Semantic Brain-computer interfacing (Ref CSEE/APR18/01)

The School of Computer Science and Electronic Engineering at the University of Essex is pleased to announce a PhD studentship available in "Semantic Brain-computer interfacing".

This studentship will start from 23 April 2018 and once awarded, you'll receive the scholarship for three years of your PhD (subject to satisfactory progression).

The studentship includes:

- a fee waiver equal to the Home/EU fee (for 2017/18, £4,120). International students will need to pay the balance of their fees.
- a stipend equivalent to the Research Councils UK National Minimum Doctoral Stipend (£14,553 in 2017-18)

Brain-computer interfaces (BCIs) may be used as a communication aid for people who experience difficulties communicating via other means. However, the current state-of-the-art in communication speed and accuracy achievable with BCIs is relatively low when compared to other communication aids. This is largely because current BCIs are based on serial communication in which single discrete pieces of information are communicated one-by-one. Recent results in cognitive neuroscience, machine learning, and human language science suggest the possibility of semantic decoding; identification of activity in the brain related to semantic concepts. Machine learning may be used to identify brain activity related to semantic concepts such as 'see' or ' hear' from neural activity such as EEG and fNIRS.

This PhD will investigate novel machine learning techniques to develop a new type of BCI that has the potential to be both highly intuitive and allow greater levels of accuracy and communication speed than possible with current BCI. This will result in a semantic BCI, which will be built based on simultaneous recording of EEG and fNIRS.

The successful applicant will be supervised by Dr Ian Daly and Professor Riccardo Poli and will be part of the Essex Brain-Computer Interfacing and Neural Engineering Lab (http://essexbcis.uk): today the UK's largest research group in brain-computer interfaces.

Additional questions and queries about the studentship to be addressed to:
Dr Ian Daly i.daly@essex.ac.uk and Professor Riccardo Poli rpoli@essex.ac.uk .

Entry Requirements

The successful candidate would be expected to speak fluent English and meet our English Language requirements, if applicable, and will have a good honours BSc or BEng degree (1st class or high 2:1, or equivalent) in Computer science, electronic engineering, computer engineering, statistics, mathematics, or related subjects.

An MSc with Merit or Distinction is desirable (but not essential for students with a first class degree). Strong analytical and mathematical skills are required, as well as good programming skills.

Knowledge of machine learning, signal processing, and neuroscience are desirable but not essential.

How to Apply

- To be considered for this Scholarship applicants are required to apply for their PHD course in the usual way via the University of Essex online admissions application process here: website, (including uploading all supporting documents required) by the deadline of **Friday 23 February 2018**.

- Please note on your PG Admissions application form in the 'Proposed research topic or area of research' field that you wish to apply for this scholarship, quoting Ref CSEE/APR18/01.

- In addition to your main online PHD application, you are also required to submit a separate application form, which can be accessed here and submit separately to: csee-schooloffice@essex.ac.uk by the deadline of **Friday 23 February 2018,** quoting Ref CSEE/APR18/01

- Applicants will be informed of the outcome of their application for their PHD course and the scholarship award by the end of March 2018.

For further information on our current areas of research please refer to our research interests and staff profiles.

If you have a disability and would like information in a different format telephone (01206) 873521/874588.