

CHARLES JAMES MIDDLECOTT

SKILLS & INTERESTS

Audio Research
Spatial Audio
Acoustic Measurement
Microphone Array Design
Digital Signal Processing
Product Design
HW & SW Development
Rapid Prototyping & CAD

BIOGRAPHY

Charles is an experienced Acoustic Engineer and Researcher who enjoys designing acoustic focused products & experiences for consumer electronics industry.

Some of which can now be found into countless homes across various territories.

He holds memberships to the following societies and institutions

Audio Engineering Society,
Institute of Acoustics,
and the IET

He is an active member of the [Creative Technologies Research Group](#) at the University of Derby

PROFICIENCIES

MATLAB
Python
C++
JUICE
HEAD Acoustics ACQUA
Listen SoundCheck
Audio Precision
Comsol
SolidWorks

CONTACT



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Location Essex, UK

REFERENCES AVAILABLE ON REQUEST

EDUCATION

PhD

Low-Cost Higher Order Microphone Array Calibration

My doctoral study focusing on the development, implementation and evaluation of a range of microphone capsule calibration approaches to optimise the use of low-cost capsule for capturing 3D Sound fields.

Oct 2015 to June 2021

University of Derby

MA - Distinction

Music Production

JAMES Accredited Degree consisting of the following modules - Research Methods, Music Production Systems, Audio DSP, Sound Design & Studio Production. My thesis focused on the objective analysis contemporary metal drum production techniques.

Sept 2013 to Sept 2014

University of Derby

BSc – 2:1 (Hons)

Music Technology & Production

JAMES Accredited Degree consisting of the following key modules - Studio Technology, Acoustics, Sound System Engineering, Studio Post-Production and Multichannel Sound & Auditory Perception.

Sept 2010 to May 2013

University of Derby

EMPLOYMENT HISTORY

Senior Acoustic Engineer (R+D)

Sky / Comcast

In my capacity as a **Senior Acoustic Engineer**, I have spearheaded the design and implementation of audio solution hardware and VoIP signal processing for [Sky Live](#), the innovative Smart Camera introduced by Sky.

This multifaceted role entails a balanced division of responsibilities between product design and delivery, as well as active involvement in Research & Development endeavours. Furthermore, I oversee a small but capable team of acoustic engineers and manage a dedicated test facility, where I played a key role in its design and setup.

Beyond the hardware development realm, my extensive expertise in acoustics and signal processing has facilitated extensive collaboration with various departments. This includes close collaboration with the Software Development team to fine-tune and test VoIP algorithms using cutting-edge tools like Head Acoustics ACQUA. I work closely with the Mechanical Design team to ensure Design for Manufacturability (DFM) with a keen focus on optimizing acoustic performance. Additionally, I support Regression Test activities by maintaining oversight of VoIP testing, In addition to supporting Production Test efforts, including test design, jig development, and failure analysis, to ensure robust manufacturing standards.

Jan 2022 to Present

Essex UK

Acoustic Engineer (R+D)

Sky / Comcast

As an **Acoustic Engineer** I was an integral part of the Hardware Development Team developing [Sky Glass](#). This role entails the comprehensive oversight of hardware design and validation throughout the entire product development cycle, ranging from conceptualization to prototyping and ultimately transitioning to large-scale production. My specific area of expertise lies in the meticulous development of advanced microphone arrays, specifically tailored for Far Field Voice and VoIP applications, this including associated signal processing. This also involved R+D activities around application for improved FFV & VoIP functionality in future products.

Jan 2019 to Jan 2022

Essex UK

Graduate Teaching Assistant

University of Derby

During my PhD study, I assisted with delivery of the curriculum across several BSc and MA courses.

Oct 2015 to Oct 2018

Derby UK

Research Associate

University of Derby

I contributed to a project titled [GASP \(Guitars with Ambisonic Spatial Performance\)](#). Assisting with both recording and post-processing / spatialization of material, in as well as facilitating demonstrations and publishing academic papers.

Jan 2014 to Sept 2016

Derby UK

ACADEMIC PUBLICATIONS

- Oct 2022 Middlicott C & Wiggins B – [AES 153rd International Convention – New York](#)
["Capsule Calibration Approaches for Low-Cost Higher Order Ambisonic Microphones Arrays"](#)
- Oct 2019 Middlicott C & Wiggins B – [AES 147th International Convention – New York](#)
["Calibration Approaches for Higher Order Ambisonic Microphones"](#)
- Oct 2018 Middlicott C & Wiggins B – [AES 145th International Convention – New York](#)
["Development of Ambisonic Microphone Design Tools - Part 1"](#)
- Nov 2017 Dring, M; Middlicott C; Wiggins B; & Vilkaitis, A – [IOA Reproduced Sound - Nottingham](#)
["Modelling the performance of speaker arrays in domestic listening environments"](#)
- Nov 2016 Vilkaitis, A; Middlicott C; Dring, M; & Wiggins B – [IOA Reproduced Sound - Southampton](#)
["Room acoustics and VR: An implementation of auralisation and 360° image techniques..."](#)