

eINTERFACE 2005 Daily

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Let my computer cry !



In eINTERFACE, several projects, #2 and #6 for example, and people, for their own PhD, deal with several modalities to analyse, synthesize or extract human emotions.

Mainly expressed with face, gestures, speech but also biomedical signals, emotions are recently tracked in an intensive way. A new research field, called "Affective Computing", has even been created by Rosalind Picard, from MIT Media Lab. It aimed at giving machines the skills of emotional intelligence by using theories of cognitive science, neuroscience, sociology, ethics and so on.

But why is this sudden interest now, what is the main goal and how to define emotions? The common and basic classification by Ekman, clusters facial expressions into six emotions: anger, fear, joy, surprise, disgust and sadness. The same classification is used in the Mpeg-4 standard. Guillaume, analysing EEG, ECG and other biomedical signals at Unige, Switzerland, disagrees this clustering and is more working on the continuous signal expressed by emotions. He considers the "evaluation", positive or negative, pleasant or not and the "activation", a passive or active behaviour. Hence it is more how we feel and how we react faced to an event. The main goal is to improve human-computer communication; everyone agrees on the fact that that emotions are part of the human communication, as much as speech and gestures or even more, and have to be absolutely taken into account.

Prof T.Dutoit, a speech synthesis expert and also working on biomedical signals, has his own opinion about emotion analysis or more about expressivity which is the right word according to him.

"I was recently asked (by journalists) what the goal of our research on multimodal interfaces exactly is.

I usually answer technical state-of-the-art advancement arguments to people who ask this question, but I felt I had to go straighter to the point in this case. So, I thought, if I had to explain it to my daughter, what would I say?

Those who have worked with me for some time know that I am generally pessimistic about «high-tech» features that have often been added as gadgets into consumer products. Speech technology, in particular, has been announced as «imminent» for 30 years, and one has to admit that some current speech-enabled products (not all!) do not bring much to their speechless version.

So I certainly would not say : «we work on speech and image to replace the keyboard and the mouse and let everyone access computers in a seamless way». I am not sure I'll see this one day...

However, it is obvious, when you think of it, that everything we do with mouse-keyboard computers is straight information processing. We type texts, lines of codes, numbers, we draw straight lines, boxes, circles etc. (all of them crude, lifeless data), but we have no easy means of entering expressivity using our usual computer interfaces. Even speech recognition and image analysis engines have

mostly focused on the hidden raw information rather than on nuances. At the other end, we have trained our computers to produce speech and synthetic images for years, but let us face it : their voice is very high quality but neutral, and our computer graphics are crisp but lifeless.

Ah, of course you'll mention the latest Disney or Pixar animations as counter-examples, but precisely: movements are usually captured from sensors sticked to real humans, and voices ... are never synthetic.

So, I would say, as an answer to this question : «We are putting expressivity back into the loop, making it possible for computers to access all these little things that make us humans».

Thierry, Céline & Matei



Tomorrow's Special - Trip to Bruges -

One of Belgium's and if not Europe's most beautiful cities, Bruges is a must-see. The Venice of the North, as it is known, is a well-preserved city where the historic center has been recognized as a UNESCO world heritage site. We propose to explore together the attractions of this stunning place during a guided tour. During the rest of the day, you will be able to enjoy yourselves relaxing at cafe terraces or visiting the many canals and streets by boat, foot or horse.

Laurent