UTD *EE Seminar Series &*
Dallas Chapter of IEEE Signal Processing Society Present

Towards Helmets that Can Read Your Mind

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ECSS 2.102 (TI Auditorium)

In the field of Brain-Computer Interface (BCI), researchers have been investigating how to allow totally paralyzed or 'locked-in' persons to interact with software or to control hardware such as wheelchairs and prosthetics. A wearable electroencephalography (EEG) sensory system that can assess the effectiveness of advertisements or perhaps track the cause of disorders including neurodegenerative, obesity or drug addiction are among other examples. Enabling these applications with the aid of wearable and mobile computers can revolutionize our daily life. In this talk, we will present light-weight EEG signal processing methodologies for BCI and for resource constrained wearable platforms. The ultimate objective in design of wearable platforms is to reduce the power consumption, mainly to reduce the form factor and the battery size. We will illustrate techniques that identify and execute spatial, temporal and spectral templates in an optimal order such that the computational load is minimized. We will present our results on EEG data from inhibition task ('Go'/'NoGo') and will demonstrate the effectiveness of our proposed techniques.

Roozbeh Jafari received his B.Sc. in Electrical Engineering from Sharif University of Technology in 2000. He received an M.S. in Electrical Engineering from SUNY at Buffalo, and an M.S. and a Ph.D. in Computer Science from UCLA in 2002, 2004 and 2006, respectively. He spent 2006-2007 in EECS Department at UC Berkeley as a post-doctoral researcher. Dr. Jafari is currently an assistant professor in Electrical Engineering at the University of Texas at Dallas. His research is primarily in the area of networked embedded system design and reconfigurable computing with emphasis on medical/biological applications, their signal processing and algorithm design.

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