UNIVERSITY OF SURREY
CENTRE FOR VISION SPEECH AND SIGNAL PROCESSING (CVSSP) AND INSTITUTE OF SOUND RECORDING (IOSR)
4 X RESEARCH FELLOWS / RESEARCH FELLOWS II IN SPATIAL AUDIO & VISION (REF: 000114)

(24 MONTHS INITIALLY WITH POSSIBLE EXTENSION FOR UP TO 5 YEARS, FULL-TIME)

RESEARCH FELLOW SALARY (RA1A): £29,541-£36,661 PER ANNUM

RESEARCH FELLOW II (RA2) SALARY: £37,756-£45,053 PER ANNUM

(SUBJECT TO QUALIFICATIONS AND EXPERIENCE)

Applications are invited for four Research Fellow posts to join a major EPSRC funded research programme addressing the future of spatial audio for immersive listener experiences at home.

The project is led by Surrey in collaboration with BBC Research and leading experts in 3D audio at Salford and Southampton Universities. The goal is to enable listeners to experience the sense of "being there" at a live event such as a concert or football match, from the comfort of their living room through delivery of immersive 3D sound to the home.

Research will pioneer a listener centred approach to 3D sound production that can dynamically adapt to the listeners' environment and location to create a sense of immersion. This requires new models for listener perception of spatial audio in natural spaces together with the audio-visual signal processing to produce, deliver and reproduce listener centred spatial audio in the home.

Applicants for the Research Fellow II posts should be able to demonstrate a strong track-record of publication in primary journals and independent research potential.

Research Fellow II will contribute to leading the cross programme research challenges to deliver on milestones which link the four research streams in 'object-based production', 'listener perception', 'audio object separation' and 'listener centred reproduction'.

All applicants will be expected to collaborate closely with BBC Research and academic partners as part of a project team to realise the overall objectives of the research programme.

Posts will initially be for 2 years with possible extension for up to 5 years.

All Research Fellows are required with experience in the following areas:

Post 1:

Perceptual evaluation of spatial audio in natural spaces (Dr.Tim Brookes(lead), IoSR & Prof.Trevor Cox, Salford)Research will focus on elicitation and modelling of the auditory attributes likely to be degraded when the set-up of an audio reproduction system is non-ideal. This will form part of the 'listener perception' stream of the project and will feed into the development of a model of listener experience. Applicants should have a PhD in a relevant area, ideally with expertise in the design and execution of listening-based elicitation and scaling experiments, statistical analysis and modelling, psychoacoustics and acoustics, and programming in MATLAB and Max/MSP.

Post 2:

Audio-visual source separation for object-based production (Dr.Wenwu Wang(lead), CVSSP & Dr.Frank Melchior, BBC) Research will focus on developing machine learning techniques by building statistical models of source material combining audio and visual cues so that expectations of an audio object can be maximally exploited to refine the source separation. This effort will contribute to the robust modelling for audio-visual coherence, and adapt it for audio object recognition and isolation in spatial audio coding and rendering. This research under the 'audio object separation' stream will link with research in 'object-based production' led by the BBC. Applicants should have a relevant PhD, ideally with expertise in source separation and audio-visual signal processing. Experience of algorithm development in audio source separation, objective and subject evaluations of acoustic separation quality, and programming in MATLAB and/or C/C++ would be advantageous.

Post 3:

Object-based spatial audio production (Dr.Philip Jackson(lead), CVSSP & Dr.Frank Melchior, BBC) Research will focus on the task of converting audio recordings from multiple microphones and microphone arrays into spatial audio objects working closely with BBC Research on object-based representation for production. This will generate new creative possibilities for the production of media content with spatial audio. Microphone techniques will be combined with visual cues to the location of a source to actively steer the directivity. This will contribute to complementary activities within this 'audio object separation' stream of the programme providing capabilities for 'object-based production'. Applicants should have a relevant technical PhD, ideally with expertise in

optimal signal processing and spatial acoustics. Experience of practical measurements with multi-channel audio systems, perceptual models, and programming in MATLAB would be advantageous.

Post 4:

Listener centred spatial audio production in natural spaces (Prof.Adrian Hilton(lead), CVSSP & Prof.Phil Nelson, Southampton) The post holder will be responsible for the visual processing and 3D reconstruction to support 'listener centred reproduction' in natural spaces working closely with Southampton on spatial audio reproduction. Initial research will focus on real-time, low-latency 3D visual tracking of multiple listeners within a home environment. Subsequent research will develop novel methods based on machine learning of audio-visual characteristics to model the listener and their environment. Applicants should have a PhD and experience in 3D computer vision with experience of tracking, visual reconstruction and machine learning. Experience of development in C/C++ is essential.

CVSSP is one of the largest computer vision research centres in the UK focusing on vision, graphics, machine learning and signal processing, with 120 members comprising academic, research fellows and PhD students. The centre is supported as a national hub for research in visual media and has strong collaborative links with the UK creative industries (film, games and broadcast).

The IoSR is a leading centre for research in psychoacoustic engineering, as well as being home to the Tonmeister undergraduate degree programme. It has a focused team of 12 researchers, plus several industrial collaborators, and a range of professional facilities of the highest standards, including three recording studios and an ITU-R BS 1116 standard critical listening room.

Further details of the posts are included in the individual role specification and can be obtained by contacting the lead investigator. Applicants should indicate which post(s) they are interested in being considered for and any preference. Informal enquires are welcome and should be made to Prof. Adrian Hilton +44 (0)1483 683956 or a.hilton@surrey.ac.uk.

Apply online or download application documents and further information at https://jobs.surrey.ac.uk/Vacancies.aspx. If you are unable to apply online please contact Mr Peter Li via email at k.li@surrey.ac.uk or by phone on +44 (0) 1483 683419. Please quote Post Ref No. 000114)

The closing date for applications is 02 February 2014

Interview will be held on February 2014

Expected to start in March 2014

We acknowledge, embrace and understand diversity