



The
University
Of
Sheffield.

Automatic
Control and
Systems
Engineering

The Department of Automatic Control & Systems Engineering
is pleased to announce the following seminar:

“Managing Covariate Shift in EEG/MEG-based BCI”

Dr Haider Raza

*Research Fellow, School of Computer Science and Electronic Engineering,
University of Essex, UK*

Thursday, 2 May 2019 at 15:00

LT5, The Diamond

Abstract

The non-stationary nature of electroencephalography (EEG) and magnetoencephalography (MEG) makes EEG/MEG-based brain-computer interface (BCI) a dynamic system, thus improving its performance is a challenging task. It is well-known that due to the non-stationary nature of EEG/MEG signals, the input data distributions of EEG/MEG-based BCI systems change during inter- and intra-session transitions. This change in input data distribution between training and testing stages is known as covariate shift. Covariate shift poses great difficulty for developments of online adaptive data-driven systems because of the traditional machine learning algorithm are build upon the assumption that the distribution remains the same. In this talk, we also going to explore the evidence of covariate shifts and how to manage it while learning the patterns of motor-imagery related BCI.

Biography

Dr Haider Raza is a Research Fellow at the Institute for Analytics and Data Science (IADS), School of Computer Science and Electronic Engineering, University of Essex. Dr Raza received a PhD in Computer Science from University of Ulster, Northern Ireland, UK; master's degree in Computer Engineering from Manav Rachna International University, India, and a bachelor's degree in Computer Science and Engineering from Integral University, India. He previously worked at Swansea University Medical School (UK) as Research Officer, University of Ulster (UK) as Post-Doc Research Assistant, Dilla University (Ethiopia) as Assistant Professor, and Manav Rachna International University (India) as Lecturer. Dr Raza's research interests and activities focus on machine learning, non-stationary learning, brain-computer interface, EEG/MEG signal processing, and computational intelligence methods for health and biomedical informatics. He works on the development of the intelligent systems and practices his skills on the projects related to electronic healthcare systems, stroke-rehabilitation, and a few other areas