Dan Stowell

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Professional experience

2014–present **EPSRC research fellow**, *Centre for Digital Music, Queen Mary University of London.*
"Structured machine listening for soundscapes with multiple birds" fellowship project (EPSRC-funded, 60 months). Developing innovative methods to automatically extract information about birds from recorded audio. Supervising three PhD students (plus others as 2nd-supervisor). Leading an international machine-learning evaluation campaign.

2012–2014 **Postdoctoral research assistant**, *Centre for Digital Music, Queen Mary University of London.*
"Machine listening using sparse representations" project (EPSRC-funded, 24 months, PI: Mark Plumbley). Researched the automatic analysis of audio content, focusing on environmental sound, birdsong and sound archives. Co-organised international IEEE machine listening contest "DCASE".

2010–2012 **Postdoctoral research assistant**, *Centre for Digital Music, Queen Mary University of London.*
"Musicology for the Masses" project (EPSRC-funded, 18 months, PI: Simon Dixon). Conducted an ethnographic study in two secondary schools; published three conference papers and one journal paper; improved Sonic Visualiser software (C++/Qt programming, Linux and Mac); created online chord analysis system (PHP/JavaScript).

2010 **Postdoctoral research assistant**, *Centre for Digital Music, Queen Mary University of London.*
Investigated automatic birdsong classification (C4DM Platform Grant, 3 months, PI: Mark Plumbley).

Education

2006–2010 **PhD**, *Centre for Digital Music, Queen Mary University of London (QMUL).*
Supervisor: Mark Plumbley. Funded by EPSRC Doctoral Training Account. Viva date 30th July 2010.
Title: *"Making music through real-time voice timbre analysis: machine learning and timbral control".*

2002–2005 **Postgraduate Certificate**, *University College London (UCL).*
Learning Technologies Research – part-time study, professional development scheme.

1997–2000 **1st class BA hons.**, *University of Cambridge.*
Natural Sciences (History and Philosophy of Science).
Also studied Molecular Cell Biology, Chemistry, Physics, and Maths.

Publications (selected)

- D. Stowell, E. Benetos, and L. F. Gill, "On-bird sound recordings: Automatic acoustic recognition of activities and contexts," ***IEEE/ACM Transactions on Audio Speech and Language Processing***, in press.
- D. Stowell, L.F. Gill and D. Clayton, " Detailed temporal structure of communication networks in groups of songbirds," ***Journal of the Royal Society Interface***, vol.13(119), 2016.
- D. Stowell and D. Clayton, "Acoustic event detection for multiple overlapping similar sources," ***Proceedings of IEEE WASPAA***, 2015.
- D. Stowell, D. Giannoulis, E. Benetos, M. Lagrange and M. D. Plumbley, "Detection and Classification of Audio Scenes and Events," ***IEEE Transactions on Multimedia***, vol.17(10), p. 1733-1746, 2015.
- D. Stowell and M. D. Plumbley, "Automatic large-scale classification of bird sounds is strongly improved by unsupervised feature learning," ***PeerJ***, vol. 2, p. e488, 2014.
- D. Stowell and M. D. Plumbley, "Large-scale analysis of frequency modulation in birdsong databases," ***Methods in Ecology and Evolution***, 2014.
- D. Barchiesi, D. Giannoulis, D. Stowell, and M. D. Plumbley, "Acoustic scene classification," ***IEEE Signal Processing Magazine***, 2014.
- D. Stowell and M. D. Plumbley, "Segregating event streams and noise with a Markov renewal process model," ***Journal of Machine Learning Research***, vol. 14, pp. 1891–1916, Jul 2013.
- D. Stowell and S. Dixon, "Integration of informal music technologies in secondary school music lessons," ***British Journal of Music Education***, pp. 1–21, Aug 2013.
- D. Stowell and M. D. Plumbley, "Learning timbre analogies from unlabelled data by multivariate tree regression," ***Journal of New Music Research***, vo. 40, pp. 325–336, 2011.
- D. Stowell and M. D. Plumbley, "Fast multidimensional entropy estimation by k-d partitioning," ***IEEE Signal Processing Letters***, vol. 16, pp. 537–540, Jun 2009.
- D. Stowell, A. Robertson, N. Bryan-Kinns, and M. D. Plumbley, "Evaluation of live human-computer music-making: quantitative and qualitative approaches," ***Int Journal of Human-Computer Studies***, vol. 67, pp. 960–975, Nov 2009.

Note: for latest research pre-prints please see `http://arxiv.org/a/stowell_d_1`

PhD students (as first supervisor)

2015– Pablo Alvarado Duran, "Physically/Musically Inspired Probabilistic Models for Audio Content Analysis"

2015– Veronica Morfi, "Machine transcription of wildlife bird sound scenes"

2016– Will Wilkinson, "Probabilistic inference and synthesis of the latent behaviour in sound"

Academic activities

conferences
Lead organiser, *Listening in the Wild 2015* (£3,050 budget: one-day research workshop).
Lead organiser, *Listening in the Wild 2013* (£3,604 budget: one-day research workshop).
Lead organiser, *SuperCollider Symposium 2012* (£18,000 budget: talks, workshops, concerts, exhibition).

