Emotions in Human and Artificial Intelligent Systems. Towards *Neuroethics Robots*?

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Since the time of the Greecs we have been conditioned to think that emotions are not part of human intelligence

Usually emotions have been considered as a *source of damage* for rational thinking and decision making processes

Recently Damasio (1995) and other neuroscientists have showed that emotions *are not a* ***luxury***

Emotions - specifically secondary emotions like, for example, satisfaction, joy, discouragement - have a crucial and active role in guiding the decision making process by providing a selection mechanism of alternatives

Emotions are the **subjective markers**

of individual experience

They are a process that qualifies a real or imaginary event in subjective terms

In this perspective emotions involve a good functioning of affective capabilities

Affective capability is the ability to assign a personal sense, weight and value to an event in the internal or external environement

Ethics Competence is a particular affective capability

Kohlberg (1987) defines ethics competence as *the capacity to make decisions and judgments which are moral - based on internal moral values and principles - and to act in accordance with such judgments*

Ethics Competence implies a moral set of values which depend on personal believes, cultural tradition, religion, subjective experience

In recent times Ethics Competence, emotions, affective capabilities and cognitive processes have been considered in a new perspective called

Neuroethics

Roskies (2002) proposes two main divisions of neuro-ethics:

Ethics of neurosciences > studies the ethical implications of development of neurosciences (for example, implications of the use of the drugs to improve cognitive capabilities)

Neuroscience of ethics > proposes a neuro-scientific interpretation of traditional philosophical notions like self-determination, self-control, personal identity, responsibility and in particular investigates the ethics competence on the basis of neural processes and synaptic interactions

Main questions of neuroscience of ethics:

How are decisions made in the brain?

How are values represented?

How are ethical decisions similar to or different from other types of decisions?

How will a better understanding of the biological basis of moral cognition and behaviour modify traditional philosophical ethical framework?

How will it affect comprehension of human mind and artificial intelligent systems?

In relatively recent times A.I. researchers (Collins, 1988 Velasquez, 1997) proposed several models for building computer simulations of emotions which describe basic emotions and their reactions, not their interactions

Others (Skubic) proposed a new framework for modeling emotions which use a "fuzzy logic" to capture the inherent complexity and uncertainty of the human emotional system

These models extend the framework of the Intelligent Agent to include internal emotional system incorporating only innate emotions

Anderson and Armen (2004) maintain that there is every reason to believe that ethically sensitive machines can be created

What will the next step of A.I be ?

Perhaps building Neuroethics Robots……