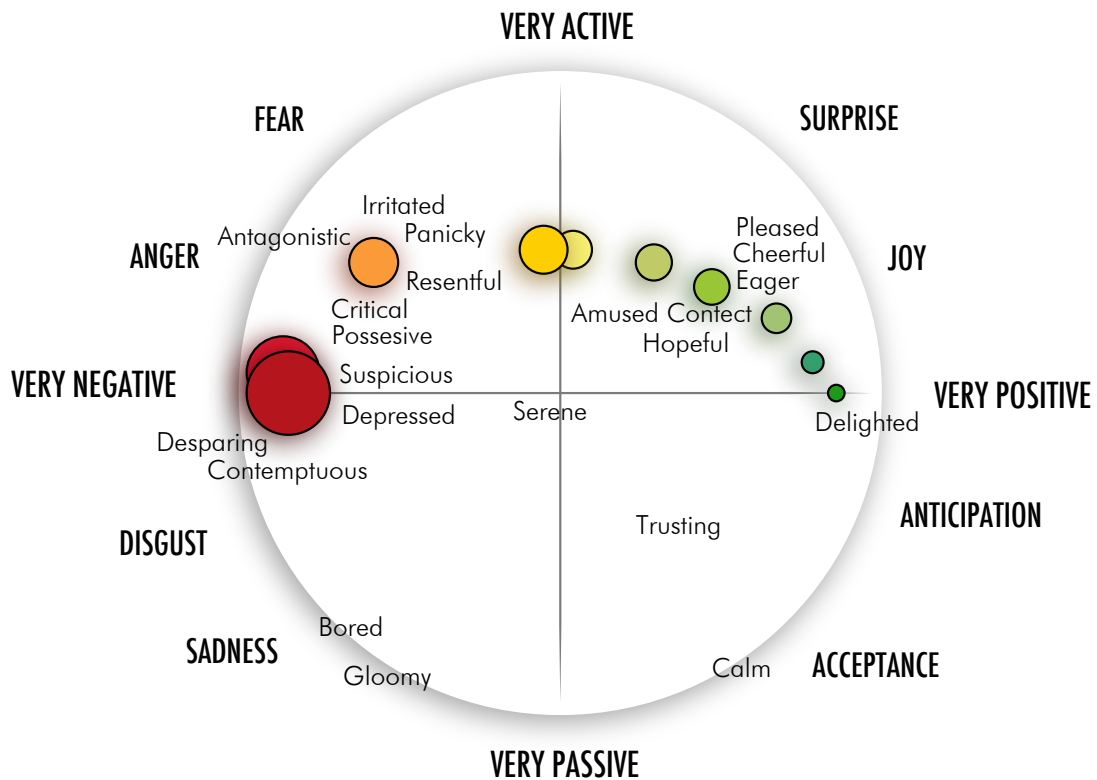
Figure 3. The activation - Emotion Space

Vocalics, Kinesics, Proxemics, Aptics, Chronemics Expressions

1. **Vocalics:** vocal sounds that are not considered to be words, such as a grunt, or singing a wordless note, are nonverbal. Paralanguage (sometimes called vocalics) is the study of nonverbal cues of the voice. Various acoustic properties of speech such as tone, pitch and accent, collectively known as prosody, can all give off nonverbal cues. Paralanguage may change the meaning of words.

2. **Kinesics:** the interpretation of body language such as facial expressions and gestures or, more formally, non-verbal behavior related to movement, either of any part of the body or the body as a whole.

• Posture (position of human body) can be used to determine a participant's degree of attention or involvement, the difference in status between communicators, and the level of fondness a person has for the other communicator.[5] Studies investigating the impact of posture on interpersonal relationships suggest that mirror-image congruent postures, where one

person's left side is parallel to the other's right side, leads to favorable perception of communicators and positive speech; a person who displays a forward lean or a decrease in a backwards lean also signify positive sentiment during communication.[6] Posture is understood through such indicators as direction of lean, body orientation, arm position, and body openness.

• Gesture is a non-vocal bodily movement intended to express meaning. They may be articulated with the hands, arms or body, and also include movements of the head, face and eyes, such as winking, nodding, or rolling ones' eyes. The boundary between language and gesture, or verbal and nonverbal communication, can be hard to identify. Although the study of gesture is still in its infancy, some broad categories of gestures have been identified by researchers. The most familiar are the so-called emblems or quotable gestures. These are conventional, culture-specific gestures that can be used as replacement for words, such as the handwave used in the US for "hello" and "goodbye". A single emblematic gesture can have a very different significance in different cultural contexts, ranging from complimentary to highly offensive. The page List of gestures discusses emblematic gestures made with one hand, two hands, hand and other body parts, and body and facial gestures.

3. **Proxemics:** the study of the spatial requirements of human and animals and the effects of population densityon behaviour and social interaction (set measurable distances between people as they interact)

Body spacing and posture are unintentional reactions to sensory fluctuations or shifts, such as subtle changes in the sound and pitch of a person's voice. Social distance between people is reliably correlated with physical distance, as are intimate and personal distance, according to the following delineations:

4. **Haptics:** the study of touching as nonverbal communication. Touches that can be defined as communication include handshakes, holding hands, kissing (cheek, lips, hand), back slapping, high fives, a pat on the shoulder, and brushing an arm. Touching of oneself may include licking, picking, holding, and scratching.These behaviors are referred to as "adaptor" and may send messages that reveal the intentions or feelings of a communicator. The meaning conveyed from touch is highly dependent upon the context of the situation, the relationship between communicators, and the manner of touch. Humans communicate interpersonal closeness through a series of non-verbal actions known as immediacy behaviors. Examples of immediacy behaviors are: smiling, touching,open body positions, and eye contact. Cultures that display these immediacy behaviors are known to be high contact cultures. Haptic communication is the means by which people and other animals communicate via touching. Touch is an extremely important sense for humans; as well as providing information about surfaces and textures it is a component of nonverbal communication in interpersonal relationships, and vital in conveying physical

intimacy. It can be both sexual (such as kissing) and platonic (such as hugging or tickling).

5. **Chronemics:** the study of the use of time in nonverbal communication. The way we perceive time, structure our time and react to time is a powerful communication tool, and helps set the stage for communication. Time perceptions include punctuality and willingness to wait, the speed of speech and how long people are willing to listen. The timing and frequency of an action as well as the tempo and rhythm of communications within an interaction contributes to the interpretation of nonverbal messages.

AND...

EmoVoice - Real-time emotion recognition from speech

EmoVoice has been recently integrated as toolbox into the Smart Sensor Integration (SSI) framework framework which is also from the Lab for Multimedia Concepts and Applications.

Database Creation ModelUI, the graphical user interface of SSI, supports the creation of an emotional speech database. Stimuli to elicit emotions can be provided by the interface, for example by reading a set of emotional sentences. We have defined a set of sentences that is loosely based on the Velten mood induction technique. which should facilitate the real experience of the emotions. However, the sentences can also be personalised so as to help the reader to better immerse into emotional states. This procedure reduces the effort of building a prototypical personalised emotion recogniser to just a few minutes. Of course, also already available emotional speech databases can be used with EmoVoice.

Feature extraction + classifier building The phonetic analysis largely uses algorithms from the Praat phonetic software and the ESMERALDA environment for speech recognition. Features are based on global statistics derived from pitch, energy, MFCCs, duration, voice quality and spectral information. Currently, two classifiers are integrated into the framework: Naive Bayes as a fast but simple classifier, and Support Vector Machines as a more sophisticated classifier

Online recognition Online recognition works as a command line application that outputs to the command line or over a socket using the Open Sound Control (OSC) protocol. The tool reads constantly from the microphone and extracts suitable voice segments by voice activity detection. After feature extraction, each segment is directly assigned an emotion label with the help of a previously trained classifier.

AND...

EmoVoice - Real-time emotion recognition from speech

the virtual agent Greta   as an emotionally reacting listener. Greta mirrors the emotion of the speaker with her face and gives emotionally appropriate verbal feedback. The visual demonstration is as followed:

Emotional intelligence (EI) vs. IQ

Emotional intelligence describes the ability, capacity, skill or, in the case of the trait EI model, a self-perceived grand ability to identify, assess, manage and control the emotions of one's self, of others, and of groups. Different models have been proposed for the definition of EI and disagreement exists as to how the term should be used. Despite these disagreements, which are often highly technical, the ability EI and trait EI models (but not the mixed models) enjoy support in the literature and have successful applications in different domains. The earliest roots of emotional intelligence can be traced to Darwin's work on the importance of emotional expression for survival and second adaptation. In the 1900s, even though traditional definitions of intelligence emphasized cognitive aspects such as memory and problem-solving, several influential researchers in the intelligence field of study had begun to recognize the importance of the non-cognitive aspects. "Why do some people succeed in possessing better emotional well-being than others? Why are some individuals more able to succeed in life than others?" Considering such questions, Bar-On performed a systematic review of various abilities, capabilities, competencies, and skills that are generally thought to determine success as well as gaining and maintaining positive emotional health. His research revealed that what we call IQ, basically

2. Technological feasibilities

Preface

The debate of technological feasibilities in this project practically has two dimensions. One refers to the first phase which is protecting the emotions by means of sensors and therefore translating them to the emotions. The technology used in order to reach this objective is a field of computer science called "Affective Computing" which is a combination of varied sub technologies (devices and systems) by itself. The function of this technology in this project is a tool to translate human emotions to the words.

The second phase in terms of technology feasibilities requirement is to refer the generated words which are in fact representatives of the detected emotions to visual dimensions. These visual dimensions counted as the final outputs of the application, are defied in 4 categories such as photos, quotes, self graphics, visual arts and also their possible combinations. The combination of these elements is done by means of a "Mashup". Mashup is a web page or application that uses and combines data or any other material from two or more sources to create new services.

The source of these materials are free databases such as "stereomood" for the music tracks, "Wikiquote" for quotes, "processing" for self graphics and so on. The application can interact with the so-called databases to derive the relative materials through the certain APIs.

Therefor in the second phase there is a system which generates some different visual outputs based on the detected emotions in real time. In simple words the whole process functions as following:

In order to find the corresponding material (such as video, photo, music, etc.) to the detected emotion, the system searches for the   "metadata" such as comments and tags regarding the data. Using the comments and tags in the free databases as reference, two problems are faced. One is that people may use different words with similar or related meanings to express themselves or they may simply use abbreviations or initials or slangs so the system has to be able to understand the meanings of the words and make coherent connection and correspondence between the words.

"Semantic web" is a web of data which determines the meaning of the text or other data and then create connections for the user so in this context the percentage of the errors which could be resulted by the difference between the words that have the same meanings will be significantly low. Eg the tags of a video that corresponds to the emotion "joy" could be any of these phrases as well: happiness, pleasure, bliss, charm, etc. so as semantic web is based on the meanings of the words and of course semantic connections between the words, it is able to analyze the fact that all the words are relevant in terms of meaning and therefor gives the right result to the user.

The second problem is that the words, phrases and sentences can mean differently in various contexts   according to different roles and grammatical terms, for example these two phrases communicate different meanings though they have the key words in common: This video reminds me of my love! / This video reminds me of love and passion. So in order to prevent such misunderstandings, the relative text would be processed by a software called "cogito" which is the pioneer semantic software that understands the meanings of the words and analyzes the grammatical construction of the sentence.

2.1. Affective Computing

Affective computing is the study and development of systems and devices that can recognize, interpret, process, and simulate human emotions. It is an interdisciplinary field spanning computer sciences, psychology, and cognitive science. While the origins of the field may be traced as far back as to early philosophical enquiries into emotion. A motivation for the research is the ability to simulate empathy. The machine should interpret the emotional state of humans and adapt its behaviour to them, giving an appropriate response for those emotions.

Affective Computing is computing that relates to, arises from, or deliberately influences emotion or other affective phenomena. Emotion is fundamental to human experience, influencing cognition, perception, and everyday tasks such as learning, communication, and even rational decision-making. However, technologists have largely ignored emotion and created an often frustrating experience for people, in part because affect has been misunderstood and hard to measure. Our research develops new technologies and theories that advance basic understanding of affect and its role in human experience. We aim to restore a proper balance between emotion and cognition in the design of technologies for addressing human needs.

Our research has contributed to: (1) Designing new ways for people to communicate affective-cognitive states, especially through creation of novel wearable sensors and new machine learning algorithms that jointly analyze multimodal channels of information; (2) Creating new techniques to assess frustration, stress, and mood indirectly, through natural interaction and conversation; (3) Showing how computers can be more emotionally intelligent, especially responding to a person's frustration in a way that reduces negative feelings; (4) Inventing personal technologies for improving self-awareness of affective state and its selective communication to others; (5) Increasing understanding of how affect influences personal health; and (6) Pioneering studies examining ethical issues in affective computing.

Affective Computing research combines engineering and computer science with psychology, cognitive science, neuroscience, sociology, education, psychophysiology, value-centered design, ethics, and more. We bring together individuals with a diversity of technical, artistic, and human abilities in a collaborative spirit to push the boundaries of what can be achieved to improve human affective experience with technology.

Detecting and recognizing emotional information

Detecting emotional information begins with passive sensors which capture data about the user's physical state or behavior without interpreting the input. The data gathered is analogous to the cues humans use to perceive emotions in others. For example, a video camera might capture facial expressions, body posture and gestures, while a microphone might capture speech. Other sensors detect emotional cues by directly measuring physiological data, such as skin temperature and galvanic resistance.[1]

Recognizing emotional information requires the extraction of meaningful patterns from the gathered data. This is done by parsing the data through various processes such as speech recognition, natural language processing, or facial expression detection, all of which are dependent on the human factor vis-a-vis programming.

Technologies of affective computing

Emotion Speech: Emotional speech processing recognizes the user's emotional state by analyzing speech patterns. Vocal parameters and prosody features such as pitch variables and speech rate are analyzed through pattern recognition. Emotional inflection and modulation in synthesized speech, either through phrasing or acoustic features is useful in human-computer interaction. Such capability makes speech natural and expressive. For example a dialog system might modulate its speech to be more puerile if it deems the emotional model of its current user is that of a child.

Facial Expression: The detection and processing of facial expression is achieved through various methods such as optical flow, hidden Markov model, neural network processing or active appearance model. More than one modalities can be combined or fused (multimodal recognition, e.g. facial expressions and speech prosody or facial expressions and hand gestures) to provide a more robust estimation of the subject's emotional state.

Body Gesture: Body gesture is the position and the changes of the body. There are many proposed methods to detect the body gesture. Hand gestures have been a common focus of body gesture detection, apparentness' methods and 3D modeling methods are traditionally used.

Visual Aesthetics: Aesthetics, in the world of art and photography, refers to the principles of the nature and appreciation of beauty. Judging beauty and other aesthetic qualities is a highly subjective task. Computer scientists at Penn State treat the challenge of automatically inferring aesthetic quality of pictures using

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[1] Skin conductance, also known as galvanic skin response (GSR), electrodermal response (EDR), psychogalvanic reflex (PGR), skin conductance response (SCR) or skin conductance level (SCL), is a method of measuring the electrical conductance of the skin, which varies with its moisture level. This is of interest because the sweat glands are controlled by the sympathetic nervous system, so skin conductance is used as an indication of psychological or physiological arousal. There has been a long history of electrodermal activity research, most of it dealing with spontaneous fluctuations or reactions to stimuli.

their visual content as a machine learning problem, with a peer-rated on-line photo sharing Website as data source. They extract certain visual features based on the intuition that they can discriminate between aesthetically pleasing and displeasing images. The work is demonstrated in the ACQUINE[1] system on the Web.

Some General Applications of Affective Computing

In e-learning applications, affective computing can be used to adjust the presentation style of a computerized tutor when a learner is bored, interested, frustrated, or pleased. Psychological health services, i.e. counseling, benefit from affective computing applications when determining a client's emotional state. Affective computing sends a message via color or sound to express an emotional state to others. Robotic systems capable of processing affective information exhibit higher flexibility while one works in uncertain or complex environments. Companion devices, such as digital pets, use affective computing abilities to enhance realism and provide a higher degree of autonomy.[citation needed]

Other potential applications are centered around social monitoring. For example, a car can monitor the emotion of all occupants and engage in additional safety measures, such as alerting other vehicles if it detects the driver to be angry. Affective computing has potential applications in human computer interaction, such as affective mirrors allowing the user to see how he or she performs; emotion monitoring agents sending a warning before one sends an angry email; or even music players selecting tracks based on mood.[citation needed]

Emotion Communication in Autism People who have difficulty communicating verbally (such as many people with autism) sometimes send nonverbal messages that do not match what is happening inside them. For example, a child might appear calm and receptive to learning—but have a heart rate over 120 bpm and be about to meltdown or shutdown. This mismatch can lead to misunderstandings such as "he became aggressive for no reason." We are creating new technologies to address this fundamental communication problem and enable the first long-term, ultra-dense longitudinal data analysis of emotion-related physiological signals. We hope to equip individuals with personalised tools to understand the influences of their physiological state on their own behaviour (e.g., "which state helps me best maintain my attention and focus for learning?"). Data from daily life will also advance basic scientific understanding of the role of autonomic nervous system regulation in autism

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[1] Acquine: Aesthetic Quality Inference Engine - Free Instant Impersonal Assessment of Photo Aesthetics Since about 2005, computer scientists have attempted to develop automated methods to infer aesthetic quality of images. Large number of manually rated online photographs were used to "teach" computers about what visual properties are of relevance to aesthetic quality. The Acquine engine, developed at Penn State University, rates natural photographs uploaded by users.

