**Fully funded 3-year PhD studentship (School Funded)**

**School of Human and Behavioural Sciences, Bangor University, UK**

**Closing date: 4 July 2022**

**Psychophysiology of Human Performance and Learning**

**Dr Germano Gallicchio**

Applications are invited for a three-year PhD studentship within the School of Human and Behavioural Sciences, Bangor University. The studentship is funded by the School and covers the full cost of tuition fees for PhD students, plus a maintenance stipend (approx. £16,062 per annum for 3 years) as well as a generous research allowance. The studentship can commence any time between October 2022 and January 2023, but with a preferred start date of October 1st.

**Project**

The project lies within the broad remit of psychophysiology and aims to investigate the fundamental mechanisms determining human performance and brain-body interactions. The position involves the acquisition and the analysis of behavioural (e.g., task performance, movement parameters/biomechanics), self-report (e.g., questionnaires, ratings), and electrophysiological (e.g., EEG, ECG) data. The precise research topic will be adapted to the interests and specific qualifications of the candidate, but example projects include the following:

*Mental fatigue*. Feelings of fatigue build up over time and impair our ability to perform tasks requiring sustained cognitive control. Can we develop techniques to counter the effects of mental fatigue? The first aim of this project is to identify the most reliable real-time psychophysiological markers of mental fatigue and evaluate their mediatory roles. Several biological signals can be explored, including eye movements, cortical oscillations, and cardiac activity. The second aim is to develop and evaluate cognitive and physiological training programmes (e.g., cognitive/executive training, neuromodulation, meditation) to counter or prevent the increase in the psychophysiological pattern associated with increased mental fatigue.

*Novel bio/neurofeedback.* Learning skills is a fundamental human ability. However, in many cases, training is lengthy and produces mediocre results. What if we could take a shortcut to mastery by guiding our biological processes towards the most relevant patterns of activation? This project can take several directions depending on the candidate’s background and interests. Some examples are: (a) cortical alpha gating neurofeedback, (b) functional cortical connectivity neurofeedback, (c) idiosyncratic machine-learning-informed biofeedback, (d) eye movements biofeedback.

**Supervision**

[Dr Germano Gallicchio](https://www.bangor.ac.uk/staff/human-behavioural-sciences/germano-gallicchio-530785/en) is a Lecturer at the School of Human and Behavioural Science, Bangor University, since July 2020. His research studies, develops, and applies a wide range of psychophysiological, signal-processing, and computational techniques in an attempt to advance knowledge in these fields: neural mechanisms determining superior motor performance and learning, development of novel techniques to study eye movements during discrete movements, effects of physical and mental fatigue on psychophysiological indices of performance, determining early markers of cognitive decline due to essential hypertension.

Before his appointment at Bangor University, Germano held research positions at institutions in various countries. This has given him a broad perspective on research and has allowed him to develop a wide network of collaborators. Depending on the project, secondary supervisors may be included as deemed appropriate.

**Person Specification**

Essential requirements:

A degree in cognitive (neuro-) science, psychology, medicine, sport and exercise sciences, computer science, data science, engineering, physics, mathematics, or cognate disciplines.

Ambition.

Desirable qualities:

Experience with quantitative data analysis (e.g., machine learning, inferential statistics).

Excellent statistical and coding skills (in languages such as Python, MATLAB, or R).

Experience with recording and processing of electrophysiological signals (e.g., EEG, ECG).

**Research Environment**

Most recently, 100% of our research has been rated as world-leading or internationally excellent by the REF-2021 committee, placing us in the UK top-5 research institutions in sport and exercise science. The School of Human and Behavioural Sciences is an exciting new School that is the product of a recent merger between two exceptional and research-orientated Schools: the School of Psychology and the School of Sport, Health & Exercise Sciences.

Our research is defined by four research institutes, which the PhD student will be welcome to join:

Institute for Psychology of Elite Performance (IPEP: <https://ipep.bangor.ac.uk/>)

Institute for Applied Human Physiology (IAHP: <https://www.bangor.ac.uk/iahp>)

Institute for Cognitive Neuroscience (ICN)

Institute for Human Development and Wellbeing (IHDW)

Our School offers postgraduate researchers an excellent research environment, with a large community of PhD students and research-active faculty, regular lab meetings, seminars, student conferences, visiting speakers, and events targeted at broader professional development. There are extensive facilities and dedicated technical staff for conducting behavioural, biomechanical, and psychophysiological research.

Bangor University is situated among the breath-taking landscape of North Wales. Bangor is a friendly and affordable university city, perched on the Irish Sea and with its back against Snowdonia National Park. There is easy access to beautiful mountains, lakes, rivers, and beaches while maintaining good transport links to some of the UK’s larger cities, including Manchester, Liverpool, Birmingham, and London. Bangor University is an equal opportunity employer and welcomes applications from populations who are underrepresented.

**International Mobility**

The PhD student will be encouraged to spend some time at a research institution abroad funded by “Taith”—our newly developed programme for international learning that is unique to Wales (link: <https://www.taith.wales/>)—and “Turing Scheme” a UK-wide programme for international mobility (link: <https://www.turing-scheme.org.uk/>).

**Residency Requirements**

This studentship covers in full the tuition fees for British citizens and other nationals who do not require a visa (e.g., Europeans with settled status, Irish). International candidates are very welcome to apply; however, they need to contact Dr Germano Gallicchio to discuss the possibility of tuition fees waivers.

**General Information**

The initial appointment for the position will be for one year, with an extension of two years after a positive evaluation of capabilities and compatibility. The appointment must lead to the completion of a PhD thesis. PhD students are expected to contribute to teaching. The School provides excellent training in teaching, and many students achieve HEA (Higher Education Academy) qualifications while completing their PhDs.

**Further information**

Informal enquiries about the studentship and more guidance should you want to prepare a more detailed proposal should be directed to Dr Germano Gallicchio, email: g.gallicchio@bangor.ac.uk.

**How to Apply**

All applications must be received on 4 July 2022 by 00:00 (midnight) UK time through our online application system: <https://apps.bangor.ac.uk/applicant/>

Applications must contain the following documents:

Curriculum Vitae: This should be no longer than two pages.

Cover letter: Include your motivation for applying for this studentship, aspirations beyond conducting a PhD, how you fit the essential and desirable criteria, and any reasons that you feel you are particularly suited to undertaking this project.

Reference letters: Include two letters from academic staff to be submitted in support for this specific application. Candidates for this position must approach referees themselves and include the letters with their application.

Research proposal: four pages including a concise literature review, description of the research questions, hypotheses, the approach to collecting and analysing data, a proposed timeline for all elements of the research and writing up, and a reference list (the reference list is excluded from the page count). The key to an excellent proposal is conceptual and methodological depth rather than breadth. The proposal is not binding: the candidate and the supervisor will be able to make changes during the PhD.

If English is not your first language or if you have not completed university education in an English-speaking institution, provide proof of English language proficiency such as IELTS (minimum 7.0 overall) or equivalent certification.

**General Enquiries**

For general advice about how to apply and eligibility visit the Bangor Doctoral School Website (<https://www.bangor.ac.uk/doctoral-school/>)