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Affective Computing: A Technique for HCI Apparition

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Abstract— There are several fields that comprise the computer in an interactive way with human life. Human factors are most grown able areas to compute expect level of measurement. They involved in affective computing, emotional measurement of leaders personality measurement and cognitive through their faces and body resolution measurement. Most of them focused on affective to design wearable digital cloths, battery backup from blood circulation and cheap designing to discover a location. The usability engineering used to compute the overall development of latest application tools and their graphical representation as required by the environment. i.e., android phone applications and smart phone, surface interface and sensor recognition. Behavioral intelligence and affective human factors motivate our overall development towards automated system according to human thought. In this article, we focused most appropriate things to understand the concept of affective computing and their internal terms. We map the human behavioral and emotional activity and smart computing to gather towards the Affective computing.

Keywords— HCI; Affective Computing; Emotion; Interaction

I. INTRODUCTION

Affective computing is human-computer interaction in which the ability of device to identify the aptly act in response to user's emotions & other stimulus. Affect is the synonym of emotion; it means the Psychology behind Affective computing is emotional analysis & measurement.

II. PAGE APPLICATION BASED REVIEW

We motivate to work as Interaction Design moved with HCI to the designer evaluation & work-oriented applications. During the 1990ies, there was a wave of new research on the role of emotion in diverse areas such as psychology. Or giving a presentation and becoming very nervous could make you lose the thread of the argument. Overall emotions were seen the less valued pair in the dualistic pair rational – emotional, and associated with body and female in the “mind – body”, “male – female” pairs. This dualistic conceptualisation goes back as far as to the Greek philosophers. In Western thinking, the division of mind and body was taken indisputable and, for example, Descartes looked for the gland that would connect the thoughts (inspired by God) with the actions of the body.

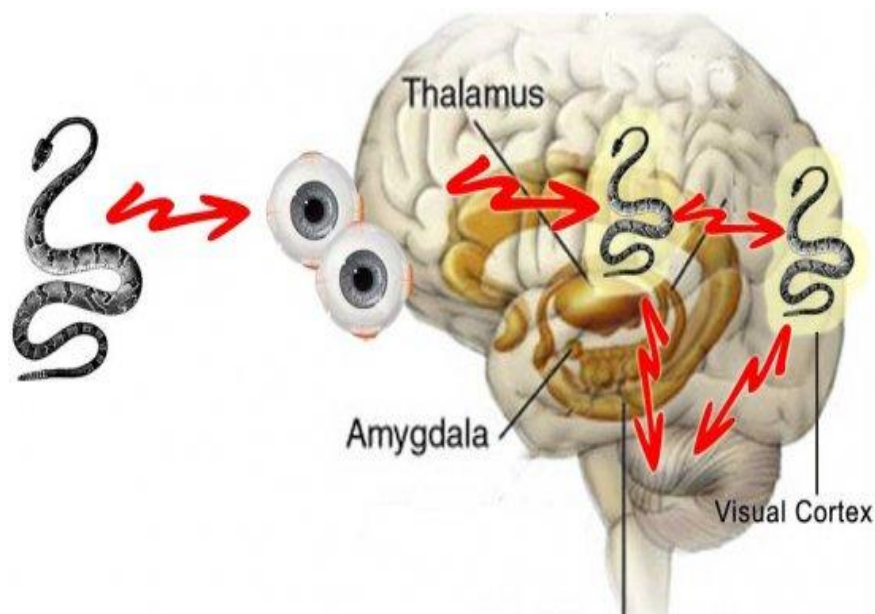


Fig 1: LeDoux's model of fear when seeing a snake.

Emotion is the only a social and dynamic communication mechanism through which the different person interact and share info with each other. A part of the new wave of research on emotion is also affected research and innovation of new technology. In artificial intelligence, emotion had to be considered as an important regulatory process, determining behaviour in autonomous systems of various kinds, e.g. robots trying to survive in a dynamically changing world [1].

In HCI, we understood the importance of considering users' emotions explicitly in our design and evaluation processes. There three different directions of HCI research on emotion and design.