AND...

Emotion in machines

Another area within affective computing is the design of computational devices proposed to exhibit either innate emotional capabilities or that are capable of convincingly simulating emotions. A more practical approach, based on current technological capabilities, is the simulation of emotions in conversational agents in order to enrich and facilitate interactivity between human and machine. While human emotions are often associated with surges in hormones and other neuropeptides, emotions in machines might be associated with abstract states associated with progress (or lack of progress) in autonomous learning systems [citation needed]. In this view, affective emotional states correspond to time-derivatives (perturbations) in the learning curve of an arbitrary learning system.[citation needed]Marvin Minsky, one of the pioneering computer scientists in artificial intelligence, relates emotions to the broader issues of machine intelligence stating in The Emotion Machine that emotion is "not especially different from the processes that we call 'thinking.'"

AND...

Neuromarketing

is a new field of marketing that studies consumers' sensorimotor, cognitive, and affective response to marketing stimuli. Researchers use technologies such as functional magnetic resonance imaging (fMRI) to measure changes in activity in parts of the brain, electroencephalography (EEG) to measure activity in specific regional spectra of the brain response, and/or sensors to measure changes in one's physiological state (heart rate, respiratory rate, galvanic skin response) to learn why consumers make the decisions they do, and what part of the brain is telling them to do it.

Marketing analysts will use neuromarketing to better measure a consumer's preference, as the verbal response given to the question, "Do you like this product?" may not always be the true answer due to cognitive bias. This knowledge will help marketers create products and services designed more effectively and marketing campaigns focused more on the brain's response. This makes neuromarketing and its applied results potentially subliminal.

Neuromarketing will tell the marketer what the consumer reacts to, whether it was the color of the packaging, the sound the box makes when shaken, or the idea that they will have something their co-consumers do not.

AND...

Eyetracking

Eye tracking is commonly used in a variety of different advertising media. Commercials, print ads, online ads and sponsored programs are all conducive to analysis with current eye tracking technology. Analyses focus on visibility of a target product or logo in the context of a magazine, newspaper, website, or televised event. This allows researchers to assess in great detail how often a sample of consumers fixates on the target logo, product or ad. In this way, an advertiser can quantify the success of a given campaign in terms of actual visual attention.

Eye tracking provides package designers with the opportunity to examine the visual behavior of a consumer while interacting with a target package. This may be used to analyze distinctiveness, attractiveness and the tendency of the package to be chosen for purchase. Eye tracking is often utilized while the target product is in the prototype stage. Prototypes are tested against each other and competitors to examine which specific elements are associated with high visibility and appeal.

AND...

A Development of an Emotion-Responsive Color Adaptation (Kim et al., 2002)

The research gives computers cognitive capabilities similar to those that people have so that they can respond to a set of perceptual stimuli. The process in which the colors of an interior space are dynamically changed according to a characteristic affective response of a user can potentially have at least dual purposes., it could be used as a simulation tool for interior color design considering adequate color coordination required for the functions and placeness of a specific architectural space. For instance, an operation room in hospital is normally designed with white or green colors to invoke clean, calm, cold, and intense feelings required for the room functionality. This color coordination process could be simulated on-line with the proposed system in this research. Secondly, emotion responsive interior space might be possible by utilizing controllable architectural components such as walls, floor, and ceiling the color of which could be changed depending on the occupant's mood or emotional state. If this visionary scenario is implemented, a therapeutic interior color adaptation will be possible lessening, for example, a depressive mood with complementary color scheme suggested by the system in this research.

2.2. Semantic Web

What is Semantic Web?

Semantic Web is a group of methods and technologies to allow machines to understand the meaning - or "semantics" - of information on the "World Wide Web"[1] The term was coined by director Tim Berbers-Lee. He defines the Semantic Web as "a web of data that can be processed directly and indirectly by machines."
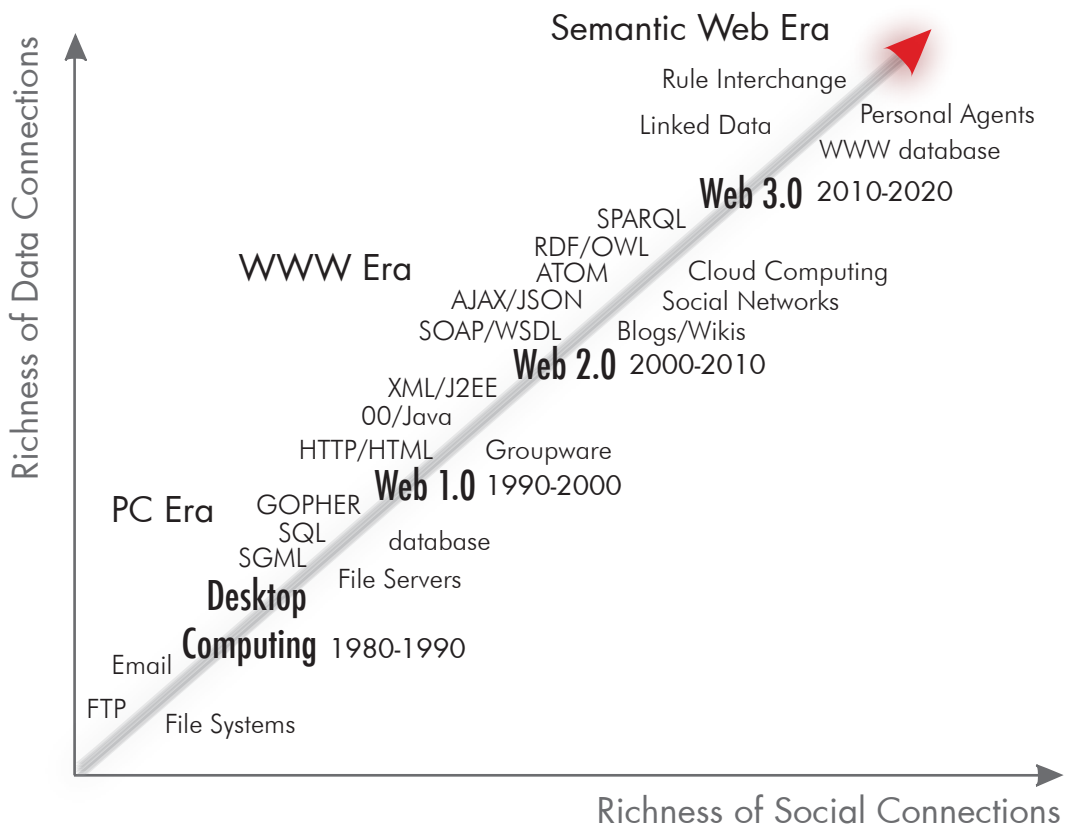

Figure
Four major waves of Web evolution

These technologies include the Resource Description Framework (RDF) [1] , a variety of data interchange formats , the Web Ontology Language (OWL) [2] , all of which are intended to provide a formal description of concepts, terms, and relationships within a given knowledge domain.

The key element is that the application in context will try to determine the meaning of the text or other data and then create connections for the user. The evolution of Semantic Web will specifically make possible scenarios that were not otherwise, such as allowing customers to share and utilize computerized applications simultaneously in order to cross reference the time frame of activities with documentation and/or data. According to the original vision, the availability of machine-readable metadata[3] would enable automated agents and other

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[1] RDF has come to be used as a general method for conceptual description or modeling of information that is implemented in web resources, using a variety of syntax formats- well explained in the page

[2] see Web Ontology Language, page

[3]   Metadata is loosely defined as data about data. Metadata is defined as data providing information about one or more other pieces of data, such as: Means of creation of the data, Purpose of the data, Time and date of creation, Creator or author of data, Placement on a computer network. For example, a digital image may include metadata that describes how large the picture is, the color depth, the image resolution, when the image was created, and other data. A text document's metadata may contain information about how long the document is, who the author is, when the document was written, and a short summary of the document. Metadata is data. As such, metadata can be stored and managed in a database often called a registry or repository. However, it is impossible to identify metadata just by looking at it because a user would not know when data is metadata or just data

Typical Knowledge Continuum
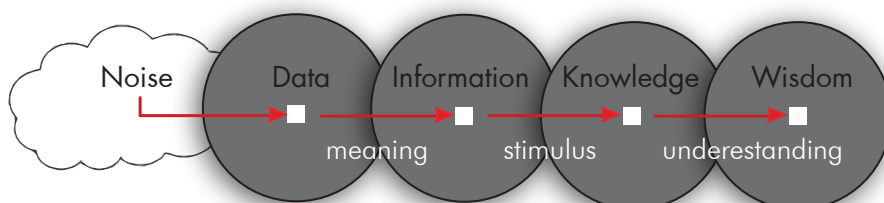
software to access the Web more intelligently. The agents would be able to perform tasks automatically and locate related information on behalf of the user.

Many of these technologies proposed already exist and are used in various projects. The Semantic Web as a global vision, however, has remained largely unrealized and its critics have questioned the feasibility of the approach.

The main purpose of the Semantic Web is driving the evolution of the current Web by allowing users to use it to its full potential thus allowing users to find,share, and combine information more easily. Humans are capable of using the Web to carry out tasks such as finding the Irish word for "folder," reserving a library book, and searching for a low price for a DVD. However, machines cannot accomplish all of these tasks without human direction, because web pages are designed to be read by people, not machines. The semantic web is a vision of information that can be interpreted by machines , so machines can perform more of the tedious work involved in finding, combining, and acting upon information on the web.

Tim Berners-Lee originally expressed the vision of the semantic web as follows:

"have a dream for the Web [in which computers] become capable of analyzing all the data on the Web – the content, links, and transactions between people and computers. A 'Semantic Web', which should make this possible, has yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines. The "intelligent agents" people have touted for ages will finally materialize."

Semantic Web Prospectives and Potentials

Semantic web is a multi-faced and sometimes controversial topic. First and foremost. it is a Web technology platform, but it is also one of the newest incarnates of the artificial intelligence legacy, it will become a key enabler for enterprise software and as a social movement, it might just change the world. Semantic Web means so many different things to different people and different communities. Here are some of the different ways of looking at Semantic Web:
• As an upgrade to current Web/Internet
• as a metadata technology for business software
• As a social movement favoring open-source data (that is the point of interest in this project)
• As a new generation of artificial intelligence

Most people agree that the first web (has profoundly changed the world. It has connected people in faraway places and ushered in a new era of learning opportunities for folks of any race, creed, culture or religion to become exposed to fresh ideas with the click of the mouse. The Web hasn't solved world hunger but it has leveled the educational playing field for millions of souls who would have other wise beed denied fair access to the amassed knowledge of humanity.

The second wave of the Web, Web 2.0 as it is known in pop culture, is no less profound but perhaps more subtle in reach. Web sites that are part of the Web 2.0 phenomenon have directly altered the political landscape of America, help to elect the first American-African president of the United States, cracked major news stories before the networks, impacted an entire generation of kids under the age of 18 and collected the largest cache of human knowledge in the world- not too shabby.

Web 3.0 -the Semantic Web- is what folks are calling the major wave of the Web.

The chart below compares the technological power of the way people connect data inside technology and the social richness of the connections people can make using the same technology. In this way you can see the clear progression of technology from the Personal Computing era to the first Web 1.0 of pages and documents to the Web 2.0 era of the social networking and to the Web 3.0 era of

Semantic Web and data networking.

"Information wants to be free"

that has become an unofficial motto for the free content movements that are often associated with creative Commons copyright licenses and open-source software. The legal foundations for free content and free software have been inexorably moving forward on the principle that people can collective help to make humanity wealthier by allowing others to copy, remix, reuse all sorts of content and software. Very much in this spirit Tim Berbers-Lee with his team are working hard to leverage Semantic Web formats as a means to share databases of content, link them to another and effectively build a Web of linked data that spans the globe.

Unlike the current Web of linked documents, the Web of linked data will allow publishers to describe data models data concepts, and data records in such a way that they can be linked, described and queried as if they were part of a single database.

Much of this vision is already materializing. Practically speaking you could build your own application on open data in the Semantic Web formats today.

It's still too early to foretell what profound changes to humanity the Semantic Web and Web 3.0 evolution will bring, but there are indeed some early indications that the changes will be every bit as cataclysmic as Web 1.0 and 2.0 were. The Semantic Web may well lead to a "giant database in the sky" containing data not just pages about anything you can think of. For example medical researchers from every corner of the globe are using Semantic Web formats to exchange and mash up[1] data that might lead to the next great scientific breakthroughs. Also large and small businesses are aiming the change

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[1] see chapter 2.2.4 Mashup, page

the rules of their industries by using Semantic Web data and technology to create new business models.

Resource Description Framework (RDF)

RDF is a standard data and modeling specification used to encode metadata and digital information. The Semantic Wen vision revolved around and predominantly based of the fundamental power of the RDF language. Currently, RDF is an approved recommendation for the Semantic Web at the World Wide Web Consortium (3WC)

Breaking It Down to the R, to the D, to the F

As mentioned, RDF stand for recourse description framework. A resource in the RDF manguage can be anything you want it to be, as long as it can be uniquely identified by some kind of pointer, object refrence or just a string literal value. DEscriptions in RDF are encoded through the kinds of relationships assigned between sets of recourse . These relationships take the form of a graph data model. finally the framework in the RDF is a combination of the Web-based protocols (URL; HTTP; XML; and so on) that it's built upon and also the formal model theory (semantics) that defines the allowable relationships among data items in RDF.

Very simply stated the concept behind RDF is that you can use it to describe a "thing" by making assertions about its properties. The "thing" is the resource you want to describe. Resources can be anything: books, people. places, customers, products, organization, etc. The set of properties that this particular thing has, makes up the description of that resource , its attributes are it definitions. Assertion that you make about atributes are axiomatic, you can treat those properties as facts about some "thing." Thus, you describe resources in a standar framework, which give you RDF. (Semantic Web p.153)

RDF has a model framework based on the idea of a triple. A complete RDF triple or statement must have the following three parts:

• The thing the statement describes

• The properties of the thing the statement describes.

• The values of those properties the statement describes.

for example in this simple phrase: "The Semantic Web for Dummies book is authored by Jeff Pollock." here are the essential parts of that statement:

- The book "Semantic Web for Dummies" is the thing I'm describing

- The book Semantic Web for Dummies has a property author.

- The author property has a value, Jeff Pollock

This structure recalls the grammar structure of the sentence. What is stimulates in this regards could be:

- authored is the predict

- The book, Semantic Web for the dummies, is the subject

- Jeff Pollock is the object. (The object helps to complete the predicate's meaning.)

The basic structure for sentences reaquaints us to the term triple as a grammar school concepy. When formally speaking about the data specification, the term triple refers to the subject, predicate and object (in that order) of an RDF statement. Because every RDF statement must have exactly these items. It's also referred to as an RDF triple or just plain triple. Other terms sometimes used to describe the concept of a triple are facts, assertions and of course statements. (Semantic Web p.153)

Statement   **Value**

            Property

    Semantic Web   Jeff Pollok
    for Dummies
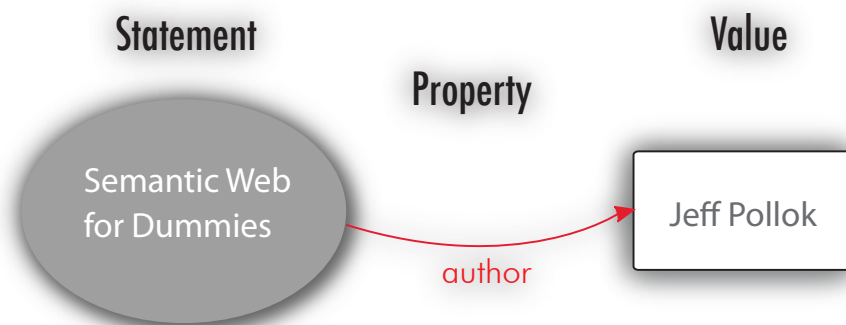   author

Figure ?. a simple RDF triple

Exploring the Semantics of RDF

RDF is a data language intended to be used to express fact about data that can stand on their own (for example, statements or triples) using orecise format vocanualaries. RDF was conceived from the stat for access and use over the World Wide Web and it's intended to provdie a basic foundation for more advanced data languages with a similar purpose.

The exact meaning of an assertion in RDF in some broad sense may depend on many factors, including social inventions, comments in natural language, or links to other content-bearing documents. most of this general meaning will be inaccessible to machine proccessing. (automatic processing by software and computers) The exact semantics of RDF is restricted to a formal notion of data meaning. You can think of this formal definition of semantics as a common part

of all other accounts of meaning that can be captured in mechanical (algorithmic) inference rules.

