



Speaker's Bio:

Dr. Roula is a senior lecturer at the University of Glamorgan, UK. He is currently the head of the "Medical Electronics and Signal Processing Research Unit", where he oversees the work of 5 permanent academics and typically 5 to 10 researchers. The group has enjoyed successful external funding, with 3 EPSRC grants and many other partnership grants (KTP, KESS, RAENG, RIS) in the last few years.

Dr Roula has research experience in the field of biomedical engineering, image/signal processing and high performance computing where he has published extensively. He is a regular reviewer of journals such as "Pattern Recognition Journal" as well as funding applications from EPSRC and MRC. He has chaired many conference sessions in addition to giving invited talks in such venues as the CMOS emerging technology meeting.

At Glamorgan University, he was involved in various consultancy and research projects including developing Magnetic Induction Tomography (MIT) for stroke detection in collaboration with Manchester University, Philips Research Laboratories and ClearSpeed Ltd. A key challenge in MIT for instance was addressed by one EPSRC grant led by Dr. Roula as PI (EP/F011059/1) looking at the acceleration of tomographic image reconstruction on embedded hardware. His investigation into stroke led to interest in the important field of stroke-rehabilitation where Dr. Roula is currently focusing on improving signal processing and real time performance and usability of Brain Computer Interfacing systems.

The Department of Electrical Engineering cordially invites you to a seminar on

Methods and Applications of Brain Computer Interface

By

Dr. M. A. Roula

Date: Tuesday, November 13, 2012

Time: ?? am

Venue: Room?

Abstract

Brain Computer Interfacing (BCI) is the use of brain signals as a non-muscular communication channel, where mental states can be recorded and used as direct input to external devices such as computers, wheelchairs or robotic arms. The use of Electro-Encephalography (EEG) as a modality for BCI has gained growing interest in recent years mainly because of the reduced cost of EEG acquisition systems as well as the cost of real-time computing.

We saw a potential in developing portable BCI systems to create better communication, rehabilitation and mobility aids for people with motor disability especially Motor Neurone Disease (MND) and locked-in stroke patients. These constitute the extreme case of people -otherwise perfectly normal- not being able to move parts or the totality of their body. Our group started a RIS funded pilot study to look at developing a brain controlled speller system as well as showcasing various 'proof of concept' BCI controlled devices.

In this talk Dr. Roula will discuss Brain Computer Interfacing potentials and challenges in addition to reviewing advances accomplished by our research team in this field.