

**Title: Affective Artificial Intelligence for loving robots**

**By Professor *Hooman Samani, NTPU, Taiwan***

**Abstract:**

Lovotics ([www.lovotics.com](http://www.lovotics.com)) refers to the research of human-to-robot relationship. The novel advanced artificial intelligence system of Lovotics includes an Artificial Endocrine System (based on physiology of love), Probabilistic Love Assembly (based on psychology of love) and Affective State Transition (based on emotions) modules.

Psychological unit of the Lovotics artificial intelligence calculates probabilistic parameters of love between humans and the robot. Various parameters such as proximity, propinquity, repeated exposure, similarity, desirability, attachment, reciprocal liking, satisfaction, privacy, chronemics, attraction, form, and mirroring are taken into consideration.

Physiological unit of the Lovotics artificial intelligence employs artificial endocrine system consisting of artificial emotional and biological hormones. Artificial emotional hormones include Dopamine, Serotonin, Endorphin, and Oxytocin. For biological hormones Melatonin, Norepinephrine, Epinephrine, Orexin, Ghrelin, and Leptin hormones are employed which modulate biological parameters such as blood glucose, body temperature and appetite.

A wealth of information about a person's emotions and state of mind can be drawn from facial expressions, voice, gesture, etc. The affective system of the robot analyzes system inputs to generate suitable states and behaviors for the robot in real-time. The affective system is modeled as closely to the human being as possible in order to be an emotionally engaging system.

The Lovotics robot is an active participant in the communication process and adjusts its internal hormonal levels, probabilistic love parameters and affective states depending on inputs and feedback from the human in long term.