Because RDF is so powerful yet so broad and unconstrained, many other data languages have been specified with RDF itself. Here you must keep in mind that the semantics of RDF can be used to specify the semantics of other data languages which are in turn used to create software application models and complex data vocabularies. (Semantic Web p.77)

Web ontology Language

Ontologies are formalized vocabularies of terms, often covering a specific domain and shared by the community of users. They specify the definitions of terms by describing their relationships with other terms in the ontology.

In simple words: RDF provides a very simple model for graph data, but it does not specify complex semantics for relationships or advanced data models. Wen Ontology language is an extension of the RDF data model to supply a very rich set of semantics for building complex data models, vocabularies and and software logics. OWL provides an object printed type of framework that links RDF triples to classes associations and other complex relationships. For example WOL enables the kind of formal semantics to express in a data model a piece of logic like "A backpacker's destination is the intersection of all destinations that have budget accommodations and some type of sports or adventure activities.

Unlike other rational databases this type of powerful data semantic can be encoded directly in the data model. Later when you query an OWL database that has data model, you may simply use the query "find all backpacker destinations" and the database will know which records match your query based upon the logic defined in the data model without ever having tagged the records as such. Semantic Web p.84)

The Web Ontology Language is a family of knowledge representation languages for authoring anthologies endorsed by the World Wide We Consortium. They are characterized by formal semantics and RDF/Extensible Markup Language (XML) based serializations for the Semantic web. OWL has attracted academic. medical and commercial interest.

The Semantic Web will build on XML's ability to define customized tagging schemes and RDF's flexible approach to representing data. The first level above RDF required for the Semantic Web is an ontology language what can formally describe the meaning of terminology used in Web documents. If machines are expected to perform useful reasoning tasks on these documents, the language must go beyond the basic semantic of RDF Schema. The OWL use Cases and Requirements Documents provides more detail on ontologies, motivates the need for the Web Ontology Language in terms of six use cases, and formulates design goals, requirements and objective for OWL (Semantic Web p.181)

2.3. User-Generated Content

User-Generated Content refers to various kinds of media content, publicly available that are produced by end-users. Different types of user generated content could be discussion boards, blogs, wikis, social networking sites, advertising, fan-fiction, news sites, trip planners, memories, mobile photos & videos, customer review sites, experience or photo sharing sites, audio, video games, maps and location systems, any other website that offers the opportunity for the user to share their knowledge and familiarity with a product or experience

The term user generated content entered mainstream usage during 2005 having arisen in web publishing and new media content production circles. Its use for a wide range of applications, including problem processing, news, gossip and research, reflects the expansion of media production through new technologies that are accessible and affordable to the general public. All digital media technologies are included, such as question-answer databases, digital video, blogging, podcasting, forums, review-sites, social networking, mobile phone photography and wikis. In addition to these technologies, user generated content may also employ a combination of open source, free software, and flexible licensing or related agreements to further reduce the barriers to collaboration, skill-building and discovery.

Sometimes UGC can constitute only a portion of a website. For example on Amazon.com the majority of content is prepared by administrators, but numerous user reviews of the products being sold are submitted by regular visitors to the site.

Often UGC is partially or totally monitored by website administrators to avoid offensive content or language, copyright infringement issues, or simply to determine if the content posted is relevant to the site's general theme.

However, there has often been little or no charge for uploading user generated content. As a result, the world's data centers are now replete with exabytes of UGC that, in addition to creating a corporate asset, may also contain data that can be regarded as a liability

Motivation and incentives

While the benefit derived from user generated content for the content host is clear, the benefit to the contributor is less direct. There are various theories behind the motivation for contributing user generated content, ranging from altruistic, to social, to materialistic. Due to the high value of user generated content, many sites use incentives to encourage their generation. These incentives can be generally categorized into implicit incentives and explicit incentives.

- Implicit incentives: These incentives are not based on anything tangible. The most common form of implicit incentives is social incentives. These incentives allow the user to feel good as an active member of the community. These can include relationship between users, such as Facebook's friends, or Twitter's followers. Another common social incentive are status, badges or levels within the site, something a user earns when they reach a certain level of participation which may or may not come with additional privileges. Yahoo! Answers is an example of this type of social incentive. Social incentives cost the host site very little and can catalyze vital growth; however, their very nature requires a sizable existing community before it can function.
- Explicit incentives: These incentives refer to tangible rewards. Examples include financial payment, entry into a contest, a voucher, a coupon, or frequent traveler miles. Direct explicit incentives are easily understandable by most and have immediate value regardless of the community size; sites such as the Canadian shopping platform Wishabi and Amazon Mechanical Turk both use this type of financial incentive in slightly different ways to encourage user participation. The drawback to explicit incentives is that they may cause the user to be subject to the over-justification effect, eventually believing the only reason for the participating is for the explicit incentive. This reduces the influence of the other form of social or altruistic motivation, making it increasingly costly for the content host to retain long-term contributors.

2.4. Social Network Service

A social network service is an online service, platform, or site that focuses on building and reflecting of social networks or social relations among people, e.g., who share interests and/or activities. A social network service essentially consists of a representation of each user (often a profile), his/her social links, and a variety of additional services. Most social network services are web based and provide means for users to interact over the internet, such as e-mail and instant messaging. Although online community services are sometimes considered as a social network service. In a broader sense, social network service usually means an individual-centered service whereas online community services are group-centered. Social networking sites allow users to share ideas, activities, events, and interests within their individual networks.

The main types of social networking services are those which contain category places (such as former school-year or classmates), means to connect with friends (usually with self-description pages) and a recommendation system linked to trust. Popular methods now combine many of these, with Facebook and Twitter widely used worldwide; MySpace and LinkedIn being the most widely used in North America.

There have been attempts to standardize these services to avoid the need to duplicate entries of friends and interests.

Although some of the largest social networks were founded on the notion of digitizing real world connections, many networks focus on categories from books and music to non-profit business to motherhood as ways to provide both services and community to individuals with shared interests.

Web based social network services make it possible to connect people who share interests and activities across political, economic, and geographic borders.[15] Through e-mail and instant messaging, online communities are created where a gift economy and reciprocal altruism are encouraged through cooperation. Information is particularly suited to gift economy, as information is a nonrival good and can be gifted at practically no cost.

Facebook and other social networking tools are increasingly the object of scholarly research. Scholars in many fields have begun to investigate the impact of social networking sites, investigating how such sites may play into issues of identity, privacy, social capital, youth culture, and education.

Several websites are beginning to tap into the power of the social networking model for philanthropy. Such models provide a means for connecting otherwise fragmented industries and small organizations without the resources to reach a broader audience with interested users. Social networks are providing a different way for individuals to communicate digitally. These communities of hypertexts allow for the sharing of information and ideas, an old concept placed in a digital environment.

Emerging Trends in Social Networks

As the increase in popularity of social networking is on a constant rise, new uses for the technology are constantly being observed. At the forefront of emerging trends in social networking sites is the concept of "real time" and "location based." Real time allows users to contribute content, which is then broadcasted as it is being uploaded - the concept is similar to live television broadcasts. Twitter set the trend for "real time" services, where users can broadcast to the world what they are doing, or what is on their minds within a 140 character limit. Facebook followed suit with their "Live Feed" where users activities are streamed as soon as it happens. While Twitter focuses on words, Clixtr, another real time service, focuses on group photo sharing where users can update their photo streams with photos while at an event. Friends and nearby users can contribute their own photos and comments to that event stream, thus contributing to the "real time" aspect of broadcasting photos and comments as it is being uploaded. In the location based social networking space, Foursquare gained popularity as it allowed for users to "check-in" to places that they are frequenting at that moment. Gowalla is another such service which functions in much the same way

that Foursquare does, leveraging the GPS in phones to create a location-based user experience. Clixtr, though in the real time space, is also a location based social networking site since events created by users are automatically geotagged, and users can view events occurring nearby through the Clixtr iPhone app. Recently, Yelp announced its entrance into the location based social networking space through check-ins with their mobile app; whether or not this becomes detrimental to Foursquare or Gowalla is yet to be seen as it is still considered a new space in the internet technology industry.

Privacy

There perceived privacy threat in relation to placing too much personal information in the hands of large corporations or governmental bodies, allowing a profile to be produced on an individual's behavior on which decisions, detrimental to an individual, may be taken.

Furthermore, there is an issue over the control of data—information that was altered or removed by the user may in fact be retained and/or passed to 3rd parties. This danger was highlighted when the controversial social networking site Quechup harvested e-mail addresses from users' e-mail accounts for use in a spamming operation.

Many social networking services, such as Facebook, provide the user with a choice of who can view their profile. This prevents unauthorized user(s) from accessing their information. Parents who want to access their child's MySpace or Facebook account have become a big problem for teenagers who do not want their profile seen by their parents. By making their profile private, teens can select who may see their page, allowing only people added as "friends" to view their profile and preventing unwanted parents from viewing it. Teens are constantly trying to create a structural barrier between their private life and their parents.

To edit information on a certain social networking service account, the social networking sites require you to login or provide an access code. This prevents unauthorized user(s) from adding, changing, or removing personal information, pictures, and/or other data.

Interpersonal Communication

Interpersonal communication has been a growing issue as more and more people have turned to social networking as a means of communication."Benniger (1987) describes how mass media has gradually replaced interpersonal communication as a socializing force. Further, social networking sites have become popular sites for youth culture to explore themselves, relationships, and share cultural artifacts". A Privacy Paradox Many teens and social networking users may be harming their interpersonal communication by using sites such as Facebook and MySpace. Stated by Baroness Greenfield, an Oxford University Neuroscientist, "My fear is that these technologies are infantilizing the brain into the state of small children who are

attracted by buzzing noises and bright lights, who have a small attention span and who live for the moment."

2.5 Web Application

A web application is an application that is accessed over a network such as the Internet or an intranet. The term may also mean a computer software application that is hosted in a browser-controlled environment (e.g. a Java applet)[citation needed] or coded in a browser-supported language (such as JavaScript, combined with a browser-rendered markup language like HTML) and reliant on a common web browser to render the application executable.

Web applications are popular due to the ubiquity of web browsers, and the convenience of using a web browser as a client, sometimes called a thin client. The ability to update and maintain web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity, as is the inherent support for cross-platform compatibility. Common web applications include webmail, online retail sales, online auctions, wikis and many other functions.

Interface

The web interface places very few limits on client functionality. Through Java, JavaScript, DHTML, Flash, Silverlight and other technologies, application-specific methods such as drawing on the screen, playing audio, and access to the keyboard and mouse are all possible. Many services have worked to combine all of these into a more familiar interface that adopts the appearance of an operating system. General purpose techniques such as drag and drop are also supported by these technologies. Web developers often use client-side scripting to add functionality, especially to create an interactive experience that does not require page reloading. Recently, technologies have been developed to coordinate client-side scripting with server-side technologies such as PHP. Ajax, a web development technique using a combination of various technologies, is an example of technology which creates a more interactive experience.

drawbacks

• Web applications absolutely require compatible web browsers. If a browser vendor decides not to implement a certain feature, or abandons a particular platform or operating system version, this may affect a huge number of users;
• Standards compliance is an issue with any non-typical office document creator, which causes problems when file sharing and collaboration becomes critical;
• Browser applications rely on application files accessed on remote servers through the Internet. Therefore, when connection is interrupted, the application is no longer usable but if it uses HTML5 API's such as Offline Web application caching, it can be downloaded and installed locally, for offline use. Google

Gears, although no longer in active development, is a good example of a third party plugin for web browsers that provides additional functionality for creating web applications;

- Since many web applications are not open source, there is also a loss of flexibility, making users dependent on third-party servers, not allowing customizations on the software and preventing users from running applications offline (in most cases). However, if licensed, proprietary software can be customized and run on the preferred server of the rights owner;

- They depend entirely on the availability of the server delivering the application. If a company goes bankrupt and the server is shut down, the users have little recourse. Traditional installed software keeps functioning even after the demise of the company that produced it (though there will be no updates or customer service)
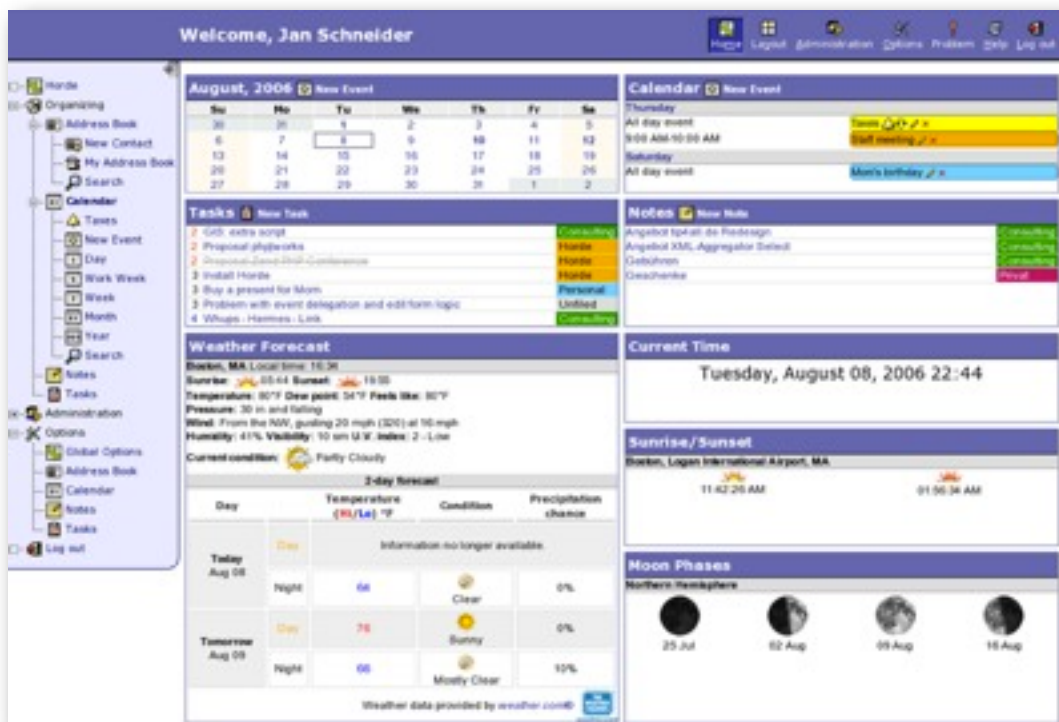

Figure
Horde groupware, an open sorce web application

2.6. API & Mashup

API

An application programming interface (API) is an interface implemented by a software program that enables it to interact with other software. It facilitates interaction between different software programs similar to the way the user interface facilitates interaction between humans and computers.

An API is implemented by applications, libraries, and operating systems to determine their vocabularies and calling conventions, and is used to access their services. It may include specifications for routines, data structures, object classes, and protocols used to communicate between the consumer and the implementer of the API.

When used in the context of web development, an API is typically a defined set of Hypertext Transfer Protocol (HTTP) request messages, along with a definition of the structure of response messages, which is usually in an Extensible Markup Language (XML) or JavaScript Object Notation (JSON) format. While "Web API" is virtually a synonym for web service, the recent trend (so-called Web 2.0) has been moving away from Simple Object Access Protocol (SOAP) based services towards more direct Representational State Transfer (REST) style communications.Web APIs allow the combination of multiple services into new applications known as mashups[1]

The practice of publishing APIs has allowed web communities to create an open architecture for sharing content and data between communities and applications. In this way, content that is created in one place can be dynamically posted and updated in multiple locations on the web.

1. Photos can be shared from sites like Flickr and Photobucket to social network sites like Facebook and MySpace.
2. Content can be embedded, e.g. embedding a presentation from SlideShare on a LinkedIn profile.
3. Content can be dynamically posted. Sharing live comments made on Twitter with a Facebook account, for example, is enabled by their APIs.
4. Video content can be embedded on sites which are served by another host.
5. User information can be shared from web communities to outside applications, delivering new functionality to the web community that shares its user data via an open API. One of the best examples of this is the Facebook Application platform. Another is the Open Social platform.

The two options for releasing API are:

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[1] see chapter 2.2.4 Mashup, page

1. Protecting information on APIs from the general public. For example, Sony used to make its official PlayStation 2 API available only to licensed PlayStation developers. This enabled Sony to control who wrote PlayStation 2 games. This gives companies quality control privileges and can provide them with potential licensing revenue streams.
2. Making APIs freely available. For example, Microsoft makes the Microsoft Windows API public, and Apple releases its APIs Carbon and Cocoa, so that software can be written for their platforms.

A mix of the two behaviors can be used as well.

API services form the foundation layer. These are the raw hosted services that have powered Web 2.0 and will become the engines of Web 3.0. Google's search and AdWords APIs, amazon's affiliate APIs, a seemingly infinite ocean of RSS feeds, a multitude of functional services, such as those included in the Strikelron Web Services Marketplace, and many other examples.

