

EDUCATION

- University of Birmingham (UoB)** Birmingham, UK
Ph.D. in School of Engineering 2016–2021
- Thesis title: “Computer Analysis of Children’s Non-Native English Speech for Language Learning and Assessment”.
 - Supervisors: Prof. Martin Russell, Dr Peter Jančovič.
- University of Science and Technology of China (USTC)** Hefei, China
MSc in Department of Electronic Engineering and Information Science (EEIS) 2014–2016
- Project title: “Deep Learning of ASR for Children’s Speech”.
 - Supervisors: Prof. Ian McLoughlin, Dr Wu Guo, Prof. Li-Rong Dai.
 - Weighted Score: 89/100.
- University of Science and Technology of China (USTC)** Hefei, China
B.S. in Department of EEIS 2010–2014
- Final-year project title: “Natural Language Understanding in a Smart Home”.
 - GPA: 3.68/4.30, Weighted Score: 86.64/100, Rank: 34/133.

WORK EXPERIENCE

- Engineering Department at the Cambridge University** Cambridge, UK
Research Associate 04/2021–Current
- Key contributor in the EPSRC-funded Multimodal Video Search by Examples (MVSE) project, and the Cambridge Assessment-funded Automated Language Teaching and Assessment (ALTA) project.
 - Incorporating foundation ASR models into applications.
 - Conducted research on error correction techniques for End-to-End ASRs.
 - Proposed adaptation approaches for black-box ASR engines.
 - Won the TREC Conversational Assistance Track (CAst) challenge 2022, which aimed to retrieve relevant responses for a prompt given a conversation.
 - Explored methods for detecting mispronunciations in spoken language tests.
 - Investigated the application of speaker diarisation techniques for conversational-style spoken language tests.
- Trinity College Dublin** Dublin, Ireland
Part-time Research Associate (remotely), Phonetics and Speech Laboratory 05/2020–Current
- Initiated the development of ASR systems for Irish, achieving a remarkable improvement in system performance from a Word-Error-Rate (WER) of 61.98% to 14.33%.
 - Investigated the use of large pretrained models for Irish speech recognition and dialect recognition.
 - Developed End-to-End speech recognition systems for Irish.
 - Explored Irish dialect recognition for the three major dialects of Irish.
 - Built a keyword spotting system capable of recognizing a comprehensive list of Irish vocabulary.

Amazon Development Center

Cambridge, UK

Applied Scientist Intern

12/2018–03/2019

- Worked on natural language generation (NLG) and speech synthesis in the TTS Research group.
- Successfully developed a sophisticated movie review generation system that allows for precise control over the review style of both the generated text and the subsequent speech synthesis.

Speech Scientist Intern

07/2018–11/2018

- Worked on active learning for ASR bootstrapping.
- Proposed novel data selection methods resulting in a significant relative reduction of 12.3% in WER.

ACADEMIC EXPERIENCE

- **Reviewer:** Regular reviewer for conferences and journals, including:
 - INTERSPEECH/ICASSP/ASRU/SLaTE
 - Computer Speech and Language (CSL)
- **Organisers** of conferences, workshops and challenges:
 - Chaired a poster session in INTERSPEECH 2023
 - Served as an Organizing Committee member for SLaTE 2023
 - Successfully organised the Spoken CALL Shared Task challenge in 2018 and 2019
 - Co-organised UK Speech 2019 in Birmingham, UK
- **Supervision**
 - Co-supervising one PhD student, Trinity College Dublin, Ireland. 2021–2023
 - Co-supervising Master and Bachelor students, Cambridge University, UK. 2022–2023
- **Teaching Assistant:** From 2016 to 2021, worked as a post-graduate teaching assistant for multiple undergraduate/postgraduate modules in the School of Engineering, University of Birmingham. Led small group teaching, conducted lab demonstrations, and contributed to various modules. Notable modules include:
 - MSc Introductory Module for Computer/Communications/Power Engineering
 - Fundamentals of Signals and Systems
 - Multimedia Speech, Audio Processing and Music
 - Introduction for Communications and Computers
 - Algorithms and Data Structures
 - Systems Modelling and Management
 - Data Mining
 - Computing for Engineers
 - Advanced Mechanics
 - Engineering Mathematics 1/2
 - Foundation Mathematics
- Delivered oral and poster **presentations** at international conferences:
 - INTERSPEECH, SLaTE, UK Speech.
- In charge of the Linux workstation of the Speech Group, Department of EESE, UoB.

SCHOLARSHIPS AND AWARDS

- 1st place in the TREC Conversational Assistance Track (CASt) challenge. 2022
- 4th place in the Shared Task on Automatic Speech Recognition for Non-Native Children’s Speech (Interspeech 2020 Special Session). 2020
- Interspeech 2018 ISCA Student Travel Grant. 2018
- 1st and 2nd places in the 2017 Spoken CALL Shared Task. 2017
- School of Engineering Scholarship, University of Birmingham, UK. 2016–2020
- 3rd prize of the 10th National Graduate Student Mathematical Contest in modeling, China. 2015
- First Class Academic Scholarship, USTC, China. 2014
- Outstanding Undergraduate Student, USTC, China. 2014
- “Sun Guosheng” Leadership Scholarship, USTC, China. 2013

TECHNICAL STRENGTHS

Programming (advanced): Python, Perl, C, MATLAB, Shell.