- 1) The first, widely known and very influential perspective is that of Rosalind Picard and her group at MIT, later picked up by many other groups, in Europe most notably by the HUMAINE network. The cognitivistically inspired design approach she named *Affective Computing* in her groundbreaking book from 1997. [2]
- 2) The second design approach might be seen as a counter-reaction to Affective Computing. Instead of starting from a more traditional perspective on cognition and biology, the *Affective Interaction* approach starts from a constructive, culturally-determined perspective on emotion. Its most well-known proponents are Phoebe Sengers, Paul Dourish, Bill Gaver and to some extent. [3]
- 3) Finally, there are those who think that singling out emotion from the overall interaction leads us astray. Instead, they see emotion as part of a larger whole of experiences we may design for – we can name the movement *Technology as Experience*. In a sense, this is what traditional designers and artists have always worked with [4] – creating for interesting experiences where some particular emotion is a cementing and congruous force that unites the different parts of the overall system of art piece and viewer/artist. Proponents of this direction are, for example, John McCarthy, Peter Wright, Don Norman and Bill Gaver [5].

Let us develop these three directions in some more detail. They have obvious overlaps, and in particular, the Affective Interaction and Technology as Experience movements have many concepts and design aims in common. Still, if we simplify them and describe them as separate movements, it can help us to see the differences in their theoretical underpinnings

III. AFFECTIVE COMPUTING

The artificial intelligence (AI) field picked up the idea that the rational thinking of peoples depending on the process of emotions. Most prominent discussion & approaches in the design of applications for affective computing which build up through the cognitive model of affect from emotions sets what is often referred to as “first principles”, that is, the system generates its affective states and corresponding expressions from a set of general principles rather than having a set of hardwired signal-emotion pairs. This model is combined with a model that attempts to recognize the user's emotional states. Emotions, or affects, in users are seen as identifiable states or at least identifiable processes.

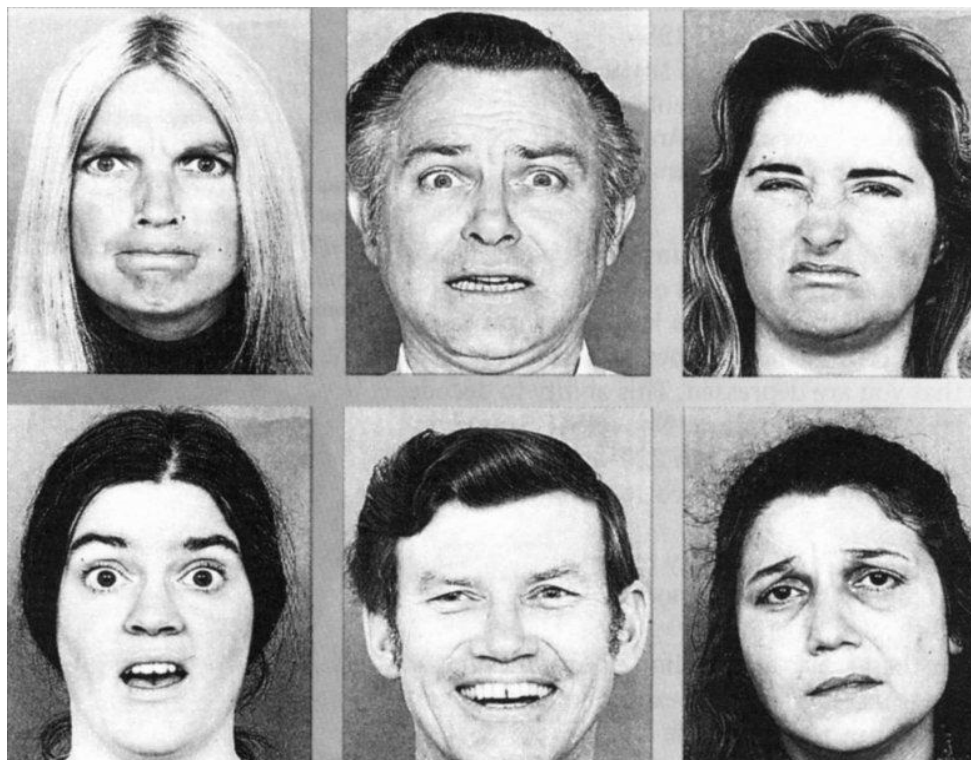


Fig 2: Facial expressions from Ekman portraying anger, fear, disgust, surprise, happiness and sadness.