Some of the providers, like Google and Amazon, are important players but there is a huge long tail of smaller providers. One of the most significant characteristics of this layer is that it is a commodity layer. As Web 3.0 matures, an almost perfect market will emerge and squeeze out virtually all of the profit margin from the highest-volume services and sometimes squeeze them into loss-leading and worse.

Mashup

In web development, a mashup is a web page or application that uses and combines data, presentation or functionality from two or more sources to create new services.

The term implies easy, fast integration, frequently using open APIs (an interface implemented by a software program that enables it to interact with other software) and data sources to produce enriched results that were not necessarily the original reason for producing the raw source data.

The main characteristics of the mashup are combination, visualization and aggregation. Mashup is important to make more useful already existing data, moreover for personal and professional use.

To be able to permanently access the data of other services, mashups are generally client applications or hosted online. Since 2010, two major mashup vendors have added support for hosted deployment based on Cloud computing solutions; that are Internet-based computing, whereby shared resources, software, and information are provided to computers and other devices on demand, like the electricity grid

In the past years, more and more Web applications have published APIs that enable software developers to easily integrate data and functions instead of building them by themselves. Mashups can be considered to have an active role

in the evolution of social software and Web 2.0. Mashups composition tools are usually simple enough to be used by end-users. They generally do not require programming skills, they rather support other services and components together. Therefore, these tools contribute to a new vision of the Web, where users are able to contribute.

types: There are many types of mashup, such as data mashups, consumer mashups, and enterprise mashups.[3] The most common type of mashup is the consumer mashup, aimed at the general public.

Content mashups are based on the aggregation of contents by a subscription to different and heterogeneous data sources. Contents are processed and integrated in real time in order to be shown through a unified graphical interface or to be further processed by the machine. Examples in this category include mashups ranging from news aggregation, such as AggreGet1 that integrates popular news sources (e.g. Digg, de.licio.us, stumblebuzz, and others) to FlashEarth2 that allows the visualization of satellite and aerial images of the Earth coming from different providers (e.g. NASA, OpenLayers, Microsoft Virtual Earth, and Yahoo Maps).

Service mashups are based on the integration of available Web services in order to fulfill the functional requirements of a new Web application. This approach makes it possible to develop effective and stable applications easily and quickly, if compared to the traditional Web programming techniques. An example in this category is Hominin1, which relies on the APIs of an existing Web mapping service (GoogleMaps) and a Simile Timeline in order to show the contents of a local database concerning hominin fossils.

Hybrid mashups combine the two approaches mentioned above. Today this is the most interesting mashup technique, mostly because it shows relevant busi- ness potential, as is emphasized by the expression "business mashups" which is sometimes used to identify them. An early example of hybrid mashup was HousingMaps2 which was released in 2005 in order to provide an effective method for consulting Craiglist's3 real estate advertisements, by means of a highly inter- active interface combining map, search filters on price, and tabular lists.
Hybrid mashup also works well for an Agile Development project, which requires collaboration between the Developers and Customer (or Customer proxy, typically a product manager) for defining and implementing the business requirements. Enterprise Mashups are secure, visually rich web applications that expose actionable information from diverse internal and external information sources.

After several years of standards development, mainstream businesses are starting to adopt Service-oriented Architectures (SOA) to integrate disparate data by making them available as discrete Web services. Web services provide open,

standardized protocols to provide a unified means of accessing information from a diverse set of platforms (operating systems, programming languages, applications). These Web services can be reused to provide completely new services and applications within and across organizations, providing business flexibility.

The overall architecture of the Web is changing according to these trends and to-wards the vision of "The Web as a platform" suggested by O'Reilly (2005, p. 2), i.e. the idea of a Web where different and distributed blocks interact dynamically with each other in order to accomplish simple to complex tasks.
The assemblage of Web applications by remixing available data and services is referred to as "mashup", a term from the musical field that indicates the combination of tracks from two songs (usually belonging to two different genres) into a new one. From the user point of view, a mashup is perceived as an application based on a rich and dynamic graphical interface that does not require any installation and makes the sources of data and services it aggregates completely transparent. Mashups offer some specific characteristics that make them different from traditional integration approaches, and component-based application development. According to Yu et al. (2008), mashups show three main peculiar characteristics:

2.7. Cogito

Cogito is the pioneer semantic software developed by Expert System, It understands the meaning of words, like a person when reading so it's quite a unique technology. As cogito comprehends text, it controls the chaos generated by the thousands of files, documents, emails, articles and web pages that are managed by people everyday.
Unlike traditional technologies based on keyboard and statistics that can only guess the content of text, Cogito reads and interprets all knowledge trapped in unstructured text. finding hidden relationships, trends, and events making the work of any knowledge worker or interactions with customers more effective. Cogito helps business professionals make better devision in a faster and more proper way.

When I started to think about automatic comprehension of texts, I selected some aspects of the wider process of human comprehension. Cogito is a automatic text comprehender on the basis of engineers, programmers, mathematicians and linguists that practically focuses on:
• analysis of the context and the structure in order to perform the most accurate disambiguation of the meaning of words having more than one meaning. Identifying the right meaning of words is fundamental to "understanding" the subject of the text;

- analysis of the logical structure of the sentences in order to identify the most relevant elements in the document;
- algorithms to identify the expressive structures that, when recognized, can infer important information from the content.

Recall & Precision

recision and recall are two widely used metrics for evaluating the correctness of a pattern recognition algorithm. They can be seen as extended versions of accuracy, a simple metric that computes the fraction of instances for which the correct result is returned.

When using precision and recall, the set of possible labels for a given instance is divided into two subsets, one of which is considered "relevant" for the purposes of the metric. Recall is then computed as the fraction of correct instances among all instances that actually belong to the relevant subset, while precision is the fraction of correct instances among those that the algorithm believes to belong to the relevant subset.

Precision can be seen as a measure of exactness or fidelity, whereas recall is a measure of completeness.

As an example, in an information retrieval scenario, the instances are documents and the task is to return a set of relevant documents given a search term; or equivalently, to assign each document to one of two categories, "relevant" and "not relevant". In this case, the "relevant" documents are simply those that belong to the "relevant" category. Recall is defined as the number of relevant documents retrieved by a search divided by the total number of existing relevant documents, while precision is defined as the number of relevant documents retrieved by a search divided by the total number of documents retrieved by that search.

In a classification task, the precision for a class is the number of true positives (i.e. the number of items correctly labeled as belonging to the positive class) divided by the total number of elements labeled as belonging to the positive class (i.e. the sum of true positives and false positives, which are items incorrectly labeled as belonging to the class). Recall in this context is defined as the number of true positives divided by the total number of elements that actually belong to the positive class (i.e. the sum of true positives and false negatives, which are items which were not labeled as belonging to the positive class but should have been).

In information retrieval, a perfect precision score of 1.0 means that every result retrieved by a search was relevant (but says nothing about whether all relevant documents were retrieved) whereas a perfect recall score of 1.0 means that all relevant documents were retrieved by the search (but says nothing about how many irrelevant documents were also retrieved).
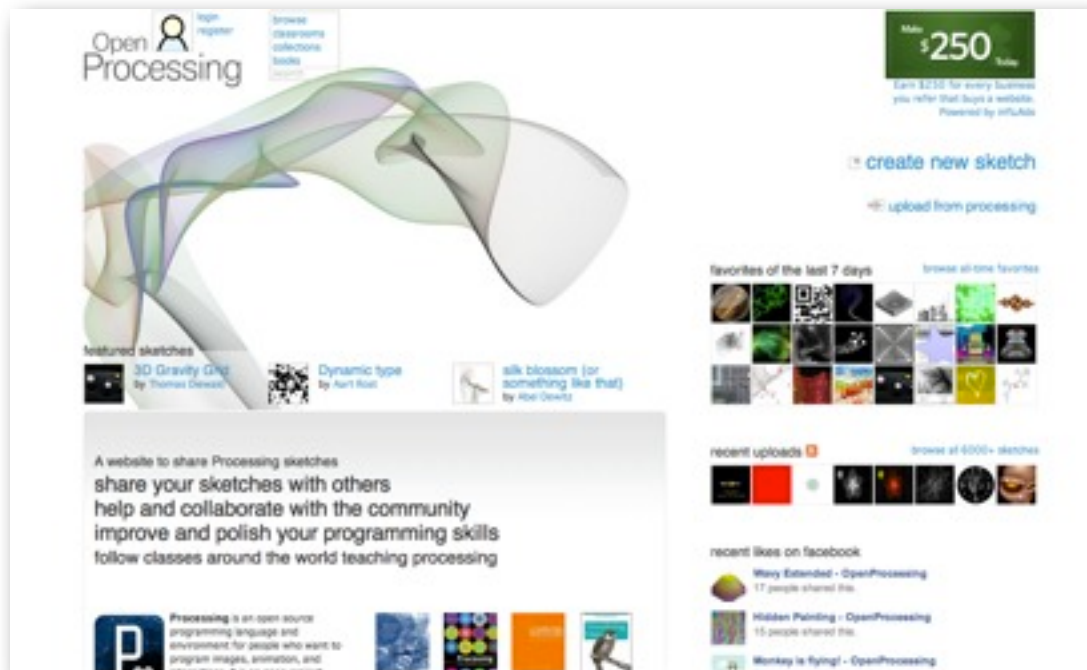
2.8. Processing

Figure?, logo of processing

Processing is an open source programming language and integrated development environment (IDE) built for the electronic arts and visual design communities with the purpose of teaching the basics of computer programming in a visual context, and to serve as the foundation for electronic sketchbooks.One of the stated aims of Processing is to act as a tool to get non-programmers started with programming, through the instant gratification of visual feedback. The language builds on the graphical capabilities of the Java programming language, simplifying features and creating a few new ones.

Processing includes a "sketchbook", a minimal alternative to an IDE for organizing projects.

Every Processing sketch is actually a subclass of the PApplet Java-class which implements most of the Processing Language's features.

When programming in Processing all additional classes defined will be treated as inner classes when the code is translated into pure Java before compiling. This means that the use of static variables and methods in classes is prohibited unless you explicitly tell Processing that you want to code in pure Java mode.

Figure?, interface of processing

Preface to visual elements correspondence

The application in general has five types of emotional-based outputs, one of these categories is "self-graphics" which is a sort of graphical visualization that is done by means of an open source programming software "processing". In order to translate one's immediate emotion to this type of visualization that is nothing but the moving stream of colors, some correlations between the emotions and the sub visual elements that finally make a graphical composition has to be defined. The principal visual elements that are defined based on the emotions is color.

Visual Correspondence

Robert Pluttchik proposed a three-dimensional "circumplex model" which describes the relations among emotions. This model is similar to a color wheel. The vertical dimension represents intensity, and the circle represents degrees of similarity among the emotions. He posited eight primary emotion dimensions arranged as four pairs of opposites. Some have also argued for the existence of meta-emotions which are emotions about emotions.[1]
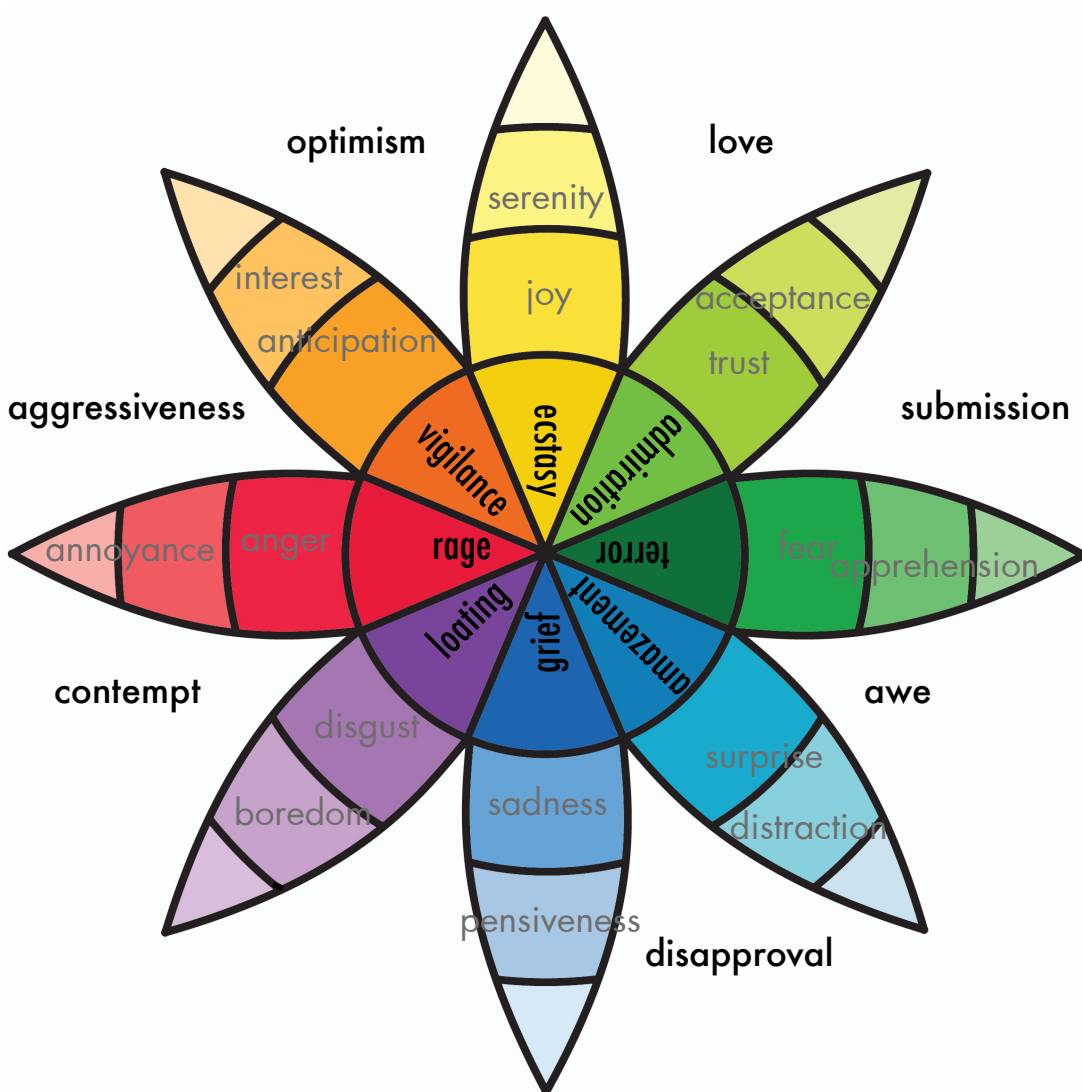
Figure? emotional color wheel
Generally, humans seek to re-establish an equilibrium state in their inner emotional life.   In human experience it is common to use the term "emotion" to describe the feeling state, but in fact emotion is considerably more complex.

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[1] see chapter 2.1 What is Emotions? table1&2 page

Another important means of distinguishing emotions concerns their occurrence in time. Some emotions occur over a period of seconds (for example, surprise), whereas others can last years (for example, love). The latter could be regarded as a long term tendency to have an emotion regarding a certain object rather than an emotion proper (though this is disputed). A distinction is then made between emotion episodes and emotional dispositions. Dispositions are also comparable to character traits, where someone may be said to be generally disposed to experience certain emotions, though about different objects. For example an irritable person is generally disposed to feel irritation more easily or quickly than others do. Finally, some theorists (for example, Klaus Scherer, 2005) place emotions within a more general category of 'affective states' where affective states can also include emotion-related phenomena such as pleasure and pain, motivational states (for example, hunger or curiosity), moods, dispositions and traits.

AND...

The shape of threat: simple geometric forms evoke rapid and sustained capture of attention.

Previous work has indicated that simple geometric shapes underlying facial expressions are capable of conveying emotional meaning. Specifically, a series of studies found that a simple shape, a downward-pointing "V," which is similar to the geometric configuration of the face in angry expressions, is perceived as threatening. A parallel line of research has determined that threatening stimuli more readily capture attention. In five experiments, the authors sought to determine whether this preferential processing was also present for the simple geometric form of a downward-pointing "V." Using a visual search paradigm, across these experiments the authors found that, when embedded in a field of other shapes, downward-pointing V's were detected faster and, in some cases, more accurately than identical shapes pointing upward. These findings indicate that the meaning of threat can be conveyed rapidly with minimal stimulus detail. In addition, in some cases, during trials of homogeneous fields of stimuli, fields of downward-pointing V's led to slower response times, suggesting that this shape's ability to capture attention may also extend to difficulty in disengaging attention as well.

3. Criticism on Social Networks and Their Consequences

Preface

Thanks to the internet and such informatics technologies, today's world has given the man a vast variety of opportunities and options proposing numerous applications and services in order to make his own choice in different areas of interest, education, work, traveling, finance, human communication, etc. Expanding the open source and shared networks, people receive huge amount of information and fulfill lots of their needs without any financial and temporal cost.

