Curriculum Vitae

Dr Korin Richmond
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Academic training

From	To	Academic Insititute	Subject	Degree
10/1997	07/2002	University of Edinburgh	Acoustic-Articulatory mapping	PhD
10/1996	09/1997	University of Edinburgh	Cognitive Science and NLP	MSc
10/1991	06/1995	University of Edinburgh	Linguistics and Russian	MA Hons (First)

Academic employment   (all posts at the Centre for Speech Technology Research, University of Edinburgh)

From	To	Associated grant/funding	Position
01/08/2018	**—**	**University of Edinburgh**	**Reader (Associate Professor)**
01/09/2016	31/07/2018	University of Edinburgh	Lecturer (Assistant Professor)
01/02/2014	31/07/2016	University of Edinburgh	(Senior) Research Fellow
01/02/2011	31/01/2014	EPSRC grant EP/I027696/1 ("Ultrax")	Researcher Co-Investigator
01/10/2010	31/01/2011	EC FP7 contract 213845 ("EMIME")	Postdoctoral Research Fellow
01/08/2010	30/09/2010	ONR (USA) grant N00014-10-10085 ("Beetle")	Postdoctoral Research Fellow
01/11/2009	31/07/2010	EPSRC grant EP/E01609x/1 ("ESPF")	Postdoctoral Research Fellow
01/11/2006	31/10/2009	EPSRC grant EP/E027741/1 ("ProbTTS")	Researcher Co-Investigator
01/08/2005	31/10/2006	Scottish Enterprise ("Combilex")	Postdoctoral Research Fellow
01/07/2005	31/07/2005	University of Edinburgh	Postdoctoral Research Fellow
01/07/2002	30/06/2005	EPSRC grant GR/R94688/01 ("Cougar")	Postdoctoral Research Fellow
02/01/2002	30/06/2002	University of Edinburgh	Postgrad. Research Assistant
01/04/2001	01/01/2002	EPSRC grant GR/M75204/01	Postgrad. Research Assistant

Research interests

Human language and speech technology All my research is motivated by a long-held interest in human language, its perception and production, and the development of computer speech technology. I have pursued this interest, as student and researcher, for over thirty years.

Articulatory-acoustic relationship Since my PhD I have studied the relationship between the articulatory and acoustic domains, and have long worked on modelling with neural networks the acoustic-articulatory (inversion) mapping, and the articulatory-acoustic (synthesis) mapping. I am keenly interested in using articulatory(-like) representations of speech to improve both speech technology and speech therapy.

Speech synthesis I have worked extensively with state-of-the-art concatenative, statistical parametric and neural speech synthesis technologies. Pronunciation modelling, as well as front-end processing more generally, is a particular focus of my research. Low-resource speech generation and (semi-)automated speech evaluation are my two newest passions.

Academic responsibilities and experience

Management: Interspeech 2023 Organising Committee member. Acting Programme Director, UEdin MSc Speech and Language Processing (2020-21 & 2021-22 academic years; ~40 students each). Elected IEEE Speech and Language Technology Committee, designated expert in Speech Synthesis (2011-2017). IEEE Senior Member (2014-). Co-organised double oral Special Session on "Articulatory data acquisition and processing", Interspeech 2013. Organising Committee for Ultrafest VI international ultrasound workshop (2013). Management committee for Marie Curie Research Training Programme "Edinburgh Speech Science and Technology (EdSST)" (CSTR and Queen Margaret University, 2006–2010); Coordinator of CSTR's "Speak!", a weekly forum to discuss audio/visual speech synthesis and to coordinate research effort.

Research supervision: 7 PhD students (4 current), >40 MSc students. Research projects of 8 visiting researchers (PhD to Prof. Sabbatical levels, 6-8 months duration each), all in areas relating to speech synthesis, recognition, and articulatory data acquisition and modelling. 3 Postdoc researchers (2017-).

Research dissemination and public engagement: Co-maintain CSTR's web presence, in particular CSTR's publications database; Developed and maintain website for interactive public demonstration of the Festival text-to-speech synthesiser (over 2 million requests synthesised for visitors to date).

Technology transfer and commercialisation: Activities include: Combilex, an advanced speech technology lexicon licensed by leading international companies (e.g. Google, Samsung, Toshiba etc.) and universities (e.g. Cambridge, Sheffield etc.), and Festival (unit selection engine and multiple voices).

