Ciarán McGeady

Ph.D. candidate in biomedical engineering

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research topics

biomedical signal processing
brain-computer interfaces
functional electrical stimulation
rehabilitation
neurofeedback
machine learning

skills

MATLAB, Python
Brainstorm, EEGLAB, MNE
LaTeX, R, LabVIEW
SolidWorks
PsychoPy
Arduino
Git

hobbies

literature
cinema
hiking, traveling
gym

interests

My research aims to address clinical problems with engineering techniques. I am interested in the non-invasive recording of brain activity to create rehabilitation strategies and assistive devices for people with neurological impairments.

education

since 2018 **Ph.D. candidate in biomedical engineering** — University of Glasgow, Glasgow, UK
Bimanual BCI strategies for neurorehabilitation
Current study: investigating the neural correlates underpinning unimanual and bimanual motor imagery from electroencephalography data for multi-class BCI applications
Supervisors: Dr Aleksandra Vučković & Dr Henrik Gollee
Research team: Centre for Rehabilitation Engineering

2013–2018 **M.Eng. with first class honours** — University of Glasgow, Glasgow, UK
Biomedical Engineering
Year Representative 2015-2016
School of Engineering excellent student award for 2016, 2017 and 2018

2012–2013 **Mechanical engineering** — Edinburgh Napier University, Edinburgh, UK
Finished with a grade A average before transferring to the University of Glasgow

2006-2012 **Scottish highers and advanced highers** — St Ninian's High School, Giffnock, UK
Specialisation in mathematics and physics

research experience

2017-2018 **Master's thesis** — Technical University of Denmark (DTU), Lyngby, Denmark
Aim: determine feasibility of classifying two mental tasks at once with a BCI
Developed a hybrid brain-computer interface to record, process and classify SSVEP and sensorimotor rhythms, simultaneously, in 10 able-bodied participants.
Supervisor: Dr Sadasivan Puthusserypady
Duration: 7 months
Led to conference paper (see *publications*)

2016-2016 **NHS internship** — Queen Elizabeth University Hospital, UK
Aim: investigate clinical effectiveness of wireless ECG monitoring of newborn infants
Worked with clinical scientists and medical doctors to collect and analyse ECG data.
Collected qualitative data by interviewing ward nurses.
Supervisor: Dr Neil Patel
Duration: 4 months

experience

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since 2019 **Graduate School representative for 2nd year**
Responsible for communicating graduate student feedback to school administrators on a regular basis. Other responsibilities include organising and playing an active role in campus events.

2015-2016 **Engineers without borders**
Engineering outreach programme: visited schools to encourage science, technology and engineering interest among high school pupils.

teaching assistant

Demonstrator of undergraduate and postgraduate lab sessions. I help prepare sessions and am involved in grading coursework.

since 2018 **Signal Processing of Biosignatures 4** University of Glasgow, Glasgow, UK
4th year undergraduate and MSc course
16 hours

2018 **Rehabilitation Engineering 4** University of Glasgow, Glasgow, UK
4th year undergraduate and MSc course
18 hours

since 2018 **Engineering Skills 1** University of Glasgow, Glasgow, UK
1st year undergraduate course
20 hours

since 2020 **Mechanical Design 2** University of Glasgow, Glasgow, UK
2nd year undergraduate course
6 hours

publications

articles in peer-reviewed journals

EEG correlates of self-managed neurofeedback treatment of central neuropathic pain in chronic spinal cord injury
Aleksandra Vuckovic, Manaf Kadum Hussein Altaleb, Matthew Fraser, Ciaran McGeady, and Mariel Purcell
Frontiers in neuroscience *13 (2019) p. 762. Frontiers, 2019*

international peer-reviewed conference proceedings with full papers

A Hybrid MI-SSVEP based Brain Computer Interface for Potential Upper Limb Neurorehabilitation: A Pilot Study
Ciarán McGeady, Aleksandra Vučković, and Sadasivan Puthusserypady
2019 7th International Winter Conference on Brain-Computer Interface (BCI), 2019

Awards

2020 **Three Minute Thesis Finalist 2020**
Presentation title: Listening to Butterflies with Brainwaves. Final postponed.

2020 **Graduate School Mobility Scholarship**
Recipient of travel grant aimed at promoting international collaborations

references

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