The technological and scientific jump in the recent years made a considerably huge progress in decreasing the effort regarding doing things in all aspects of life such as communication, instruction, education, transportation, etc. Thanks to the all mentioned, a lot of difficulties are exceeded on behalf of the man but, isn't this condition bringing the man into the state of confusion among all these options? Receiving lots of different services and facilities at once, using the already fully designed applications by the architects, not sharing and participating in the process of design and building of the used applications and programs, isn't man becoming somehow passive in the process of creation and lost among all these present choices?

The present situation of human social intercommunication is also influenced by the same fact. Today a big part of people's communicative correlations takes place in the context of social networks. These social networks that are in reality virtual (even if neglected by some people) certainly have their own specific construction and rationally in order to be able to use them one has to follow all the relative rules and commands and obviously move only in that structure. the user practically has no significant role in defining the rules of the game or its construction though he/she is simply only a participant in the final part which is playing the game. Couldn't this influence social man's manner and attitude towards any other aspects of life in a long-term?

The other relevant aspect that has to be taken into consideration in this debate, is the affect of the architecture of the context in which humans communicate, on the sincereness of human correlations. In any social network there are defined models and dimensions which give people's actions and thoughts a platform and obviously outside these instructed platform there's no chance to act. Some of the social networks give more chance to users to correlate like myspace as user can design her/his own page in terms of graphics and music and etc. Some of them are more spontaneous like twitter and some of them are more overwhelming in terms of human relations like Facebook. but does such a platform of human relations help them at all to make any more intimate and creative relationship between the users?

Dealing with users personal information in social networks can be counted as a threat for users' privacy and security .Imagine Facebook that has such a demanding system towards people's personal data. The users simply expose a lot

of their private issues such as family and friends photos, their marital or love status, their address, phone number, the employer who they work for, their emotional crisis etc, etc, etc in a large common space because the rules of the game demand that. Do you think they would that easily expose such information on the net if there was no Facebook for example?

3.1 what is a Social Networks (social approached)

Social network websites are emerging as a way people are sharing personal information online. These websites allow users to post a pro- file of themselves and link to the profiles of friends. The first social network websites emerged in the mid-1990s. Today there are more than two hundred social network websites. Popular sites include MySpace, Facebook, Xanga, LiveJournal, and Friendster.

Social network websites are designed around the concept of social net- works. A social network is a web of connections, such as a group of people who associate together. Although we often cluster together in groups, our social circles are not isolated. Some of the people we know are likely to be friendly with people in a different social circle. We're all connected in some way to each other. If I don't know you personally, there's still a good chance that at least one of my friends knows one of your friends.

Through social networks, networks of friends and acquaintances can interlink their profiles, share personal information, and communicate with each other. MySpace, currently the most popular social network website, was created in 2003. MySpace profiles can contain a ton of data, including phone numbers, email addresses, hobbies, religion, sexual orientation, political views, favorite television shows, and more. People can post photos and videos on their profiles. Each user has space for a blog, including a section where friends post comments. People often use their real names for their MySpace profiles.

To create a profile, a user must claim to be fourteen years of age or older. The profiles of users under age sixteen are private, but those older than sixteen can make their profiles available to the public. MySpace skyrocketed in popularity in part because it gave users a wide range of choices about how to develop their profiles. People create elaborate designs for their pages, decorating them with graphics and giving each a distinctive look and style. As one student said: "MySpace gives you more freedom to express yourself."

3.2 Lack of intimacy and depth in the users' relations

The social network component to MySpace involves the way people can link their profiles to those of their friends. There is a place on a person's pro- file called "Friend Space," which contains links to the profiles of a person's "friends" and often a picture of each friend. At the top of the Friend Space section is a tally of the total number of friends in the person's network. A "friend" on a social network site is not necessarily a close friend, as many people try to inflate the number of their friends by adding total strangers to the list.

In real-space social networks, people have different kinds of ties with others. "Strong ties" are close connections (very close friends and relatives); "weak ties" are looser connections (acquaintances and others with whom people might have marginal contact). But according to the computer scientist Ralph Gross and the economist Alessandro Acquisti, social network websites "oftenreduce these nuanced connections to simplistic binary relations." Few social network sites allow users to distinguish between close friends and mere acquaintances

The researchers Judith Donath and danah boyd question the quality of one's ties in social network sites; they argue that "the number of strong ties an individual can maintain may not be greatly increased by communication technology but the number of weak ties one can form and maintain may be able to increase substantially." As Gross and Acquisti note, people's online social networks may be only an "imaginary" community because "thousands of users may be classified as friends of friends of an individual and become able to access her personal information, while, at the same time, the threshold to qualify as a friend on somebody's network is low." Although MySpace al- lows users to keep their profile private or share it only with a few friends, most have their profile set to be fully accessible to the public. Profiles also appear in Google search results.

3.3 Reveal of Personal Information

Social network sites, personal information is being posted on-line at a staggering rate. Given the ease at which information can be recorded and spread, there will be more instances when information we want to keep on a short leash will escape from our control.

Sometimes information winds up online because we put it there intentionally; sometimes it is accidental; and other times, it is put there without our knowledge and consent.

As on MySpace, Facebook users create profiles with personal information. According to one study of Facebook users at a particular school, the profiles "provide an astonishing amount of information: 90.8 percent of profiles contain an image, 87.8 percent of users reveal their birth date, 39.9 percent list a phone number . . . and 50.8 percent list their current residence."51 Moreover, "Facebook profiles tend to be fully identified with each participant's first and last names."52 Facebook profiles have a feature called "Photo Albums," where users can post photos. Friends can post photos on each other's profiles.

Information, Liberation, and Constraint2728Rumor and Reputation. According to a study of users at one university, over the course of eight weeks, the total number of pictures grew from about ten thousand to eighty thousand, averaging more than twenty pictures per person.

Once the information is revealed, it can't be undone... For most of us (our generation), the foolish things we do as teenagers disappear into oblivion and are revived only when we reminisce with old friends. But in today's world, foolish deeds are preserved for eternity on the Internet.

In the past, oral gossip could tarnish a reputation, but it would fade from memories over time. People could move elsewhere and start anew. The printed word, however, was different. As Judge Benjamin Cardozo wrote in 1931: "What gives the sting to writing is its permanence in form. The spoken word dissolves, but the written one abides and perpetuates the scandal."90 In the past, people could even escape printed words because most publications would get buried away in the dusty corners of libraries. The information would be hard to retrieve, and a sleuth would have to devote a lot of time to dig it up. The Internet, however, makes gossip a permanent reputational stain, one that never fades. It is available around the world

3.4 Reputation

The proliferation of personal data on the Internet can have significant effects on people's reputations. As the sociologist Steven Nock defines it, a "reputation" is "a shared, or collective, perception about a person." Our reputations are forged when people make judgments based upon the mosaic of information available about us.

Our reputation is one of our most cherished assets. As the Book of Proverbs states: "A good name is rather to be chosen than great riches. Our reputation is an essential component to our freedom, for without the good opinion of our community, our freedom can become empty.

We form our own selfhood based on how we think others perceive us. Cooley's theory, which he called the "looking glass self," has become widely accepted by social psychologists. Our reputation can be a key dimension of our self, something that affects the very core of our identity. Beyond its internal influence on our self-conception, our reputation affects our ability to engage in basic activities in society. We depend upon others to engage in transactions with us, to employ us, to befriend us, and to listen to us. Without the cooperation of others in society, we often are unable to do what we want to do. Without the respect of others, our actions and accomplishments can lose their purpose and meaning. Without the appropriate reputation, our speech, though free, may fall on deaf ears. Our freedom, in short, depends in part upon how others in society judge us.

Although we want some degree of control over our own reputation, we also want to know the reputation of others. While privacy gives people greater control over their reputations, it also "makes it difficult to know others' reputations."

We have a lot at stake in our relationships with others, and we are vulnerable to great loss if we are let down or betrayed. In many circumstances, we look to people's reputation to decide whether to trust them. Thus, beyond allowing individuals to guard against dealing with dishonest people, reputation also functions to preserve social control. By ensuring that people are accountable for their actions, reputation gives people a strong incentive to conform to social norms and to avoid breaching people's trust.

There's a paradox at the heart of reputation—despite the fact we talk about reputation as earned and the product of our behavior and character, it is something given to us by others in the community. Reputation is a core component of our identity—it reflects who we are and shapes how we interact with others—yet it is not solely our own creation. As one person in the nineteenth century put it: "A man's character is what he is; a man's reputation is what other people may imagine him to be." Our reputation depends upon how other people judge and evaluate us, and this puts us at the mercy of others. Our good reputation can quickly be lost, with deleterious consequences to our friendships,

family, jobs, and financial well-being. We must all cope with the fragility of reputation, the delicate porcelain vessel that carries our ability to function in society. (D.J. Solove, 2008)

3.5 Security and Privacy

Seven days a week, twenty-four hours a day - even as you read this - electronic databases are compiling information about you. Ever since the Internet transformed the way we shop, learn, and communicate, computer databases have collected unprecedented amounts of information about almost every individual in the world. Small details that were once captured in dim memories or fading scraps of paper are now preserved forever in the digital minds of computers, in vast databases with fertile fields of personal information. These databases create a profile of activities, interests, and preferences for millions of people. Often these dossiers are used to investigate backgrounds, check credit, market products, and make a wide variety of decisions affecting our lives. This practice has, thus far, gone largely unchecked, and poses a grave threat to our privacy. In this startling revelation of how digital dossiers are created (usually without our knowledge)

Teeming with chatrooms, online discussion groups, and blogs, the Internet offers previously unimagined opportunities for personal expression and communication. But there's a dark side to the story. A trail of information fragments about us is forever preserved on the Internet, instantly available in a Google search. A permanent chronicle of our private lives, often of dubious reliability and sometimes totally false, will follow us wherever we go, accessible to friends, strangers, dates, employers, neighbours, relatives, and anyone else who cares to look. This engrossing book, brimming with amazing examples of gossip, slander, and rumour on the Internet, explores the profound implications of the online collision between free speech and privacy. Daniel Solove, an authority on information privacy law, offers a fascinating account of how the Internet is transforming gossip, the way we shame others, and our ability to protect our own reputations. Focusing on blogs, Internet communities, cybermobs, and other current trends, he shows that, ironically, the unconstrained flow of information on the Internet may impede opportunities for self-development and freedom. Long-standing notions of privacy need review, the author contends: unless we establish a balance between privacy and free speech, we may discover that the freedom of the Internet makes us less free.

Part two: The Project

2.1 Problem Setting

In spite of all the so-called opportunities and services that social networks provide for the user, there is actually no true consideration about how user's immediate emotions are treated or appreciated in the context. Usually the more commercially a social network improves, the less it's taken cared of in terms of original emotional expression.

Using social networks, users intercommunicate in the defined context of the network but usually this has been done regardless of how they really feel at the moment and of course the emotions of the person in relation with them. We see often that today some of the social networks like Facebook have become sort of a platform for users to make their own preferred image of themselves and therefore to get into dramatic games communicating to others and the whole network through this image. A "friend" on a social network site is not necessarily a close friend, as many people try to inflate the number of their friends by adding total strangers to the list.

In fact, using social networks, the real emotional state of users is quite neglected as obviously what people propose to others as their "emotional expression" is not always necessarily what they feel. So there is no image of user's true emotional state to act as a representative of one's emotions that is originally sourced in one's internal world and make their way out into the external world which time to time seems like a non-familiar shelter for human emotions and moods.

Once the information is revealed, it can't be undone...

Dealing with users personal information in social networks can be counted as a threat for users' privacy and security .Imagine Facebook that has such a demanding system towards people's personal data. The users simply expose a lot of their private issues such as family and friends photos, their marital or love status, their address, phone number, the employer who they work for, their emotional crisis etc, etc, etc in a large common space because the rules of the game demand that. Do you think they would that easily expose such information on the net if there was no social network like Facebook?

2.2 Introduction to ModMood

ModMood is a web-based application which enables user to have different reads of her/his immediate emotional state and also communicate with others through innovative ways based on the different expressions of emotions in real time. ModMood provides a common platform in which user can see his/her immediate emotion expression in form of a photo or quote or piece of visual art, also a music track. In the same platform the user is able to see his/her friend's emotion expression translated to the mentioned forms that changes constantly (by user's choice) in real-time.

ModMood significant benefits for users as individuals in terms of emotional consciousness at the moment and appreciating the present moment through observing the different expression potentials of a spontaneous emotion.
ModMood give users a preview of their emotional state in the period of use so they can have sort of a diary of their mood along the time that could be useful in terms of psychotherapy or so on.
The users are involved in making the last visualization of their own mood that has pre cultural values.

ModMood gives user the opportunity to communicate with her/his dear ones through the real immediate emotions which means leading to a more intimate and authentic communication. On the contrary of other social networks in ModMood you are not what you say or write or show to others but -in terms of

emotions- you really are what is shown there as it is originated by your own emotion. Therefore ModMood promotes a kind of emotionally more direct and trusty relation between two people.

The significant advantage of ModMood in terms of human contact is that it lets the user be in constant emotional contact with another. The user can have an image of his/her close friend's mood in a certain period of time even while doing other activities. Practically the user can have a little window of a friend's emotional state open on the screen or listen to the music that is sorted based on his/her mood. So what ModMood is trying to do by the end is to keep the people in a more emotionally intimate contact.

2.3 The System Functionality

In simple words the system detects the emotion and then looks for the relevant materials to the so-called emotion such as photo, music, quote, etc (that make the final output) among some databases through their APIs. In order to find the relevant material the system searches the attached comments and tags in order to find the compatible word for the emotion. For example if the detected emotion is "joy" the system looks for the word "joy" among the database.

But what if there are materials which are tagged by synonym words like pleasure or delight or happiness? in order to find the different words with the same or relating meanings a thesaurus of words can provides a list of the relevant words. So now the system know that it can also consider the materials which are tagged or commented with such synonym words such pleasure or happiness as well.

But what if there is a contradictory comment using the same word on a material which says "I don't find any joy in this!" In order to prevent such problems all the materials are filtered by means of Cogito, a software that comprehends the text and gives out the comprehensive result relevant to the query. After having the materials filtered in terms of relevance to the emotion, the system proposes some of them to the user. The user can finally choose the favorite ones and make a composition of them, that is done by Mashup.

the whole functionality of the serving system in order of time and coherence is as it's shown in the graph
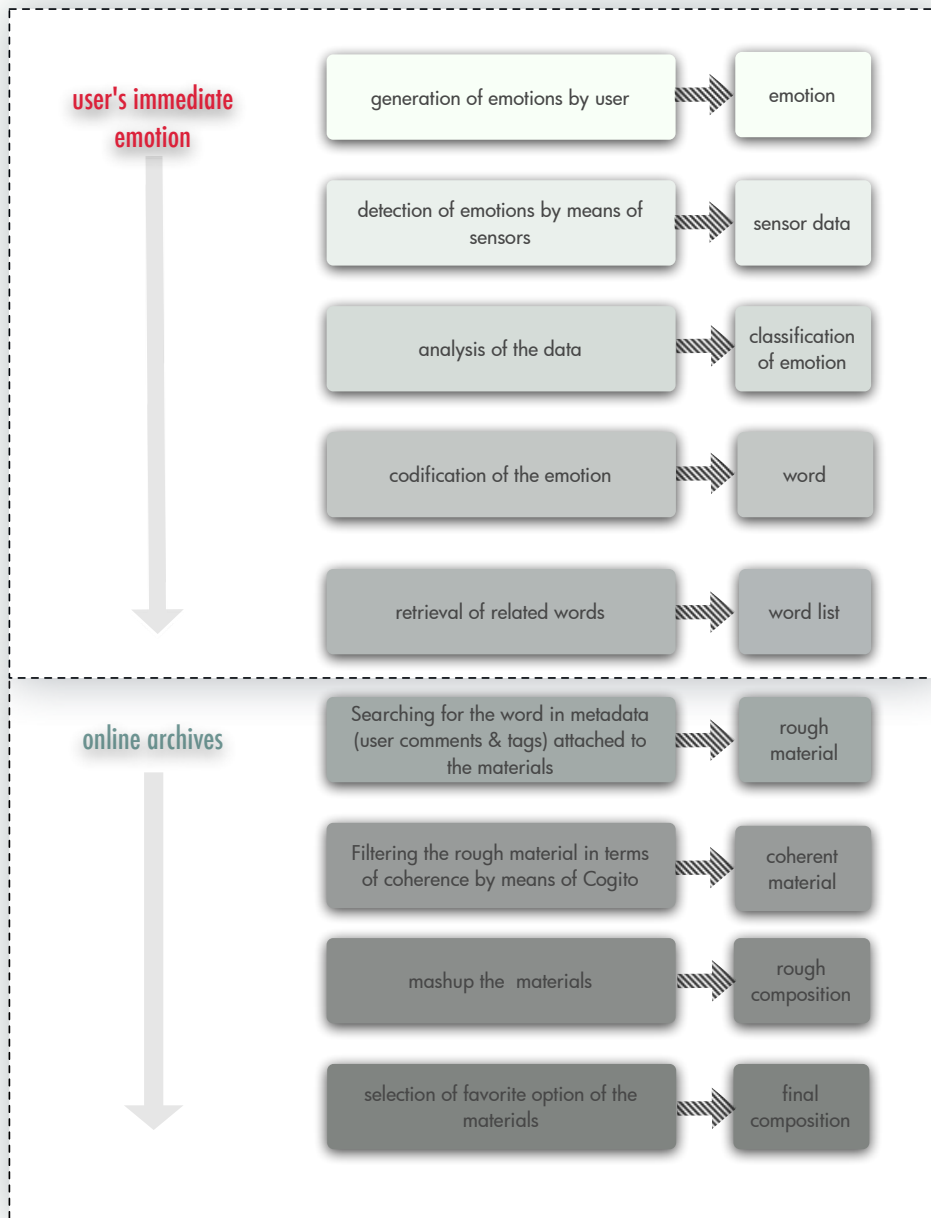
user's immediate emotion

generation of emotions by user	emotion
detection of emotions by means of sensors	sensor data
analysis of the data	classification of emotion
codification of the emotion	word
retrieval of related words	word list

online archives

Searching for the word in metadata (user comments & tags) attached to the materials	rough material
Filtering the rough material in terms of coherence by means of Cogito	coherent material
mashup the materials	rough composition
selection of favorite option of the materials	final composition