invited talks
- Dagstuhl seminar, Germany, October 2016
- Centre for Research into Ecological & Environmental Modelling, St. Andrews, June 2015
- Cambridge Computer Laboratory, Cambridge, March 2015
- Cambridge Machine Learning Group, Cambridge, March 2015
- British Trust for Ornithology, Thetford, February 2015
- UCL, London, May 2014
- INRIA, Rennes, France (research visit and seminar), March 2013
- University of Sheffield seminar, Sheffield, February 2013
- Open University seminar, Milton Keynes, March 2011
- University of Oldenburg seminar, Germany, October 2010
- QMUL Statistics Department seminar, May 2010
- Openmute "Digital Innovation for the Arts" workshop, London, April 2010
- Puredyne code-sprint (invited developer/speaker), Helsinki, Finland, March 2010
- AES Audio for Games Conference 2009 (invited chair), *Speech Processing and Analysis* session

journal reviewing
• Applied Acoustics • Artificial Intelligence Review • Bioacoustics • Computer Music Journal • Ecological Informatics • EURASIP Journal on Audio, Speech, and Music Processing • IEEE Signal Processing Letters • IEEE Journal of Selected Topics in Signal Processing • IEEE Transactions in Audio Speech and Language Processing • IEEE Transactions on Multimedia • IEEE Computer • Journal of the Audio Engineering Society • Journal of New Music Research • Methods in Ecology and Evolution • Neural Computation • Plos One • Signal Processing • Speech Communication

conference reviewing
• ICASSP (IEEE International Conference on Acoustics Speech and Signal Processing) 2017 • ISMIR (International Conference on Music Information Retrieval) 2011–2015 • EUSIPCO (European Signal Processing Conference) 2015 • WASPAA (IEEE International Workshop on Acoustics Speech and Audio Analysis) 2015 • ICMC (International Computer Music Conference) 2009, 2012 • CMMR (International Conference on Computer Music Modelling and Retrieval) 2012, 2013 • NIME (New Instruments for Musical Expression) 2012, 2013 • AES Conference on Semantic Audio 2011.

other reviewing
- Textbook, Bentham Press, "Comparative Bioacoustic Methods", March 2016
- Grant proposal, Linz Institute of Technology (Austria) funding panel, October 2016

teaching
Undergraduate / postgraduate teaching at QMUL:
- 2013 Supervisor, MEng project "Hocus Focus: source separation mobile app"
- 2011 Supervisor, MSc project "Sound design by genetic algorithms"
- 2009–2011 Guest lecturer, MSc Digital Music
- 2007–2010 Teaching assistant, ELE207 (Web Site Design and Authoring Tools)

Also various workshops taught outside QMUL, including:
- 2009 London OpenLab workshop series (led two evening classes)
- 2009 Middletown CT, USA (led two workshops as part of SuperCollider Symposium)
- 2002–2006 UCL (planned and led many IT workshop sessions for academic and administrative staff)

Funding secured

2014 **£506,361**, *EPSRC*, Early Career Fellowship.

2011 **£1600**, *PRS Foundation*, SuperCollider Symposium 2012, Live Algorithms concert.

2011 **£5030**, *QMUL Westfield Small Grants award*, SuperCollider Symposium 2012, outreach activities.

2011 **£2395**, *QMUL C4DM platform grant*, SuperCollider Symposium 2012, conference days.

2010 **£8201**, *QMUL C4DM platform grant*, audio software development for Android phones.

2010 **£400**, *RAEng travel grant 10-079*, Helsinki, Finland.

Awards and prizes

2016 **Finalist**, *Digital Innovation*, Guardian Higher Education Awards 2016.
2015 **Winner**, *'Involve' award*, QMUL Engagement and Enterprise Awards 2015.
2014 **Winner**, *Reproducibility-enabling work*, AES53 Reproducible Research Awards 2014.
2013 **Joint winner**, *Conference paper*, SoundSoftware Reproducible Research Awards 2013.
2013 **Honourable mention**, *Conference submission*, SoundSoftware Reproducible Research Awards 2013.
2009 **Winner**, *Best PhD Poster*, Research Open Day, QMUL School of Elec Eng & Comp Sci (£50 prize).
2008 **Winner**, *IET Best Presentation in Research Group*, QMUL Elec Eng open day (£50 prize).

Public engagement activities (selected)

Mar 2017 BBC Radio 4: *The Today Programme* live interview about bird song and automatic recognition
Mar 2016 BBC Radio 4: *Costing The Earth* feature interview about Warblr and sound recognition
Aug 2015 BBC Radio 4: featured on *The World Tonight*
Jun 2014 BBC News website, "Software can decode bird songs"
Jun 2014 Science magazine news, "Computer becomes a bird enthusiast"
Apr 2012 BBC Technology News: Web video feature (over 250,000 views)
Mar 2012 BBC World Service: Radio live interview and demo, *Click*
Feb 2012 Discovery Channel Canada: featured on *Daily Planet*
Jul 2011 QMUL: conducted Computer Science Taster Day session, "Dismantling dubstep"
Jun 2010 Reuters News: TV interview, "Devuvuzelator reduces horn's noise"
Jun 2010 Cheltenham Science Festival *Discover Zone*, demonstrations of beatbox analysis and Sonic Visualiser
Nov 2009 Worldwide coverage of my *sc140* open-source album release (including New Scientist, Wired, BoingBoing, The Wire, La Stampa) with over 10,000 album downloads
2009–2011 EPSRC NOISEmakers scheme. Public engagement training and activities including:
- Underage music festival for 14-18 year olds, science demonstrations
- Guardian Science Weekly Podcast, 7th September 2009, science demonstration and discussion

Plus many previous activities at venues such as the Science Museum, Cheltenham Science Festival, music festivals, schools.

Languages

English Native
BSL **Level 2 British Sign Language**, *CACDP*, 2009, conversational level.
Icelandic **Level 2**, *UCL Language Centre*, 2005, basic level.
French **GCSE grade A**, *1996*, conversational level.
German **GCSE grade A**, *1996*, conversational level.