

# Ciarán McGeady

Ph.D. candidate in biomedical engineering

## contact

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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, Git

## hobbies

literature  
cinema  
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 Golle  
*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 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

- 2020-present **Visiting PhD student** Hong Kong Polytechnic University, Hong Kong  
*Aim:* Exploring the influence of BCI motor priming on transcutaneous spinal electrical stimulation therapy in spinal cord injured patients  
*Supervisor:* Dr Monzurul Alam  
*Duration:* 6 months
- 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 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

Last updated: October 2020

## other experience

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.

## teaching assistant

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

since 2018	<b>Signal Processing of Biosignatures 4</b> 4th year undergraduate and MSc course 20 hours	University of Glasgow, Glasgow, UK
2018	<b>Rehabilitation Engineering 4</b> 4th year undergraduate and MSc course 18 hours	University of Glasgow, Glasgow, UK
since 2018	<b>Engineering Skills 1</b> 1st year undergraduate course 20 hours	University of Glasgow, Glasgow, UK
since 2020	<b>Mechanical Design 2</b> 2nd year undergraduate course 20 hours	University of Glasgow, Glasgow, UK

## 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 McGeedy, 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 McGeedy, Aleksandra Vučković, and Sadasivan Puthusserypady  
*2019 7th International Winter Conference on Brain-Computer Interface (BCI)*, 2019

## awards

2020	<b>Universitas 21 Three Minute Thesis (3MT®) 2020: Global Winner</b> <i>Presentation title:</i> Listening to butterflies with brainwaves £2000 prize
2020	<b>University of Glasgow Three Minute Thesis (3MT®) 2020: 1st Place</b> £1000 prize
2020	<b>Graduate School Mobility Scholarship</b> £1400 travel grant aimed at promoting international collaborations

## academic membership

## research mentorship

Students under my mentorship.

### Master of Engineering (MEng)\* / Science (MSc) project

Basel al Shihabi	May 2020 - August 2020
Daniels Vasiljevs	May 2020 - August 2020
Jordan Diven*	June 2019 - Jan 2020

### Bachelor of Engineering (BEng) final year project

Ahsan Ahmad	Nov 2019 - May 2020
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## references

### Dr Aleksandra Vučković

PhD Supervisor  
Division of Biomedical Engineering  
University of Glasgow

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### Dr Sadasivan Puthusserypady

MEng Supervisor  
Department of Electrical Engineering  
Technical University of Denmark

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