Figure ?.The functionalty of serving system step by step

2.3.1 Detection and Recognizing the Emotional Information

The first step is to detect the emotion. The whole complex process of detection of the emotion is done by "Affective Computing". Breaking down the task as also shown in figure? ,the emotion has to be detected by means of some sensors and then after the analysis on the data gathered by the sensors, it is given a code (in a from of a word)

sensors
Some of the used sensors in the process are as:
• camera to detect facial expressions, gestures, body postures, etc.
• microphone to detect the voice
• Galvanic Skin Response sensor:
Galvanic Skin Response is a measure of the skin's conductance between two electrodes. (bibliography A. C. website) that detects body temperature and galvanic resistance
• the blood volume pulse sensor
The Blood Volume pulse sensor uses photoplethysmography to detect the blood pressure in the extremities. Photoplethysmography is a process of applying a light source and measuring the light reflected by the skin. (bibliography A. C. website)

sensors

camera

microphone

GSR*

BVP*

physical element

motion elements
facial expressions/gestures/postures

voice

body temperature/
glavanic resistence

blood pressure

categoties

visual terms

vocal terms

touch terms

reflection
terms

MATERIALIZATION
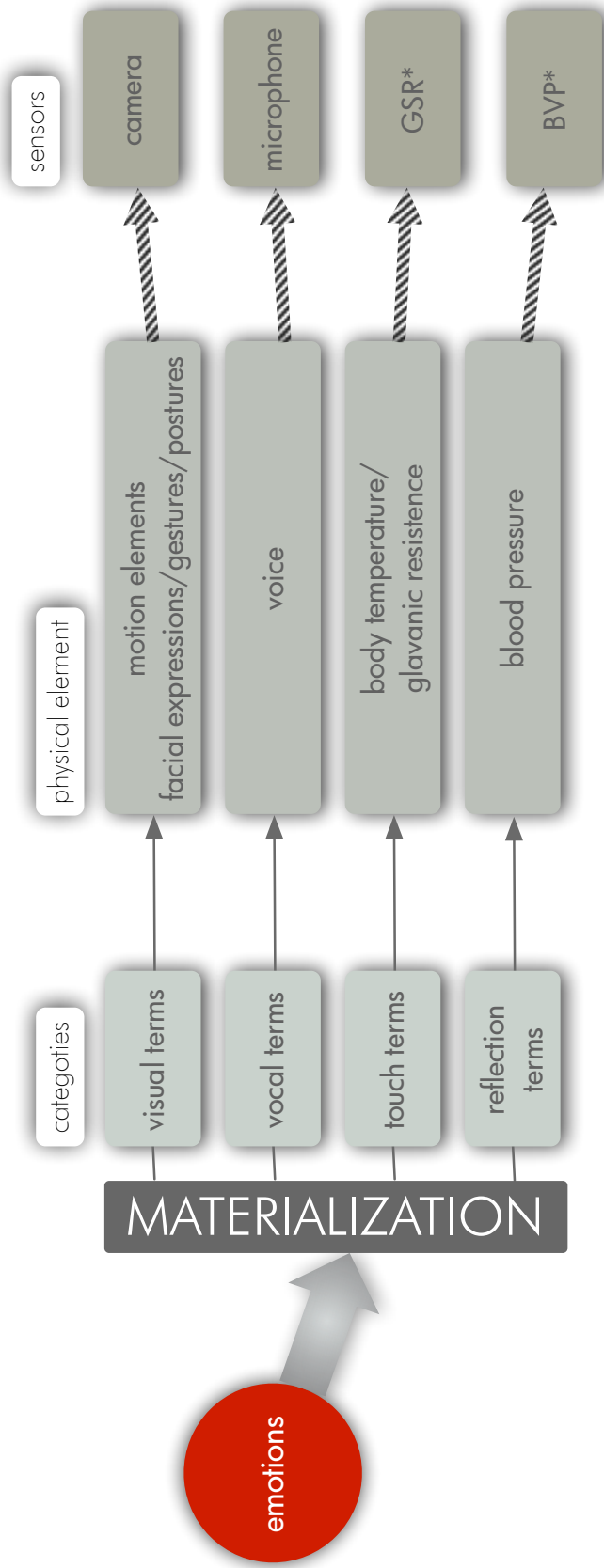
emotions

2.3.2 Retrieval of the Relevant Word

What is generated by Affective Computing is one code or word that corresponds to a single emotion. In the real word any data on the web can be tagged with different words that may have similar or relevant meaning. So in order to give the system a recognition of relevance between such words, an thesaurus of the words is defined which looks like a big net of a related words. The output will be a list of the words that can cover a large number of the emotions.

For example if the recognized word (as an emotion) by the system is sorrow, according to this word list the system finds such relevant words as disgrace, misery, grief, woe, etc. So having a knowledge of a collective meaning of an emotion, the system can find the relevant material in a more coherent way.
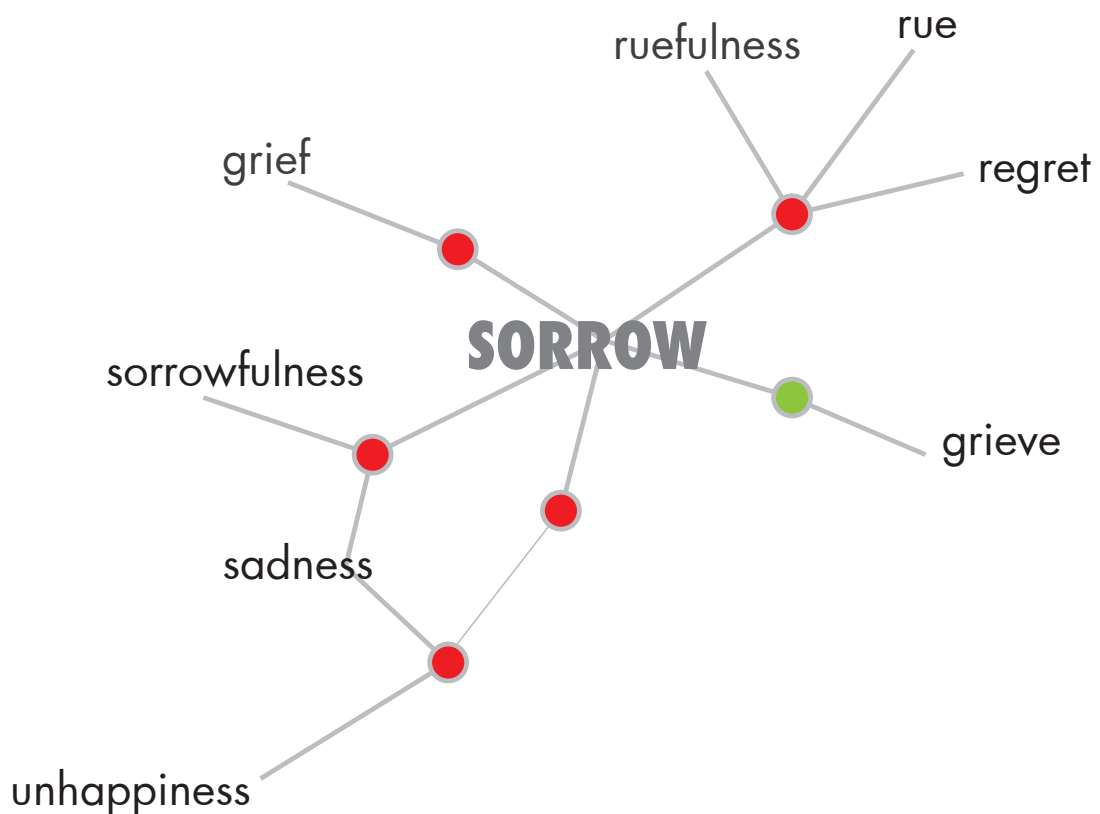
table ?. schematic view of a word thesaurus
The above schematic view could be a part of a word thesaurus which is used as a refrence to generate a list of the relevant words to the emotion

2.3.3 Finding Relevant Materials for the Emotion

after having a proper list of the words corresponding to the emotion, the system has to find the relevant material. The process of finding the material starts with looking for the relevant words (or list of the words) among the metadata attached to the materials (tangs and comments) in the databases through the APIs. Web 2.0 provide this opportunity. Having a list of the materials including the relevant words, the system has to recognize if these words really relate to the materials coherently or not. For example if the detected emotion is joy and the materials is tagged by the phrase "anti-joyful" which communicate a contradictory meaning, the system had to recognize that this materials is not proper. The semantic software Cogito is the tool that provides this possibility for the system. Cogito is able to comprehend the text and recognize the relations between the words. So after having filtered by Cogito, the materials are ready to be proposed by the system.

The databases that are counted as online archives for the materials of ModMood are as followed:
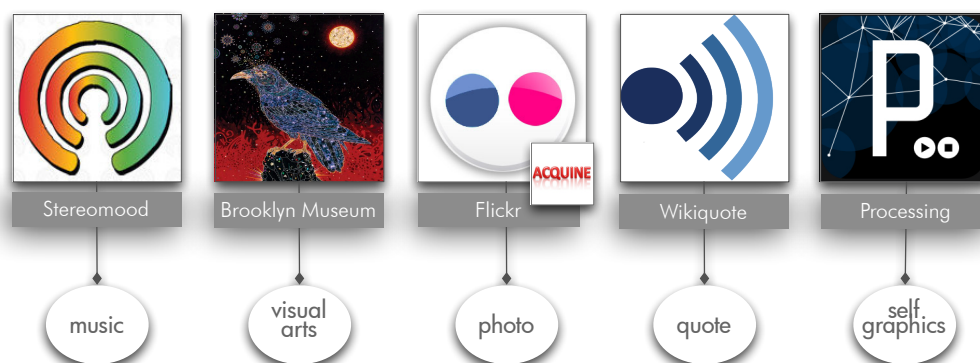
Figure ?.The sources of the materials proposed by the system

It's to say that the photos are originally derived from flickr, though due to the generality and dispersion of the materials on flickr and in order to maintain sort of harmony in terms of aesthetic values, the photos become filtered by ACQUINE. ACQUINE (Aesthetic Quality Inference Engine) is a digital free instant impersonal assessment of photo aesthetics.
Though system gives the possibility to the user to choose other certain databases defined by the system or to suggest her/his favorite source of material. Then the system accordingly studies the mentioned source and if it is appropriate in terms

of technology and cultural values adds it as an option to the suggestive sources of the system.

In the three sources of Stereomood (for the music tracks), Brooklyn Museum (for the visual arts), Flickr in association with ACQUINE (for the photos), the system finds the relevant materials through the attached metadata as explained before. In vase of Wikiquote (for the quotes), as the material is already consisted of the words, the system does not need any agent as metadata. It can directly analyze the material with the provided tools as word retrieval and Cogito and come up with the properly relevant ones.

self-graphics generation

The process of self-graphics (moving color streams based on the emotion) is completely different from the other materials. Self-graphics is generated by the open-source software of "Processing". In the programming, certain codes have been defined for the colors and speed as well as all other elements of the sketch. For example in the programing for having the color red it's just enough to write the word "red" in the source code. Accordingly some corrections between emotions and colors and speeds have been defined as well. For example the defined color for anger is red, so what the system does is simply to correspond the relevant colors and speeds to the codes of the program.

2.3.4 Making the Final Composition

After having found the relevant materials in the online archives, the role of the user to make the final composition starts. Basically user has a dashboard and a platform embodying the final composition. The dashboard consists of five categories such as photo, music, etc that can be combined. Choosing three dashes for example, means combining the data provided by different three sources via Mashup.

Having chosen the categories by user, the system suggests four options for each category in order to give user more choices to make the desired composition. Therefore the user chooses the one (or more than one) preferred material from each category and makes the final composition.

self-graphics

photo

quote

dashboard

music

visual arts

four suggestive pieces of visual arts

platform of the final composition
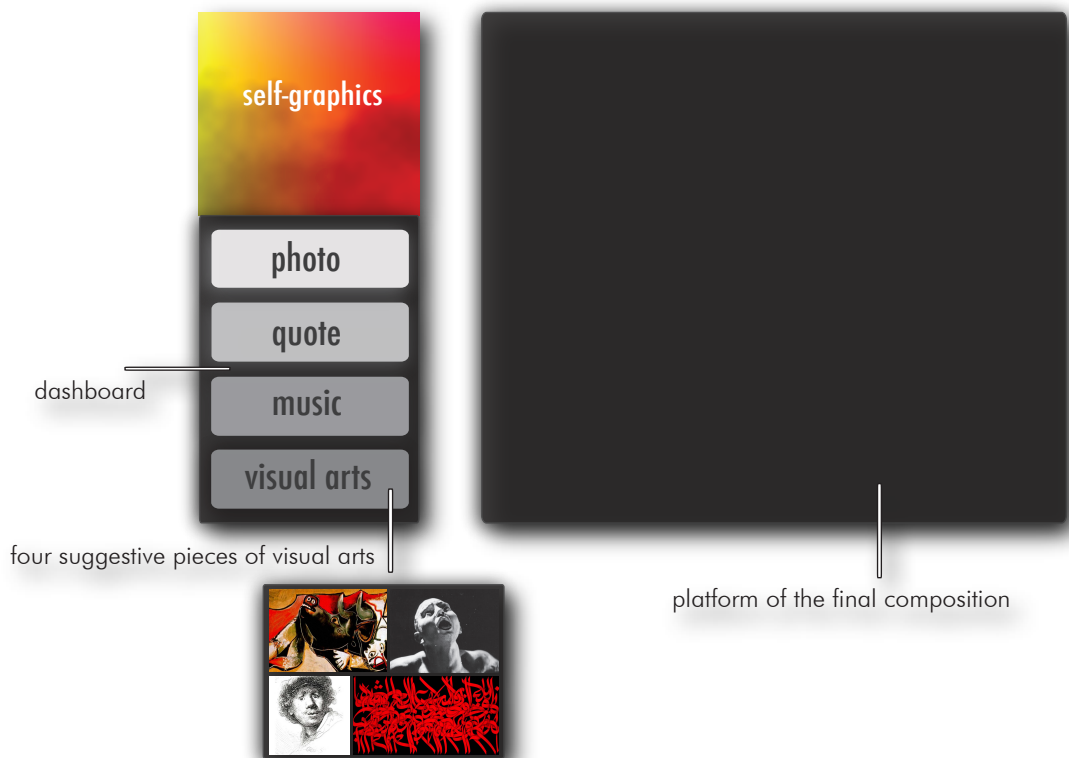
table ?. Final composition

first user chooses his/her prefferd dashes. After having combined the chosen dashes via Mashup, the system suggests four options for each category. Assuming that the chosen dash is visual arts, the system suggested four pieces of visual arts. The last step is to choose the desired option and drag it to the platform.