Reviewing: Journal of the Acoustical Society of America, IEEE Transactions on Audio, Speech and Language Processing, Speech Communication, Computer Speech and Language, IEEE Signal Processing Letters, EURASIP Journal on Audio, Speech and Music Processing (journals); and HLT-NAACL, SSW speech synthesis workshops, ICASSP, Interspeech (conferences)

Research Funding Procurement

01/2023 - 01/2026	National Research Council of Canada (STR3-0103)	"Speech Generation for Indigenous Language Education"	$354,246 CAN
08/2017- 11/2021	EPSRC (EP/P02338X/1)	"Ultrax2020: Ultrasound Technology for Optimising the Treatment of Speech Disorders."	£964,678 (FEC)
02/2011-07/2014	EPSRC (EP/I027696/1)	"Ultrax: real-time tongue tracking for speech therapy"	£705,911 (FEC)
03/2011-09/2013	Royal Society of Edinburgh	"Unified articulatory-acoustic modelling for flexible and controllable speech synthesis"	£11,639
12/2006-07/2010	EPSRC (EP/E01609X/1)	"An Edinburgh Speech Production Facility"	£619,576
11/2006-10/2009	EPSRC (EP/E027741/1)	"ProbTTS: Data-driven articulatory modelling-foundations for a new generation of speech synthesis"	£286,857
07/2002-06/2005	EPSRC (GR/R94688/01)	"Concatenative Speech Synthesis Using Articulatory Information (Cougar)"	£181,097
Approximate total value:			£2.98M

Teaching

Computer Programming for Speech and Language Processing (=Python; PG&UG; 2016-); Special Topics in Phonetics (2017); Linguistics 2E Phonetics/Ear Training (UG; 2018-); Speech Synthesis (PG&UG, 2017-).

Invited Talks

Institute for Integrated Micro and Nano Systems, Edinburgh, UK (2022)
30th Conference on Electronic Speech Signal Processing, Dresden, Germany (2019, Keynote)
"Academics Unplugged", Edinburgh (2018)
International "Pint of Science" Festival, Edinburgh (2017)
Invited Lecture at Interspeech Satellite Workshop "SPASR", Lyon, France (2013)
Technical University/Forschungszentrum Telekommunikation, Vienna (2013)
GIPSA-lab, Grenoble, France (2012)
Institut für Phonetik und Sprachverarbeitung, Ludwig-Maximilians-Universität, Munich, Germany (2009)
UK Speech Meeting, University of Surrey, Guildford, UK (2008, Keynote)
LORIA, Nancy, France (2007)
University of West Bohemia, Plzen, Czech Republic (2005, two talks)

Selected publications (Google stats 23.01.2023: h-index 32, i10-index 59, citations 3334)

A Pine, D Wells, N Brinklow, P Littell, K Richmond. Requirements and motivations of low-resource speech synthesis for language revitalization. Proc. 60th Annual Meeting of ACL, 2022   [Best paper award]

C Valentini-Botinhao, M S Ribeiro, O Watts, K Richmond, G E Henter. Predicting pairwise preferences between TTS audio stimuli using parallel ratings data and anti-symmetric twin neural networks. In Proc. Interspeech, pp. 471-475, 2022

M S Ribeiro, J Cleland, A Eshky, K Richmond, S Renals. Exploiting ultrasound tongue imaging for the automatic detection of speech articulation errors. Speech Communication. 128, p. 24-34, 2021.

J-X Zhang, K Richmond, Z-H Ling, L Dai. TaLNet: Voice Reconstruction from Tongue and Lip Articulation with Transfer Learning from Text-to-Speech Synthesis. Proceedings of the AAAI Conference on Artificial Intelligence, 35(16), 14402-14410, 2021

A Eshky, J Cleland, M S Ribeiro, E Sugden, K Richmond, S Renals. Automatic audiovisual synchronisation for ultrasound tongue imaging. Speech Communication. 132, p.83-95, 2021.

A Hewer, S Wuhrer, I Steiner, and K Richmond. A multilinear tongue model derived from speech related MRI data of the human vocal tract. Computer Speech & Language, 51:68–92, 2018.