Title: MyWorld/Netflix: Deep Video Coding for AOM/AV2

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

Video technology is now pervasive, with mobile video, UHDTV, video conferencing, and surveillance all underpinned by efficient signal representations. As one of the most important research topics in video processing, compression is crucial in encoding high quality videos for transmission over band-limited channels.

The last three decades have seen impressive performance improvement in standardised video algorithms. The latest standard, VVC and the new royalty free codec, AOM/AV1, are expected to achieve 30-50% gains in coding performance over HEVC. However, this figure is far from satisfactory considering the large amount video data consumed every day.

Inspired by the recent breakthrough in artificial intelligence, in particular deep learning techniques developed for video processing applications, this PhD project will investigate novel deep learning-based video coding tools, network architectures and perceptual loss functions specifically for the new emerging open-source codec, AOM/AV2.

This project is jointly funded by Netflix (US) and MyWorld UKRI Strength in Places Programme, as part of the strategic research collaboration project between the University of Bristol and Netflix (US). The student will have the opportunity to work with experts from Netflix, contributing to the development of AOM/AV2.

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:
Video compression
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 be 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