![University of Bristol logo]

Title: MyWorld: Peripheral Vision and Coding

Type of award	PhD Research Studentship
Department	Electrical and Electronic Engineering, Visual Information Laboratory
Scholarship Details	Minimum £17,668 p.a. in 2022/23
Duration	3 years
Eligibility	Home (UK) and EU citizens who have confirmation of UK settlement or pre-settlement status under the EU Settlement Scheme
Start Date	From Sept 2022

PhD Topic Background/Description

This project aims to exploit a knowledge of peripheral vision to enhance and measure viewer experience. Immersive media applications, such as VR, are heavily reliant on a wide field of view, high spatial and temporal resolutions, and high dynamic range, all of which require high bit rates. One way to reduce this burden is to encode content in an adaptive space-variant way, reducing bit allocations for content viewed in the periphery. The project will evaluate both pre-processing and integrated adaptive quantisation strategies to achieve foveation-biased bit allocation as part of a video encoder's rate-quality optimisation process.

The project will also exploit the peripheral vision model to inform viewport prediction based on attention and content saliency in the periphery. We will use an eye tracking enabled HMD to (i) assess current fixation location and gaze shifts, and (ii) measure the dispersion of gaze for different subjects, content types and coding parameters. It will characterise the efficiency and performance of these approaches and their impact on perceived quality. This will also be employed to model a new perceptual visual quality metrics.

Launched in April 2021, MyWorld is a brand-new five-year programme, the flagship for the UK's creative technology sector, and is part of a UK-wide exploration into devolved research and development funding (UKRI video). Led by the University of Bristol, MyWorld will position the South West as an international trailblazer in screen-based media. This £46m programme will bring together 30 partners from Bristol and Bath's creative technologies sector and world-leading academic institutions, to create a unique cross-sector consortium. MyWorld will forge dynamic collaborations to progress technological innovation, deliver creative excellence, establish, and operate state of the art facilities, offer skills training and drive inward investment, raising the region's profile on the global stage.

URL for further information: http://www.myworld-creates.com/
https://www.bristol.ac.uk/news/2020/june/myworld-ukri-funding-announcement.html

Candidate Requirements

Applicants must hold/achieve a minimum of a master's degree (or international equivalent) in a relevant discipline. Applicants without a master's qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

If English is not your first language, you need to meet this profile level:
Profile E
Further information about [English language requirements and profile levels](#).

Basic skills and knowledge required

Essential: Excellent analytical skills and experimental acumen.

Desirable: A background understanding in one or more of the following:
- Image processing
- Video coding
- Artificial intelligence/Machine learning/Deep learning

Scholarship Details

Stipend at the UKRI minimum stipend level will also cover tuition fees at the UK student rate. Funding is subject to eligibility status and confirmation of award.

To be treated as a home student, candidates must meet one of these criteria:
- be a UK national (meeting residency requirements)
- have settled status
- have pre-settled status (meeting residency requirements)
- have indefinite leave to remain or enter.

Application Process

- All candidates should submit a full CV and covering letter to myworldrecruitment@myworld-creates.com (FAO: Professor David R. Bull) by the deadline.
- Formal applications for PhD are not essential at this stage, but can be submitted via the University of Bristol homepage (clearly marked as MyWorld funded): https://www.bristol.ac.uk/study/postgraduate/apply/
- A Selection Panel will be established to review all applications and to conduct interviews of short-listed candidates.
- Candidates will be invited to give a presentation prior to their formal interview, as part of the final selection process. It is expected that the shortlisting selection process will commence **6 December 2022**, with interviews to follow.
- The initial closing date for applications is **30 November 2022**. The positions will however remain available until all scholarships are awarded.

For questions about **eligibility and the application** process please contact SCEEM Postgraduate Research Admissions sceem-pgr-admissions@bristol.ac.uk