But the most interesting applications from Rosalind Picard's group deal with important issues such as how to trained autistic children into recognise emotion. In a recent spin-off company, named Affective, they put their understanding into commercial use – both for the autistic children, but also for recognising interest in commercials or dealing with stress in

call centres. A sensor bracelet recognising Galvanic Skin Response (GSR) is used in their various applications. Other groups like the HUMAINE network in Europe, starts from this way of seeing affective interaction.



Fig 3: Samples of Affector Output

IV. GOAL OF AC

The main objective of affective computing is achieved efficient and effective representation and use of HCI in real world through affective computing. There are several following goal to achieve the objective towards the affective computing:

- 1) Future Affective computed social networking
- 2) Affective medical diagnostics & treatments
- 3) Social Robot for real life application
- 4) Affective human interaction with smart computing
- 5) Affective communication for hearing impairment peoples
- 6) Affective Databases, Evaluation, & Annotation Tools
- 7) Recognition & Synthesis of Human Affect
- 8) Affect-Sensitive Applications (learning environments, virtual reality, entertainment, smart environments, health care)
- 9) Methodological Issues in Affective Computing (affect annotation, reliability, validity, psychometric tools)
- 10) Affective & Social Robotics (affective robotics, embodied emotions, biologically-inspired affective architectures)
- 11) Affective & Behavioral Interfaces (adaptive, human-centered, collaborative, and proactive interfaces)
- 12) Affective Agents (emotion, personality, affective decision making, and architectures of Embodied Conversational Agents)

V. AFFECTIVE INTERACTION: AN INTERACTIONAL APPROACH

An affective interactional view is different from the affective computing approach in way it sees emotions as constructed in interaction, whereas computer visualization and graphic applications supports people to understand the experience on their own emotions [6].

The interactional move towards the design of [7]:

- To recognized affect on social/cultural artefact
- Interpretive flexibility is supported
- Avoids trying to formalize the unformalizable
- Supports to stretched communication
- People's experience for emotion is pointed out
- Highlighted the designing of system

VI. CONCLUSIONS & FUTURE DIRECTION

It seems obvious that we cannot ignore the importance of emotion processes when designing for experiences. On the other hand, designing as if emotion is a state that can be identified in users taken out of context, will not lead to interesting applications in this area. Instead, the knowledge on emotion processing needs to be incorporated in our overall design processes.

The work in all the three directions of emotion design outlined above contributes in different ways to our understanding of how to increase our knowledge on how to make emotion processes an important part of our design processes. The Affective Computing field has given us a range of tools for both affective input, such as facial recognition tools, voice recognition, body posture recognition, bio-sensor models, and tools for affective output e.g. emotion expression for characters in the interface or regulating robot behaviours. The Affective Interaction strand has contributed to an understanding of the socio-cultural aspects of emotion, situating them in their context, making sure that they are not only

described as bodily processes beyond our control. The Technology as Experience-field has shifted our focus from emotion as an isolated phenomenon towards seeing emotion processes as one of the (important) aspects to consider when designing tools for people.

There are still many unresolved issues in all these three directions. In my own view, we have not yet done enough to understand and address the everyday, physical, and bodily experiences of emotion processes.

We encourage you to look at Current and Past Projects for examples of Affective Computing research. Theoretically emotional models for affective computing cover:

- Role of emotion for cognitive modelling
- Dispensation of emotions throughout HCI
- Knowledge based representations of emotions
- Models to percept the emotions and synthesis
- Application

Future uses:

Predict the animal behaviour and action using HCI Research. In space technology to identify the reactions of aligns or any live object of space using advanced HCI Research. If Accidently Face is Damaged So We Can Regenerate The Actual Face According To Earlier Picks of Human By HCI.

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