

Sarenne Wallbridge

PhD in Cognitive Science, speech processing, and machine learning. Research scientist who is passionate about combining human nature with information technology to drive positive impact for individuals and society at large. I have specific experience in healthcare and education but I am committed to promoting diversity in the development of language technology and AI more broadly.

EDUCATION

PhD: Informatics, University of Edinburgh, UK

2020 - 2025

EPSRC-funded self-proposed studentship: "Quantifying the perceptual value of lexical and non-lexical channels of spoken dialogue" supervised by Catherine Lai, Peter Bell.

BSc (Hons): Cognitive Science, University of Edinburgh, UK

1st Class

2014 - 2018

Thesis: "Exploring the Relationship Between Word Form & Meaning" supervised by Sharon Goldwater.

Accepted to and completed a full set of MSc courses.

PUBLICATIONS

Can self-supervised speech models predict perceived acceptability of prosodic variation?; ASRU, 2025, S. Wallbridge, A., Adigwe, P. Bell

Prosodic structure beyond lexical content: a study of self-supervised learning; Interspeech, 2025, S. Wallbridge, C. Minixhofer, C. Lai, P. Bell

Incremental alternative sampling as a lens into the temporal and representational resolution of linguistic prediction; preprint 2025, M. Giulianelli, S. Wallbridge, R. Cotterell, R. Fernandez

Can we "cherry-pick"? Investigating multiple renditions from a generative speech synthesis model; ICASSP, 2025, A. Adigwe, S. Wallbridge, Z. Tu, C. Lai, S. King

PairwiseTurnGPT: a multi-stream turn prediction model for spoken dialogue; SemDial, 2024 S. Leishman, P. Bell, S. Wallbridge.

What do people hear? Listeners' perception of conversational speech; Interspeech, 2024, A. Adigwe, S. Wallbridge, S. King

Information value: measuring utterance predictability as distance from plausible alternatives; EMNLP 2023, M. Giulianelli*, S. Wallbridge*, R. Fernandez
* for co-authorship

Quantifying the perceptual value of lexical and non-lexical channels in speech; Interspeech 2023, S. Wallbridge, P. Bell, C. Lai

Do dialogue representations align with perception? An empirical study; EACL 2023, S. Wallbridge, P. Bell, C. Lai

*Investigating perception of spoken dialogue acceptability through surprisal**; Interspeech 2022, S. Wallbridge, P. Bell, C. Lai
* Awarded Best Student Paper

It's not what you said, it's how you said it: discriminative perception of speech as a multichannel communication system; Interspeech 2021, S. Wallbridge, P. Bell, C. Lai

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SKILLS

Python, Git, Pytorch, UNIX, Scipy, NLTK, Pandas, Spacy, TensorFlow, Sacred, Chainer, AWS.

PERSONAL ACHIEVEMENTS

Creativity. Music is a major part of my life; I'm proud to have sung in Copenhagen's oldest jazz club and put on my own show at the Edinburgh Fringe Festival.

Persistence. I'm a keen mountaineer and have climbed 14 4000m+ peaks in the Alps and walked Scotland's Cape Wrath trail.

TEACHING

Spoken Language Processing MSc Tutor, University of Edinburgh (2020 - 2022)

- Developed and delivered a lecture series on "Neural Networks from First Principles" for MSc students, enhancing their foundational understanding of complex concepts.
- Led weekly office hours, seminars, and provided individual support, facilitating student learning and problem-solving for advanced courses.

MSc & BSc Course Tutor, University of Edinburgh (2017 - 2020)

- Provided comprehensive tutoring for various courses including Accelerated NLP, Processing Formal and Natural Languages, and Reasoning and Agents.

EXPERIENCE

Research Scientist, UK AI Security Institute, UK

August 2025 - present

Research scientist on the Human Influence team, leading research into the capabilities of speech technologies and their impacts on human behaviour.