2.4 ModMood Interaction with the User

2.4.1. Web Browser Features & Functions
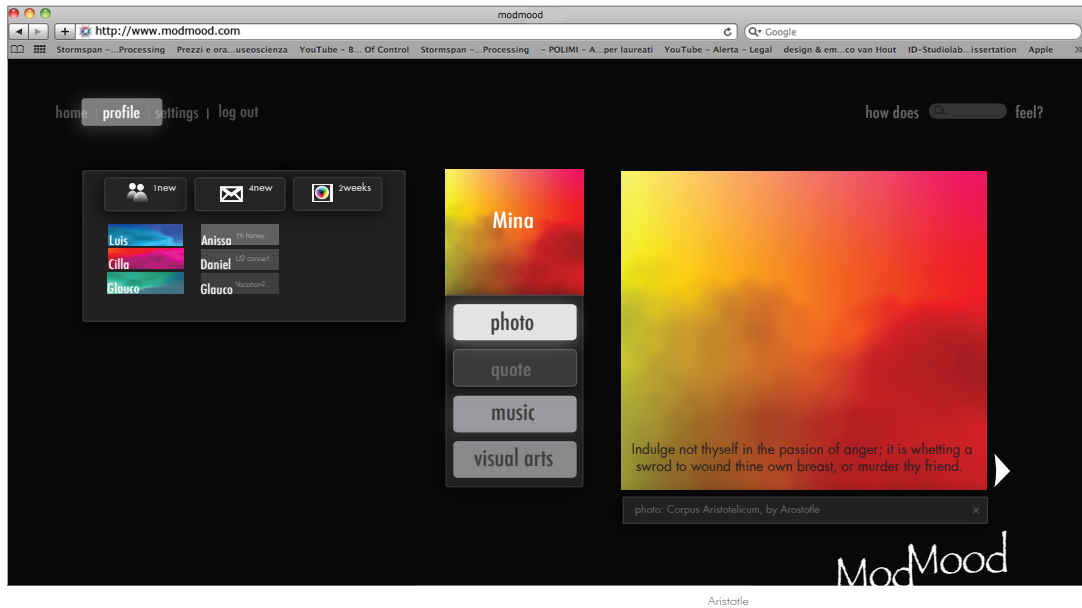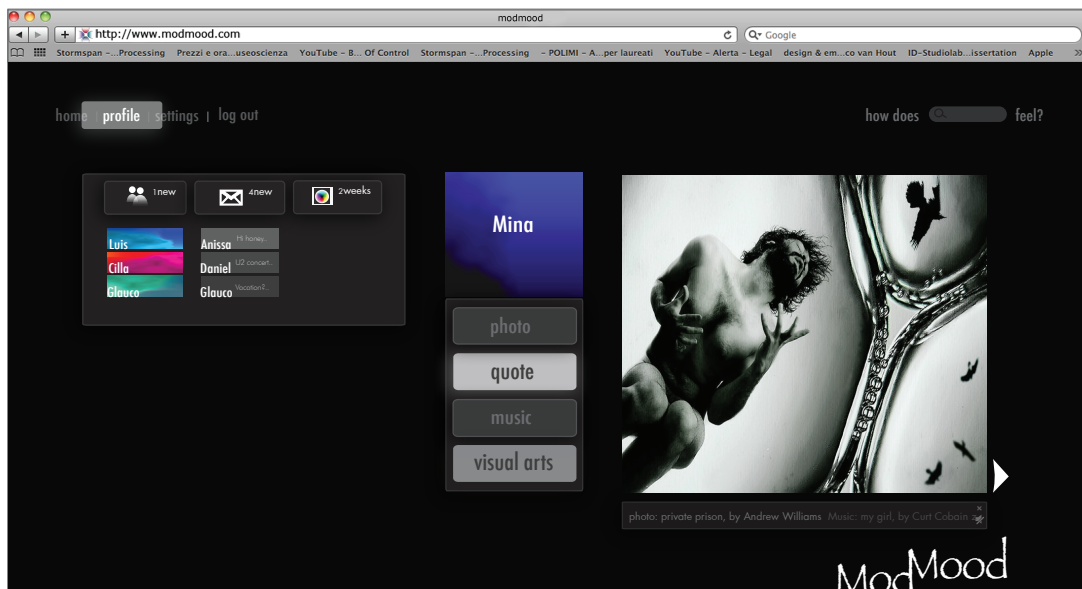
log in:
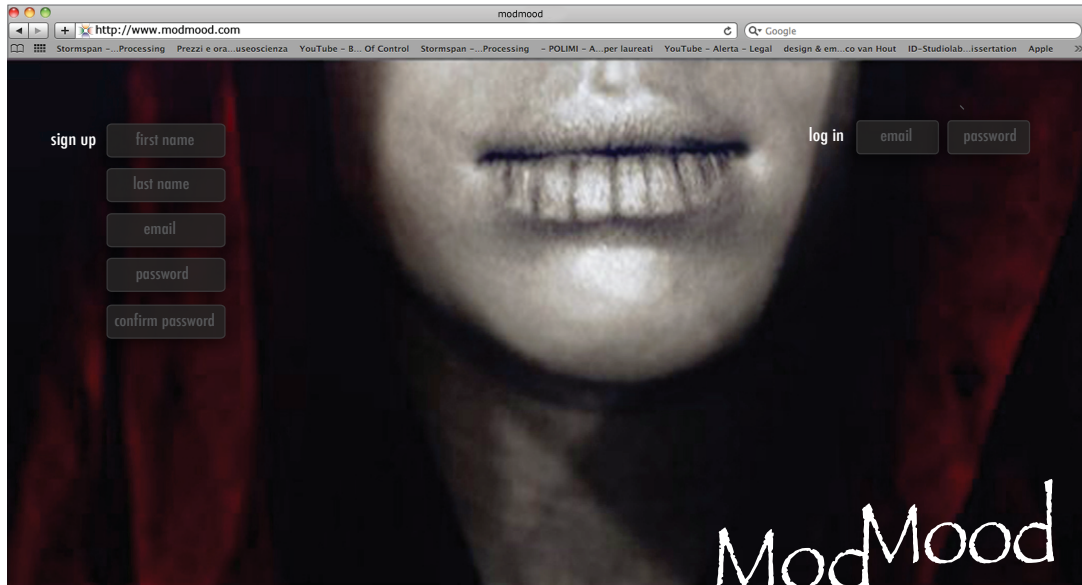
homepage:
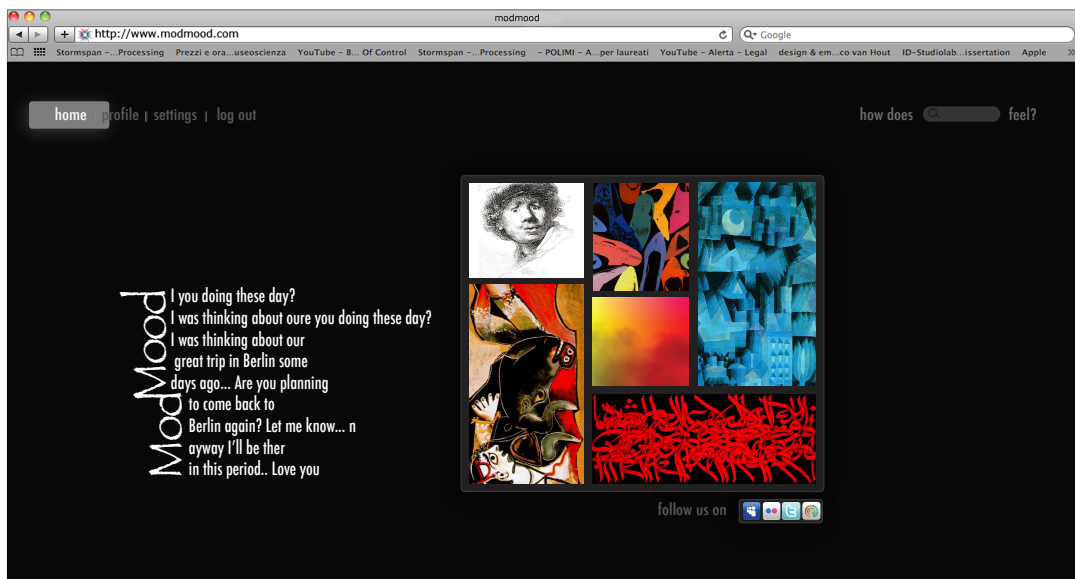
profile:
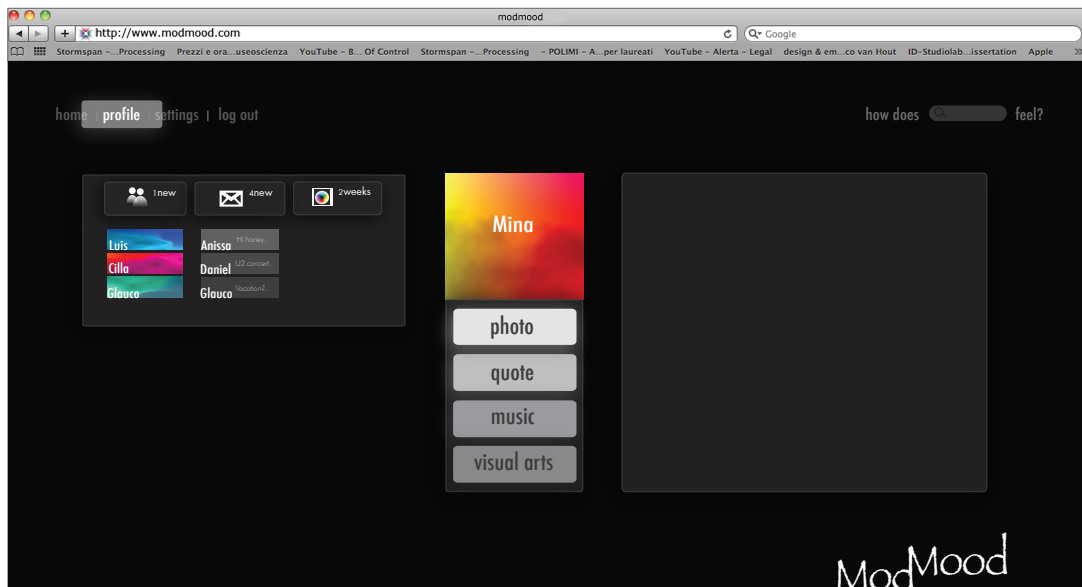
The profile page is practically the main area of interaction between the user and the system which consist of four main features: platform, friends, messages, life mood.

platform:
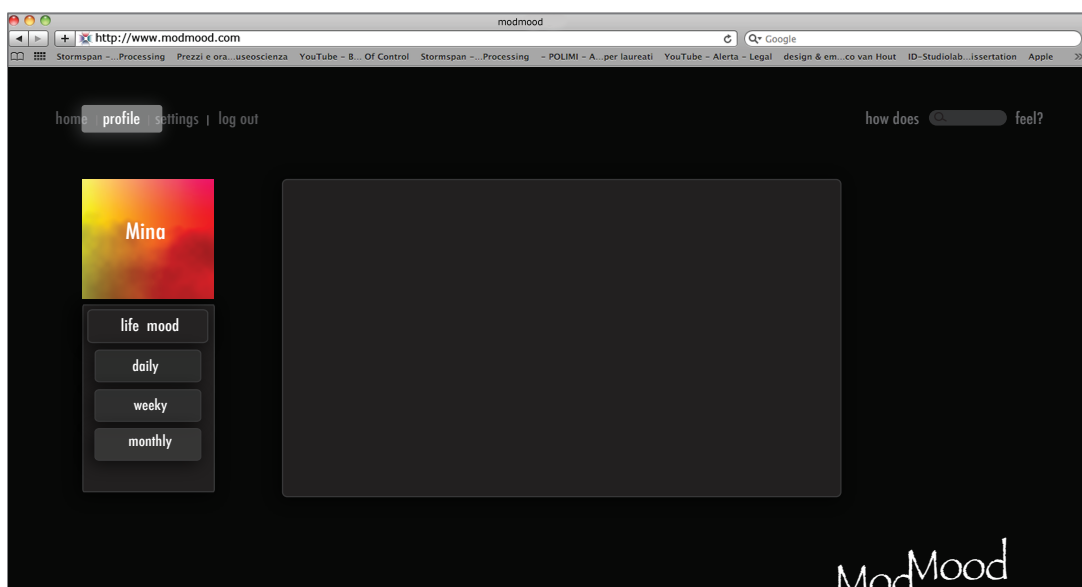
Aristotle

The final output of the whole system which is the image of the user's immediate emotional state is demonstrated on a platform embedded in the user's profile. On this platform the user is able to choose the materials with which he/she tends to make the final composition.

The only thing that the user needs to do is to drag the chosen dash (photo, quote, etc.) to the platform.

In case she/he doesn't like the suggested material she/he can change it by means of the next bottom (white arrow) on the right side of the platform.

life mood:

