



Aidan O. T. Hogg

PhD DIC MEng ACGI AFHEA

Curriculum Vitæ

last updated: June 30, 2023



RCS1 214, Royal College of Science,
Imperial College London, SW7 2AZ



aidan@aidanhogg.uk



aidanhogg.uk



linkedin.com/in/aothogg

CURRENT RESEARCH

My current research focuses on using deep learning to capture head-related transfer functions and, more generally, spatial acoustics and immersive audio. Other research interests include speaker diarization and statistical signal processing for audio applications. More information about my current research can be found at: www.aidanhogg.uk.

EMPLOYMENT

Research Associate

Imperial College London – Dyson School of Design Engineering

DECEMBER 2021 – PRESENT

London, UK

Research focusing on spatial audio and virtual reality

Teaching Assistant

Imperial College London – Department of Electrical and Electronic Engineering

OCTOBER 2017 – PRESENT

London, UK

Teaching, learning and assessment (undergraduate & postgraduate)

R&D Signal Processing Engineer

Nuance Communications – Research and Development Group

JULY 2017 – NOVEMBER 2018

Marlow, UK

Parallel research with PhD within audio signal processing

Digital Design Engineer

Dialog Semiconductor – Digital Audio Signal Processing Group

APRIL 2016 – SEPTEMBER 2016

Edinburgh, UK

Digital Filter Design with a focus on reducing power consumption

Field Applications Engineer

Dialog Semiconductor – Bluetooth Customer Support Group

JULY 2015 – OCTOBER 2015

's-Hertogenbosch, Netherlands

Software and hardware support for Bluetooth smart devices

Software Development Engineer

Dialog Semiconductor – Software Frameworks Group

JULY 2014 – SEPTEMBER 2014

Swindon, UK

Produced scripted *Python* tests to automate silicon validation

Hardware Development Engineer

Broadcom – Mobile Application Processors Group

AUGUST 2012 – SEPTEMBER 2013

Cambridge, UK

FPGA prototyping for the Virtex 7 FPGA prototyping platform

EDUCATION

PhD - SPEECH AND AUDIO PROCESSING, *Imperial College London*

2017 – 2021

MEng - ELECTRONIC & INFORMATION ENGINEERING (First Class Honours), *Imperial College London*

2013 – 2017

AWARDS

2021	Associate Fellowship of the Higher Education Academy (AFHEA)	<i>Advance HE</i>
2021	President's Awards for Excellence (nominated for contributions to Education)	<i>Imperial College London</i>
2018	EEE Graduate Teaching Assistant Of The Year	<i>Imperial College London</i>
2018	Best Graduate Teaching Assistant SACA (shortlisted)	<i>Imperial College Union</i>
2017	HiPEDS CDT Scholarship	<i>The Engineering and Physical Sciences Research Council</i>
2016	Dean's List For Academic Excellence	<i>Imperial College London</i>
2016	IET Undergraduate Grant	<i>The Institution of Engineering and Technology</i>
2014	UKESF Scholarship	<i>UK Electronics Skills Foundation</i>
2013	Diamond Jubilee Scholarship	<i>The Institution of Engineering and Technology</i>