Postdoctoral Research Associate, University of Edinburgh ; Edinburgh, UK

Oct 2024 - July 2025

Research associate supervising two projects:

- NLP in Education: investigating the use of LLMs for creating materials to assist deaf students in UK schools, initiated a new data collection initiative presented at BATOD (British Association of Teachers of the Deaf) 2025.
- NLP in FinTech: Engaged with commercial partners to translate their application into research objectives before producing a suit of technical reports regarding the adaptation of LLMs, and grounding automatic evaluation of RAG systems in subjective evaluations.

Machine Learning Research Engineer, Novoic ; London, UK

Jul 2020 - Sep 2020

I set up an industrial placement with Novoic prior to starting my PhD: audio-linguistic embeddings for clinical applications. Novoic leverages the information in human speech as a clinical tool for early detection of neurological and respiratory disease.

- Built an API for clinical acoustic and lexical feature extraction.
- Initialised collection for a novel dataset (transcription guidelines, etc).

Machine Learning Research Engineer, Klydo ; London, UK

Sep 2019 - Jul 2020

The 6th hire at Klydo building an NLP tool to better understand consumers and drive creative innovation solutions.

- Contributed to full ML pipeline (supervised information extraction, semantic embedding, semi/unsupervised clustering).
- Involved in product development/commercialisation (including client meetings), ML-UX interaction, and project planning.

Machine Learning Research Engineer, Corti ; Copenhagen, Denmark

Feb 2019 - Sept 2019

Corti augments critical conversations in emergency medical services using state-of-the-art ML to enhance dispatchers' decision-making. I contributed to ML, NLP, and ASR research and product as an AGILE team lead and member.

- Project lead; developed 1st iteration of dialogue state tracking feature.
- Contributed to the continuous development of multilingual ASR systems. Owned the French ASR development.
- Made significant changes to the evaluation and training of time-series models through novel segmentation data augmentation.

Machine Learning Data Engineer, Corti ; Copenhagen, Denmark

Oct 2018 - Feb 2019

- Analysis into multi-lingual ASR data augmentation, training patterns, and effects of spontaneous speech, including source separation.
- Refactored components of ML research and production pipelines.

Machine Learning Intern, Rasa ; Berlin, Germany

Jun 2017 - Sep 2017

Rasa produces a leading open-source conversational AI framework.

- Released NLU entity extraction methods (regex) on GitHub.
- ML research into anomaly detection for out-of-scope messages.
- Participated in client kick-off meetings, sat in on sales calls, and represented Rasa at events like the Berlin Chatbot Summit.

PROFESSIONAL CONTRIBUTIONS & LEADERSHIP

Visiting researcher at the University of Amsterdam (Mar – May 2023): Conducted research on psycholinguistic models of language comprehension.

Session chair for “Responsible Speech and Audio Generative AI” at ASRU 2025.

Organising committee (2025, 2024, 2023) and panellist (2022) for *Young Female Researchers in Speech* workshop at Interspeech: Co-organised and facilitated a leading workshop promoting career development and community building for female students in speech science & technology.

Organiser for UKSpeech 2022.

Organiser of weekly CSTR Prosody research meetings (2021 – 2024).

Invited talks:

- KTH Stockholm, Sweden: “Quantifying the perceptual value of information channels in spoken communication”
- CLS University of Amsterdam, Netherlands: “Towards surprisal in speech”
- Trinity College Dublin, Ireland: “Developing and evaluating speech synthesis models in context”.

MENTORSHIP & COMMUNITY ENGAGEMENT

Mentor, Edinburgh University Women in STEM (2020 – 2023): Provided guidance and support to undergraduate and postgraduate students, fostering their academic and career development in STEM fields.

PGR representative for Athena Swan: Member of the assessment team promoting gender equality and career development for women within the University of Edinburgh.

Co-Organiser & Performer, Annual Christmas Charity Event (2016 – Present): Annually Performed at and co-organised a Christmas charity event. In 2024, we raised >£5000 for *Social Bite!* as well as performed several charity gigs with my own band.