**COGS 595 Affective Neuroscience and Computing**

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**Objective****:** This course aims to examine the current state and future prospects of affect in computing and cognition. The objective is to provide knowledge in several aspects of affect: sensation, representation, expression and then show applications of this knowledge in human-computer-interaction. By the end of this course, students should have learned how emotions/affect can be quantified through behavioral/physiology measures and what are the current state-of-art applications in this newly emerging field.

**Tentative Schedule:**

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| **Date** | **Topic** | **Assignment** |
| 22.2.2013 | Introduction |  |
|  | **SECTION I: Foundations and preliminary models** |  |
| 1.3.2013 | Neurophysiology of Emotion (Invited speakers: A. Erdem, S. Karaismailoglu ) |  |
| 8.3.2013 | Emotional Axes: Psychology, Psychophysiology |  |
| 15.3.2013 | Emotional Axes: Neuroanatomy |  |
| 22.3.2013 | Functions of Unconscious and Conscious Emotion in Motivated Behaviour |  |
| 29.3.2013 | Functions of Unconscious and Conscious Emotion in Motivated Behaviour cont. |  |
| 5.4.2013  | Pupil dilation experiment | Hwk1: Due 19.4 |
| 12.4.2013 |  | *MIDTERM I* |
|  | **SECTION II: Emotional expression and applications** |  |
| 19.4.2013 | Emotional modeling: Neural Networks ...etc |  |
| 26.4.2013 | Affect in language-based communication: sentiment analysis, opinion mining |  |
| 3.5.2013 | Meet at neurolinguistics symposium: affect in language cont. |  |
| 10.5.2013 | Affect in Non verbal communication: Gestures, Facial expressions |  |
| 17.5.2013  | EEG experiment | HWK2: Due 31.5 |
| 24.5.2013 | Affect in Human Computer Interaction: GUIs, Internet, Games |  |
| 31.5.2013 |  | MIDTERM |
| Finals | Term paper presentations |  |

**References:**

* Affective Computing and Interaction: Psychological, Cognitive and Neuroscientific Perspectives, Eds: D. Gökçay, G. Yıldırım, IGI Global, provided on web site
* Social Neuroscience, Eds: J. Cacioppo, G. Berntson, Psychology Press, New York, 2005

**Grading:**

Homework Assignments (2) 30 % (15% each)

Exams (2) 50 % (25 % each)

Term Paper 20 %

**Term paper suggestions:**

* Use of Affect-sensitive Computing in Disorders (Autism)
* Emotional modeling
* HCI case study: Internet, Games, Robots
* Decision making and Somatic Marker Theory: pros and cons
* Hands on applications: Thermal Camera, Skin Conductance
* Neuromarketing: pros and cons
* Lateralization of affect versus approach/avoid
* Appraisal versus reappraisal: results from studies of healty and diseased populations
* Survey of databases (verbal, visual, auditory) and tools in affective computing
* Sparseness of the semantic space in low arousal positive and negative quadrants