Title: MyWorld: Advanced Network Slicing Solutions for Media Applications

Type of award: PhD Research Studentship

Department: Electrical and Electronic Engineering, Smart Internet Lab

Scholarship Details: Minimum £16,062 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.

Overseas applicants may be considered for partial funding. Funding is subject to eligibility status and confirmation of award

Start Date: 20 September 2022

PhD Topic Background/Description

Network Slicing is a key technology enabler for supporting advanced applications in the current generation of mobile networks (5G) and beyond (6G). By promoting the isolation of network resources and effectively providing multiple logic networks over a shared infrastructure, it allows offerings with different assurances to groups of users and services in a cost-effective matter.

This is particularly useful for bandwidth intensive and latency sensitive applications, such as high-resolution media services, and will become fundamental when new forms of experiencing immersive content (even more resource-demanding than the existing ones) start to be widely available. To support such use cases, network slicing and management algorithms need to take into consideration unique aspects of media production, delivery, and interactivity, such as the effects of different media protocols on the network.

In this context, this PhD project will focus on developing media-aware network slicing solutions and management algorithms that will enable different forms of media services to be deployed and coexist in shared infrastructures, while allowing customised level of performance guarantees. The work will involve development of intelligent resource management and dynamic resource allocation, multi-tenancy support and performance optimisation, to deliver end-to-end network services to various media applications.

This PhD project will contribute to achieve perceptually optimised media delivery and interactivity within the MyWorld programme. Launched in April 2021, MyWorld 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.

As part of the MyWorld effort, the student will have the opportunity to collaborate with several partners from Bristol and Bath’s creative technologies sector and academic institutions that create a unique interdisciplinary R&D environment.

URL for further information: http://www.myworld-creates.com/
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:
- Telecommunication networks
- Network Function Virtualisation
- Software Defined Networking
- Artificial Intelligence
- Machine Learning
- LTE /5G protocol stack and architecture

Scholarship Details
Stipend at the UKRI minimum stipend level will also cover tuition fees at the UK student rate. Partial funding to be considered for overseas applicants. All 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 Dimitra Simeonidou) 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 17 August 2022, with interviews to follow.
- The initial closing date for applications is 16 August 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