PUBLICATIONS

- [1] **A. Hogg** and L. Picinali: HRTF upsampling: A machine learning approach. *In: Basic Auditory Science (BAS), 2023.*
- [2] S. McKnight, **A. Hogg**, V. Neo, and P. Naylor: Uncertainty quantification in machine learning for joint speaker diarization and identification. *In: IEEE/ACM Trans. Audio, Speech, Language Process. (TASLP), 2023 (submitted).*
- [3] **A. Hogg**, M. Jenkins, H. Liu, and L. Picinali: Exploring the impact of transfer learning on GAN-based HRTF upsampling. *In: Proc. EAA Forum Acusticum, Eur. Congress on Acoust., 2023.*
- [4] **A. Hogg**, M. Jenkins, H. Liu, I. Squires, S. J. Cooper, and L. Picinali: HRTF upsampling with a generative adversarial network using a gnomonic equiangular projection. *In: IEEE/ACM Trans. Audio, Speech, Language Process. (TASLP), 2023 (submitted).*
- [5] I. Engel, R. Daugintis, T. Vicente, **A. Hogg**, J. Pauwels, A. Tournier, and L. Picinali: The SONICOM HRTF dataset. *J. Audio Eng. Soc. (AES), 2022*
- [6] S. McKnight, **A. Hogg**, V. Neo, and P. Naylor: Studying human-based speaker diarization and comparing to state-of-the-art systems. *In: Proc. Asia-Pacific Signal and Inform. Process. Assoc. Annual Summit and Conf. (APSIPA ASC), 2022.*
- [7] V. Neo, S. Weiss, S. McKnight, **A. Hogg** and P. Naylor: Polynomial eigenvalue decomposition-based target speaker voice activity detection in the presence of competing talkers. *In: Proc. Int. Workshop on Acoust. Signal Enhancement (IWAENC), 2022.*
- [8] **A. Hogg**: 'Did the speaker change?': Temporal tracking for overlapping speaker segmentation in multi-speaker scenarios. *PhD Thesis - Imperial College London, 2022*
- [9] S. McKnight, **A. Hogg**, V. Neo and P. Naylor: A study of salient modulation domain features for speaker identification. *In: Proc. Asia-Pacific Signal and Inform. Process. Assoc. Annual Summit and Conf. (APSIPA ASC), 2021.*
- [10] **A. Hogg**, V. Neo, S Weiss, C. Evers and P. Naylor: A polynomial eigenvalue decomposition MUSIC approach for broadband sound source localization. *In: Proc. IEEE Workshop on Appl. of Signal Process. to Audio and Acoust. (WASPAA), 2021.*
- [11] **A. Hogg**, C. Evers, A. Moore and P. Naylor: Overlapping speaker segmentation using multiple hypothesis tracking of fundamental frequency. *In: IEEE/ACM Trans. Audio, Speech, Language Process. (TASLP), 2021.*
- [12] **A. Hogg**, C. Evers and P. Naylor: Multichannel overlapping speaker segmentation using multiple hypothesis tracking of acoustic and spatial features. *In: Proc. IEEE Intl. Conf. on Acoust., Speech and Signal Process. (ICASSP), 2021.*
- [13] S. McKnight, **A. Hogg** and P. Naylor: Analysis of phonetic dependence of segmentation errors in speaker diarization. *In: Proc. European Signal Process. Conf. (EUSIPCO), 2020.*
- [14] **A. Hogg**, C. Evers and P. Naylor: Multiple hypothesis tracking for overlapping speaker segmentation. *In: Proc. IEEE Workshop on Appl. of Signal Process. to Audio and Acoust. (WASPAA), 2019.*
- [15] D. Sharma, **A. Hogg**, Y. Wang, A. Nour-Eldin and P. Naylor: Non-intrusive POLQA estimation of speech quality using recurrent neural networks. *In: Proc. European Signal Process. Conf. (EUSIPCO), 2019.*
- [16] **A. Hogg**, C. Evers and P. Naylor: Speaker change detection using fundamental frequency with application to multi-talker segmentation. *In: Proc. IEEE Intl. Conf. on Acoust., Speech and Signal Process. (ICASSP), 2019.*

EXTERNAL POSITIONS

Early Career Coordinator

SPECIAL INTEREST GROUP IN SPATIAL ACOUSTICS AND IMMERSIVE AUDIO

2021 – PRESENT

UK Acoustics Network

CURRENT RESEARCH PROJECTS

SONICOM - *Research Associate*

European Union's Horizon

BEARS (Both EARS) - *Research Associate*

NIHR Programme Grants for Applied Research

STUDENT SUPERVISION

Samuel Kelso - MSc IN ARTIFICIAL INTELLIGENCE, *Imperial College London* 2023

Xuyi Hu - MSc DEGREE IN ARTIFICIAL INTELLIGENCE, *Department of Computing, Imperial College London* 2023

Jian Li - MSc DEGREE IN IN ARTIFICIAL INTELLIGENCE, *Department of Computing, Imperial College London* 2023

Madeline Jenkins - MSc DEGREE IN ADVANCED COMPUTING, *Imperial College London* 2022

He Liu - MSc DEGREE IN ADVANCED COMPUTING, *Imperial College London* 2022

EXTERNAL PROFESSIONAL ACTIVITIES

Organising Committee - *UKAN Connecting Event on Future of Acoustics for Wellbeing and Health* SEPTEMBER 2023

Co-Lead Organiser - *Basic Auditory Science Meeting* SEPTEMBER 2023

Co-Lead Organiser - *UKAN Spatial Acoustics and Immersive Audio Annual Meeting* APRIL 2023

Organising Committee - *UKAN Workshop on Soundscapes* APRIL 2022

Co-Lead Organiser - *UKAN Connecting Event on Wellbeing and Health* FEBRUARY 2022

PUBLIC ENGAGEMENT

Co-Lead Exhibitor - *Royal Society Summer Science Exhibition* JULY 2023

Exhibitor - *Great Exhibition Road Festival* JUNE 2022

Exhibitor - *Imperial Lates* MAY 2022

President's Ambassador - *Outreach, Imperial College London* 2013 – 2017

TEACHING (at Imperial College London)

Signals & Systems (*EEE, MEng, Year 2*) - Course development, recitations and exam creation/marking 2020 - 2022

Introduction to MATLAB (*EEE, MEng, Year 2*) - Course development and recitations 2020 - 2022

Engineering Design & Practice (*EEE, MEng, Year 1*) - Interviews and marking 2018 - 2020

DTF & Linear Signal Processing (*EEE, MEng, Year 2*) - laboratory sessions and marking 2018 - 2020

Digital Signal Processing (*EEE, MEng, Year 3*) - Recitations and exam marking 2017 - 2020

Algorithms & Complexity (*EEE, MEng, Year 2*) - Exam marking 2020

Real-Time Digital Signal Processing (*EEE, MEng, Year 3*) - Recitations and exam marking 2017 - 2018

Introduction to Assessment & Feedback for Learning (*Graduate School*) - Co-taught one session 2018

Introduction to Learning & Teaching (*Graduate School*) - Co-taught one session 2018