Life mood give user a schematic result of her/his mood along the time. It could be daily or weekly or monthly or etc. This schema can be in the below forms (as shown in the figures):
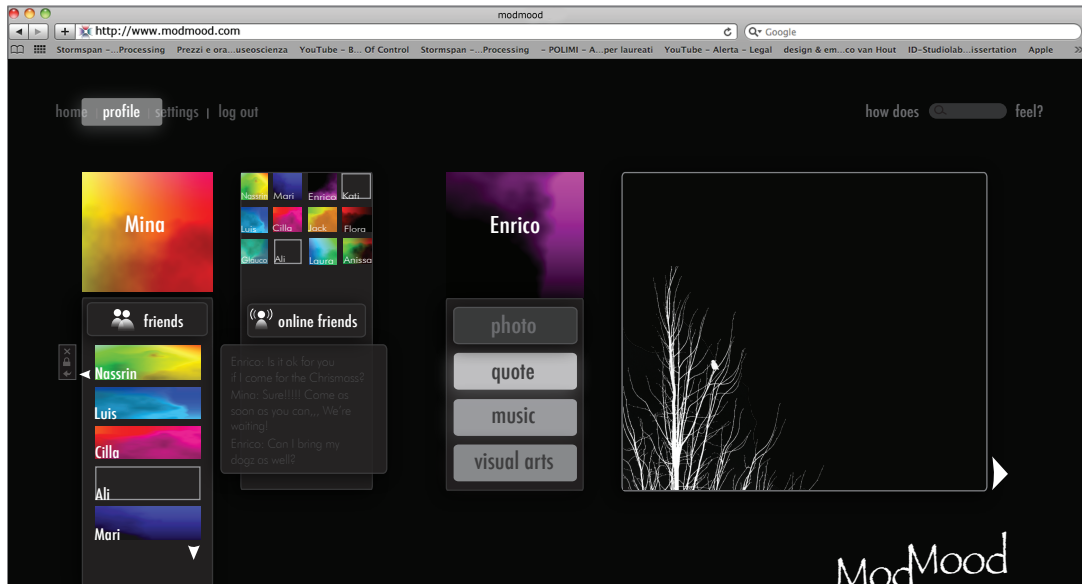
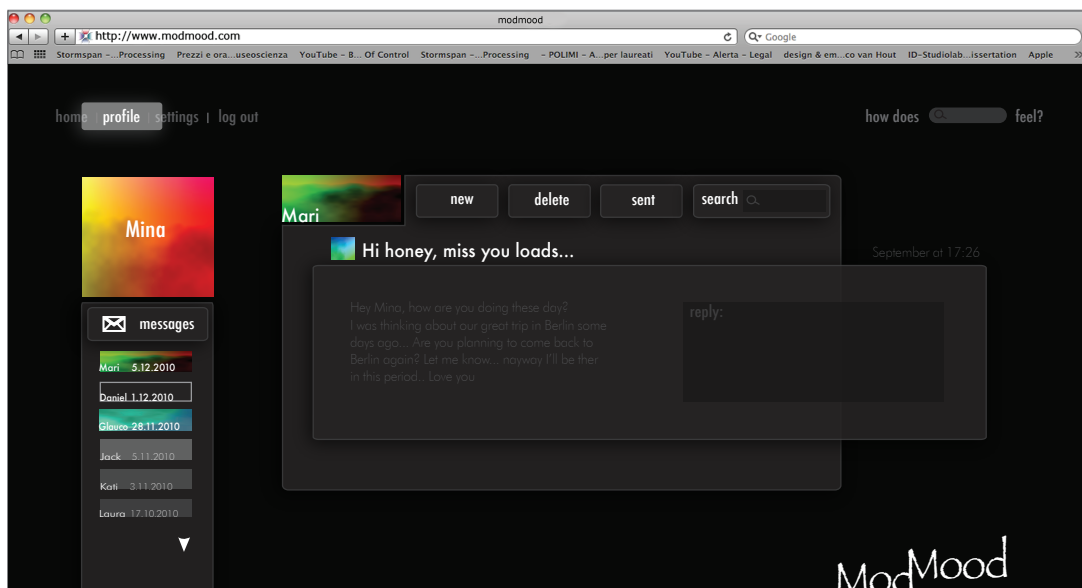verbal schema
graphical state
photo mood
art mood
music mood
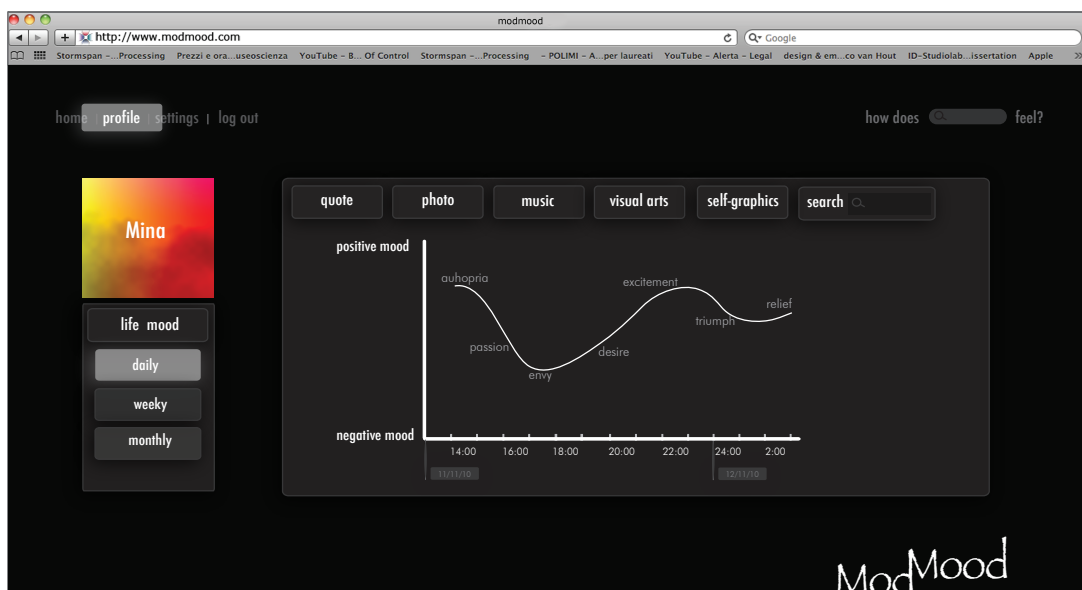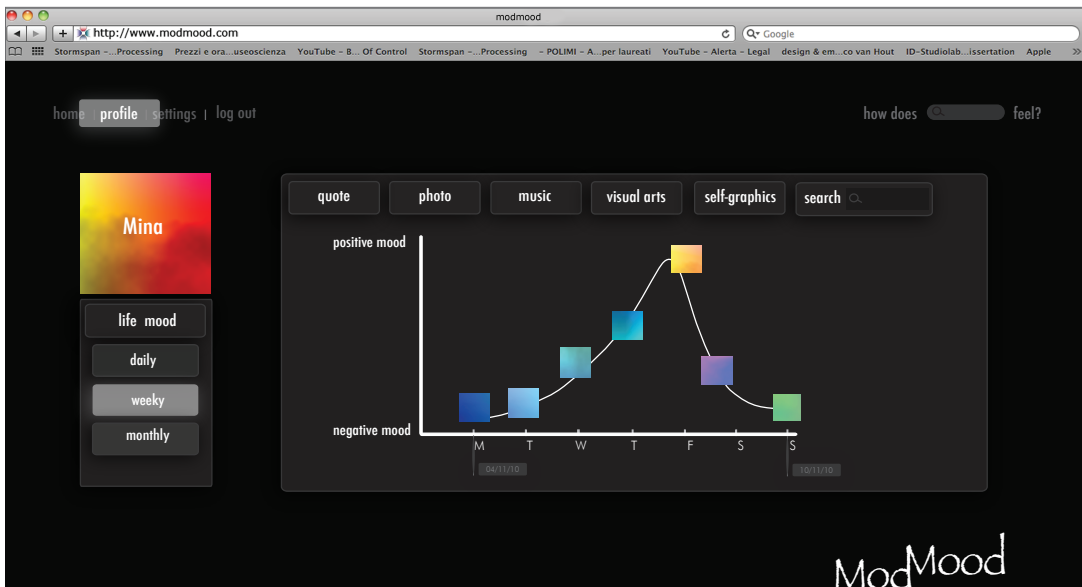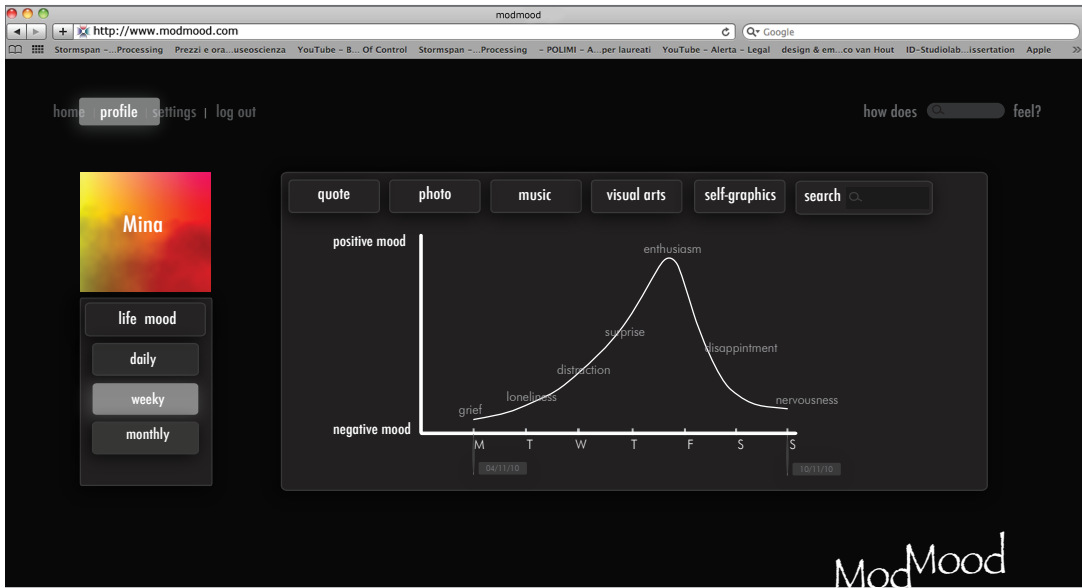
contacts

friends: User can make an emotion image of a friend as wanted. There is also the possibility to chat with friends
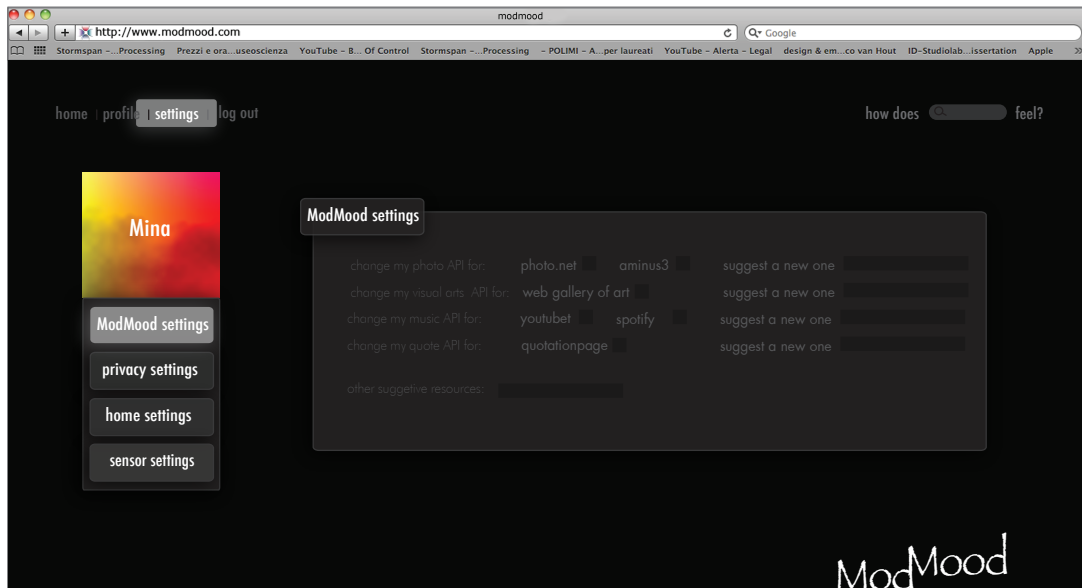

messages:

settings:

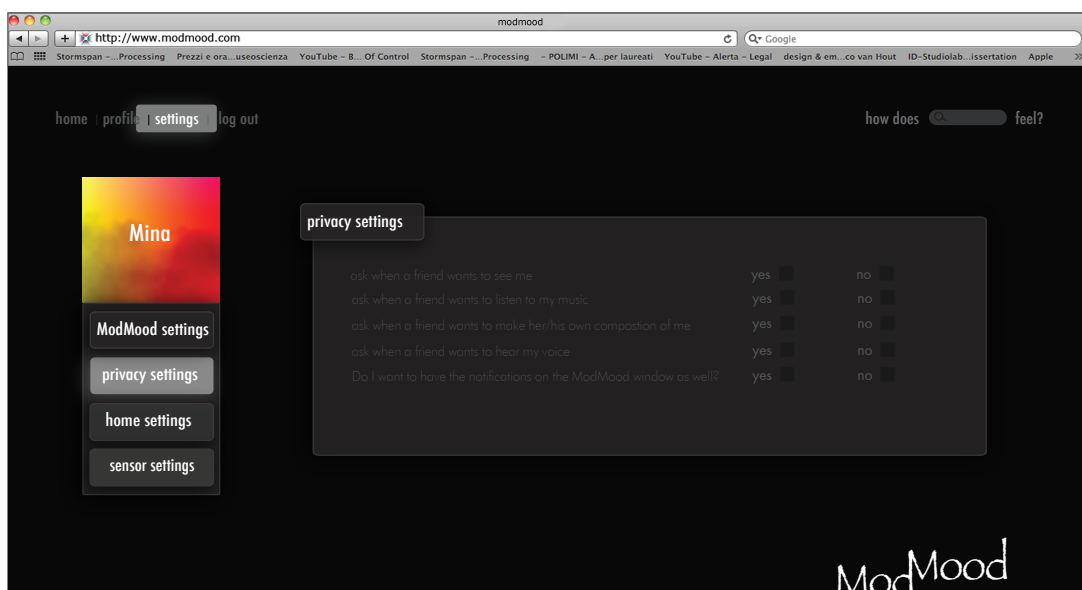ModMood provides a strong privacy and security system with proposing different settings to the user such as:

privacy settings

ModMood settings

home settings

sensor settings

2.5 ModMood Benefits for the User

2.5.1. User Emotional Consciousness and Her/His Involvement in Making It Happen

The main concept of ModMood is to create different images on the immediate emotions of the user with some substantials. This phenomenon definitely causes deep influences on human's perception of himself. It gives user a reflex of his/her immediate emotional state which hopefully helps him/her to have a better self-understanding of how she/he feels at the moment, in a period of time, how stable his/her mood is, what potentials her/his emotions have, what effects the visualization of emotions would have on her/his relations with others. In other words ModMood looks for some compatibility between the emotions originating from human's inside and and an exterior space like web.
An other satisfactory issue due to observing one's immediate emotion in such an artistic form that ModMood proposes, is to see the infinitive variety of compositions made of different materials in consistence of the countless number of emotions that change every single moment.

Regarding the fact that today, in most of the services and web-based or non-web-based applications provided, the users take rather no part in the creation of the final result. In most of the cases they don't even figure out how the final outcome has been produced. This even gradually makes the users feel quite lost among thousands of opportunities and passive in sense of the effort to be taken to gain the final result.

In all the steps of ModMood the presence of user is considerable. ModMood's objective is to create a platform in which users can intercommunicate   using innovative tools while feeling truly close and emotionally connected. ModMood believes that in order to create a humanistic atmosphere in which users feel constructively emotionally and socially comfortable, the real presence of the user has to be present. Therefore the basis of the users' intercommunication is emotion which practically has roots in DNA of the user. The final outcome of the system is also influenced by direct involvement and choice of decision of the user.
The more the user gets involved in the process of generating the final composition the more interesting and meaningful the service becomes.
At the moment what ModMood offers to the users is their choice to choose different materials which make the whole image of their emotions and also the relative APIs as the sources of the materials hence the future objective is to offer more options to the users to enable them to make their own expression of emotions in a more customized way.

2.5.2. Social and Emotional Achievements in Terms of Communication

The main idea of creation of ModMood in terms of long-distance communication is to introduce the users other ways of intercommunication than talking or looking at each other's photos or videos (which is in fact a set of photos with voice) which usually due to lack of emotional weight cause such misunderstanding in human's relations or simply don't fulfill the user's emotional desires which made him/her contact the other one.

ModMood proposed a live (real-time) emotionally enriched way to communicate rather than the classical ways. The material that is transferred between the two people in contact in this case is not the words or their personal photos but some culturally suggestive materials which reflects immediate emotions.

In some ways not using the words in communication which means avoiding the process and analysis of brain of what a person say and intends by expressing himself/herself could be perceived as more direct and authentic way of communication, on the other hand in the proposed way of intercommunication as the material flowing to the other one is not physically originated from oneself despite of being conceptually originally by one's emotions, the verbal-based communication could be perceived as the more emotionally direct and effective way.

Regarding the fact that intercommunication in ModMood is based on the emotions between the people and the functionality is managed regarding the possibility to be in emotional contact with an other not any other objective, practically it does not make the users stalk in the browser as such other social networks. The key is that using ModMood could be parallel to other activities. The user could keep the image of an anther's emotions as a little window on her/his screen in order to feel connected to her/him while doing other things on computer.

2.5.3. Security and Privacy

ModMood does not deal with personal information of the user. There is not even any optional feature which asks for any personal data.The physical materials that are basically used are derived from the online archives that are that already exist on the web therefore no danger of personal data reveal threatens the user.

Regarding the fact that the main inspiration of all the materials used in the system is "human emotion" which is something absolutely privy, a strong privacy system in terms of emotion demonstration to others is anticipated. No one can see any element that is relevant to user's emotion demonstration without user permission. Nevertheless all the privacy protection is regarded in case, since ModMood is originally designed for intercommunication between the people who have intimate emotional relation not a large number of random people as the other social networks.

2.5.4. Cultural Concerns

The materials used in the output of the system as "the image of an emotion" could be made up elements such as photo, music, pieces of visual arts, graphics, quotes. All these materials are chosen from rich recourses in terms of aesthetic and cultural values. Though the users have the possibility to introduce their favorite sources from which they could extract materials it's not possible to substitute the preferred sources before qualification evaluation by ModMood due to tis cultural approach. Thus apart from all the emotional benefits, the system has a strong scholarly approach in terms of materials of art for the users. While using the system, users can have the relevant information about all the materials proposed in the application

Conclusion

Consciousness about oneself's immediate emotional state

Apart from the fact that ModMood provides innovative possibilities to users in terms of intercommunication, it has significant benefits for users as individuals in terms of emotional consciousness at the moment and appreciating the present moment through observing the different expression potentials of a spontaneous emotion.

ModMood give users a preview of their emotional state in the period of use so they can have sort of a diary of their mood along the time that could be useful in terms of psychotherapy or so on.

The users are involved in making the last visualization of their own mood that has pre cultural values.

Emotionally intimate intercommunication and constant contact with another in real time

ModMood gives user the opportunity to communicate with her/his close friends through the real immediate emotions which means leading to a more intimate and authentic communication. On the contrary of other social networks in ModMood you are not what you say or write or show to others but -in terms of emotions- you really are what is shown there as it is originated by your own emotion. Therefore ModMood promotes a kind of emotionally direct and trusty relation between two people.

The significant advantage of ModMood in terms of human contact is that it lets the user be in constant emotional contact with another. The user can have an image of his/her close friend's mood in a certain period of time even while doing other activities. Practically the user can have a little window of a friend's

emotional state open on the screen or listen to the music that is sorted based on his/her mood. So what ModMood is trying to do by the end is to keep the people in a more emotionally intimate contact.

Different ways of emotion expression, new ways of communication

How do you express your emotions? Do you often use words to explain them? let's say when you feel so much love what do you do? Do you loudly say that you feel good? Do you write? How does your face look like? do you smile more often? Are your face muscles more relaxed? Do your eyes shine? How does your voice change? Is it more calm and peaceful ? Do you speak more confidently and easily? How does your gestures and postures of your body change? Does that feeling affect your body temperature and blood pressure?

Therefore there are a lot of different ways of emotion expression than verbal means. ModMood detects some certain physical emotion expressions in order to generate more abstract ways of emotional expression in other dimensions and context so in this way ModMood gives a tool to the users to observe their own feelings in real time in an other context.

Based on new ways of emotion expression, innovative modes of intercommunication is promoted instead of using the words which is the traditional way despite the user could also use words to communicate based on his/her choice. So the system provides a platform in which tow friends can see different reads of each other's immediate emotions. "Different read" means visual/musical/verbal materials which are originated by users' emotions. The users could also make a composition of these elements or choose the recourse of the materials.

User direct involvement in the final Output

As ModMood tries to make user feel emotionally freer and more innovative while using it, it offers some options to make the user involve in the process of generation the final outcome.

Despite the fact that user has no choice to decide about what emotion to express, she/he has a direct role in defining the final outcome of the system which is another translation of of his/her emotion. The user has the chance to use the elements that she/he prefers to be present in the final outcome and also the databases which supply these elements (though between the defined ones in the system) Therefore user feels quite effective in what comes out by the end and becomes involved in the game. She/he may tend to try different options to see different compositions or try to make the same composition with different materials in terms of form and resource.

Despite providing new ways of emotion expression and communication, all the material used is generally user-generated. Hence ModMood is a system that is based on the materials which are directly derived by user or open source online archives which have been supplied by users. So the idea is create real-time

innovative means of expressions using the materials already generated by people and of course being upgrading by them at the moment.

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