Understanding Human Implicit Intention

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The understanding of human implicit intention is an interesting topic in cognitive neuroscience, and its applications may open a new horizon for the intelligent human-machine interface. The current user interface has been developed to understand the explicit representation of human intention such as keystrokes, gestures, and speech for appropriate responses. However, there exist many cases in which people do not show their intention explicitly. Even the actual intention may be different from the explicit one. Therefore, for the next-generation intelligent human-computer interface, it becomes very important to understand the 'implicit' intention which includes both the 'intentionally-hidden' intention and 'un-represented' intention. Although the former has been investigated in connection with the lie detection, the latter is yet to be investigated.

Recently several researches were reported on the understanding of un-represented intentions. However, these have been limited to specific applications such as web surfing and motion-based intentions. More genetic definition of implicit intention components is necessary. For example, the edges and the frequency are the basic components of vision and auditory perception, respectively. Also, people in general agree with the basic components of human emotions, i.e., happiness, sadness, disgusting, etc. We propose to define 'sympathy for the other' and 'non-sympathy for the other' as two basic components of the un-represented implicit intentions. Since the machine needs to understand human intention during human-machine interaction, the above definition is quite meaningful.

The main difficulty of the researches on the implicit intention resides in the non-existence of the ground truth. Therefore, for relatively obvious experimental conditions, it may be advantageous to measure multimodal signals such as fMRI, EEG, eye-tracking, pupil dilation, GSR, audio and visual signals. A binary classifier may be trained. Then, the trained classifier may be used to understand implicit intentions for less obvious conditions in real-world applications.

Soon machine will understand human intentions, both explicit and implicit, and provide appropriate services for human. You do not need show your intention. Also, you cannot hide your intention. However, we will have a 'good' big brother to serve us.

Intelligent to machine, freedom to mankind! ■