Funded PhD opportunity: Interactive and personalised podcasting with AI-driven audio production tools

University of York Department of Music
Supervisors: Dr T Collins, Dr C Pike, C Robinson
Funded PhD Project (European/UK Students Only)

Keywords: York; BBC; United Kingdom; Software Engineering; Storytelling; Signal Processing; Music; AI & Machine Learning

The project

There has been a considerable growth in the consumption and production of podcasts in recent years. The premise of this project is that there exist exciting possibilities for innovative user experiences at the intersection of interactive and personalised narratives, AI audio technologies, and the podcast form.

In terms of AI audio technologies, there have been recent step changes in domains such as music information retrieval and sound effect generation. Recent research on binaural sound reproduction has established that the perceived quality of binaural sound can be improved for audiences without need for personalisation or head-tracking.

Through interviews, software development, and workshops with creative producers hosted at the BBC, this PhD project will explore use cases and creative affordances of producing interactive and responsive narratives in podcast form, and how advances in AI audio technologies can play a role. The intended outcomes comprise technological and perceptual research papers, and a pilot for BBC Taster, comprising interactive and responsive narratives that can be experienced by BBC listeners.

This project is part of the on-going relationship between the University of York Department of Music and BBC R&D, through the XR Stories project. We recognise the many benefits of a diverse community and are committed to ensuring an inclusive place to work, live, and study. We particularly encourage applications from women and members of minority groups, who are underrepresented in this field and across the Department as a whole.

The candidate

The successful candidate will be supervised by Dr Tom Collins and study in the Department of Music's Music Computing and Psychology Lab at the University of York, spending short periods of time with the XR Stories team in York, and with Dr Chris Pike (Lead R&D Engineer - Audio) and Cathy Robinson (Technical Producer for Immersive Technology) at BBC R&D at MediaCityUK. Up to 6 months of this 3.5 year PhD will be spent on placement

with BBC R&D as a single block of time, or in shorter, more focused periods, 3 months at a time.

The project will consider both research and development, as well as practice-based approaches, and user studies with colleagues from the BBC. The successful candidate should have excellent interpersonal and programming skills, and an appreciation of how these combine in software engineering and user-centred software development. They should have a strong interest in one or more of sound, music, storytelling, and immersive audio technology. This project is highly multidisciplinary in its nature and we welcome candidates from a broad range of core research backgrounds and interests, extending from computer science and machine learning to audio signal processing, user experience design, human-computer interaction, as well as relevant creative practice.

Candidates must have (or expect to obtain) a minimum of a UK upper second-class honours degree (2.1) or equivalent in a related subject, and ideally also have a related Master's degree. Prior research or industry experience would also be an advantage.

This PhD is due to start 1st November 2020.

How to apply

Candidates must apply via the University's online application system at https://www.york.ac.uk/study/postgraduate/courses/apply?course=DRPMUSSMUS3&level=postgraduate
Please read the application guidance first so that you understand the various steps in the application process. Please specify in your PhD application that you would like to be considered for this studentship.

Interested candidates with any questions about the position are welcome to get in touch at tom.collins@york.ac.uk.

Funding and legal

The studentship will cover the tuition fee at the home/EU rate (£4,407 in 2020/21) and a stipend at the standard research council rate for a period of up to 3.5 years (£15,285 in 2020/21). A bursary will be made available to support the 6-month placement. The stipend will also be "topped up" by an additional £2,000 per in years 1-3 supported by the overall financial contribution by BBC R&D. International (non-EU) candidates are welcome to apply but will be required to pay the difference between the UK/EU and international tuition fee rates, which is approximately £17,000 per year for the duration of the programme.

The successful candidate will be asked to sign a project agreement setting out the relationship between the student, University of York, and the BBC. A copy of this agreement can be made available upon request.

About the Department of Music and University of York

The Department of Music at the University of York is an acknowledged world-leader in creative, practical and scholarly approaches to music. University of York, a member of the prestigious Russell Group, is a dynamic, research-intensive university. The campus is situated just over 1 mile from the beautiful, historic, affordable, and fun city of York.

The University's School of Arts has a particular focus on digital creativity, which is of increasing importance not just to Music, but also to the University as a whole, and forms a central plank in the vision for the University as an institution embedded within the digital creativity industry of the region and country.

The successful candidate will be encouraged to become integrated into the lively postgraduate research community and the research life of the Department. In particular, the student will be encouraged to participate in the Postgraduate Forum, which runs twice a year, and to attend and contribute to our many colloquia and research meetings (there are usually three of these a week throughout term).

About XR Stories

XR Stories is a £15 million investment by the Arts and Humanities Research Council, the University of York, the British Film Institute, Screen Yorkshire and a wide range of creative and cultural industries partners and Yorkshire Universities, set up to understand and exploit the potential of immersive and interactive technologies for storytelling. Research topics relevant to this PhD include:
The development of interactive and responsive narratives, such as TV programmes that adapt to the contexts in which they are experienced.
The development of dedicated tools for creating, producing and delivering such narrative experiences.
The use of big data analytics and artificial intelligence to shape narrative content creation and delivery.

About BBC R&D

BBC R&D is tasked with keeping the BBC and the media industry at the forefront of technological developments. XR storytelling and the underlying immersive technologies have long been an active area of research and there are strong existing collaborations with the University of York. The BBC’s VR Hub and BBC Taster platform are public routes to share XR storytelling output that has been driven by BBC R&D. Alongside this BBC R&D has been driving research and standardisation efforts in this area, including through partnership with the University of York.