

## Special Lecture: Brain-Computer Interface (BCI)

By: Asst. Prof. Dr. Graham Healy

The School of Computing, Dublin City University.

On Thursday 16<sup>th</sup> January, 2020, 10.30 A.M. – 12.00 P.M.,  
at the Classroom 4/2, on 4<sup>th</sup> floor,  
School of Information Technology,  
King Mongkut's University of Technology Thonburi



### Abstract:

A Brain-computer Interface (BCI) is a system capable of enabling a communication and control channel by using neural signals alone. Historically these systems have been explored as a way to enable communication for those who may be in a locked-in state i.e. unable to communicate through any other means. More recently these systems have been explored to enable novel applications for healthy individuals in areas such as image search, GAN-image evaluation and gaming/entertainment. In this lecture, I will cover the core techniques on which both classical and novel BCI systems rely, including signal processing of neural time-series data, machine-learning and the various paradigms used to drive different BCI applications. Those attending the lecture will be able to: 1) develop a high level understanding of the components of a BCI pipeline/system, 2) understand the potential applications and limitations to the technology and 3) gain insight on the future directions of BCI technology.

### Short Bio

Dr. Graham Healy is an Assistant Professor in the School of Computing at Dublin City University. He received his B.Sc. (Hons) in Computer Applications in 2008 and his Ph.D. in Computer Science in 2011. He worked as a postdoctoral researcher at The University of British Columbia (2012/2013), and at The Insight Centre for Data Analytics at Dublin City University (beginning 2013) where he competitively progressed to the position of Research Fellow in 2017, and then in 2019 became an Assistant Professor in Computing. He is interested in the ways computerized systems can automatically detect things from people using signals (e.g. bioelectric, social, collaborative, etc), and then do something useful with that information. His research is a mix of basic - research with a practical focus on developing real-world applications. He has worked on a number of industry targeted research projects as both the team lead and the principal investigator with a total grant income of €108,076 (as the Principal Investigator). He has numerous television appearances, including on RTE's Awake: The Science of Sleep (2017), and in 2014 a 7-minute segment on his research on BBC Arabia's 4Tech. He has 26 peer-reviewed publications including 16 conference papers, 4 journals, 5 workshop papers and 1 book chapter.

If you are interested in this Special Lecture,  
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Thank you.

