Michael Cousins

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Michael Cousins

Acoustic Engineer

About me Acoustic engineer with an interest in psychoacoustics, signal processing and creative problem solving. I am looking for an opportunity to develop ideas into working products and software.

Professional Experience

April 2018 - present, Research Fellow, S3A Project, University of Southampton

Diffuse Sound Rendering: Development of a decorrelation algorithm for optimal rendering of diffuse sound fields such as reverberation or rain in object-based spatial audio.

Legacy Content Upmixing: Extension of the diffuse sound decorrelation algorithm to allow blind upmixing of mono and stereo audio to arbitrary loudspeaker arrangements including ad hoc loudspeaker layouts as used for “Media Device Orchestration (MDO)”

Soundbar Personalisation: Organising a group of researchers focussed on using a beamforming soundbar to deliver personalised spatial audio experiences to multiple listeners in the same space. Evaluation of factors affecting reproduction quality such as inter-listener separation, frequency response and mix balance.

Education

February 2014 - April 2018, PhD University of Southampton: Acoustics

“The Diffuse Sound Object”: Investigating the perception of diffuse sound fields.

Modules: Fundamentals of Acoustics, Signal Processing, Audio Signal Processing.

Outreach Activity Volunteering: “The Road Show”, “Science and Engineering Day”, “Science All Around Us”, “Year 6 Primary visit”.

Sep 2009 - July 2013, BMus University of Surrey: Sound Recording (Tonmeister) 2:1

“Vertical Broadening of an Auditory Source”: Dissertation investigating causes of the vertical broadness of a sound source when using elevated loudspeakers.

Modules: Audio Engineering; Video Engineering; Recording Techniques; Computer Audio Systems; Audio Signal Processing; Electronics; Electroacoustics; Acoustics; Sound Synthesis; Composition; Orchestration and Arrangement; Screen Music Studies; Harmony; Knowledge of Instruments; Understanding Music and Audio Laboratory.

Placement: Eastbourne College 2012-2013: Birley Centre Technician for Recording studios and Auditorium.

September 2007 - August 2009, A-levels Bilborough College
Maths (A), Physics (A), Electronics (A), Music Technology (B)

Publications

"The Effect of Inter-channel Cross-correlation Coefficient on Perceived Diffuseness."
4th International Conference on Spatial Audio, September 2017, Graz

"Relation Between Acoustic Measurements and the Perceived Diffuseness of a Synthesised Sound Field
22nd International Congress on Acoustics, September 2016, Buenos Aires
Award: ICA-ASA Young Scientist Conference Attendance competition.

"Subjective Diffuseness in Layer-based Loudspeaker Systems with Height."
139th International Convention of the Audio Engineering Society, October 2015, New York

"Maximising the Perceived Diffuseness in Loudspeaker Systems with Height using Optimised Relative Loudspeaker Levels."
Institute of Acoustics: Reproduced Sound, 2015, Moreton-in-Marsh

Computer software

- Matlab
- Python
- Max (Max/MSP)
- SPSS
- Latex
- Arduino
- Solidworks
- Protools
- Logic Pro
- Reaper
- Premiere Pro
- Photoshop
- Final Cut Pro
- Microsoft Office

Personal Interests

- Motorcycling
- Woodworking
- Electronics
- Skiing
- Smart Homes

References available upon request