Tools/Software: Pytorch, Kaldi, Fairseq, ESPNET, HTK, MXNet, THEANO, TensorFlow.

OTHER ACTIVITIES

- 2023** Participated in the RisingWISE Entrepreneurship Programme.
2018–Current 2000+ days streak on Duolingo (keeps increasing).
2014–2017 Accomplished half marathon three times.
2014–2015 Vice chairman of Graduate Students Union, Department of EEIS, USTC.

PUBLICATIONS

1. R. Ma*, **M. Qian***, K. Knill, M. Gales, “Adapted an Unadaptable ASR System”, in *Proc. of Interspeech, Dublin, Ireland*, 2023, pp. 989-993.
2. R. Ma, K. Knill, M. Gales, **M. Qian**, “N-best T5: Robust ASR Error Correction using Multiple Input Hypotheses and Constrained Decoding Space”, *Proc. of Interspeech, Dublin, Ireland*, 2023, pp. 3267-3271.
3. L. Lonergan, **M. Qian**, C. Gobl, A. N. Chasaide, “Towards dialect-inclusive recognition in a low-resource language: are balanced corpora the answer?”, *Proc. of Interspeech, Dublin, Ireland*, 2023, pp. 5082-5086.
4. R. Ma, **M. Qian**, M. Gales, K. Knill, “Adapting an ASR Foundation Model for Spoken Language Assessment”, in *Proc. of 9th SLaTE Workshop, Dublin, Ireland*, 2023, pp. 104-108.
5. L. Lonergan, **M. Qian**, N. N. Chiaráin, C. Gobl, A. N. Chasaide, “Towards Spoken Dialect Identification of Irish”, in Special Interest Group on Under-resourced Languages (**SIGUL**), 2023.
6. A. Liusie, **M. Qian**, X. Li, M. Gales, “University of Cambridge at TREC CASt 2022”, in *TREC 2022*.
7. L. Lonergan, **M. Qian**, N. N. Chiaráin, C. Gobl, A. N. Chasaide, “Cross-dialect lexicon optimisation for an endangered language ASR system: the case of Irish”, in *Proc. of Interspeech, Incheon, Korea*, 2022, pp. 4865-4869.
8. **M. Qian**, H. Berthelsen, L. Lonergan, A. N. Chasaide, et al., “Automatic Speech Recognition for Irish: testing lexicons and language models”, in *Irish Signals and Systems Conference (ISSC)*, 2022.
9. L. Lonergan, **M. Qian**, H. Berthelsen, A. Murphy, C. Wendler, N. N. Chiaráin, C. Gobl, A. N. Chasaide, “Automatic Speech Recognition for Irish: the ABAIR-ÉIST System”, in Language Resources and Evaluation Conference (**LREC**), 2022.
10. **M. Qian**, P. Jančovič, and M. J. Russell, “The University of Birmingham 2019 Spoken CALL Shared Task Systems: Exploring the importance of word order in text processing.”, in *Proc of the 8th SLaTE Workshop, Graz, Austria*, 2019, pp. 11–15.
11. C. Baur, A. Caines, C. Chua, J. Gerlach, **M. Qian**, M. Rayner, M. Russell, H. Strik, and X. Wei, “Overview of the 2019 Spoken CALL Shared Task”, in *Proc. of the 8th SLaTE Workshop, Graz, Austria*, 2019, pp. 1–5.
12. **M. Qian**, X. Wei, P. Jančovič, and M. J. Russell, “The University of Birmingham 2018 Spoken CALL Shared Task Systems.”, in *Proc. of Interspeech, Hyderabad, India*, 2018, pp. 2374–2378.
13. C. Baur, A. Caines, C. Chua, J. Gerlach, **M. Qian**, M. Rayner, M. Russel, H. Strik, and X. Wei, “Overview of the 2018 spoken CALL shared task”, in *Proc. of Interspeech, Hyderabad, India*, 2018, pp. 2354–2358.
14. D. Jülg, M. Kunstek, C. P. Freimoser, K. Berkling, and **M. Qian**, “The CSU-K Rule-Based System for the 2nd Edition Spoken CALL Shared Task”, in *Proc. of Interspeech, Hyderabad, India*, 2018, pp. 2359–2363.
15. **M. Qian**, L. Bai, P. Jančovič, and M. J. Russell, “Phone Recognition Using a Non-Linear Manifold with Broad Phone Class Dependent DNNs.”, in *Proc. of Interspeech, Hyderabad, India*, 2018, pp. 3753–3757.
16. **M. Qian**, X. Wei, P. Jančovič, and M. J. Russell, “The University of Birmingham 2017 SLaTE CALL Shared Task Systems.”, in *Proc of the 7th SLaTE Workshop, Stockholm, Sweden*, 2017, pp. 91-96.
17. **M. Qian**, I. McLoughlin, W. Guo, and L. Dai, “Mismatched training data enhancement for automatic recognition of children’s speech using DNN-HMM”, in *2016 10th International Symposium on Chinese Spoken Language Processing (ISCSLP)*, IEEE, 2016, pp. 1–5.