

## RESEARCH AND DEVELOPMENT (R&D) EXPERIENCE

---

- **Doctoral researcher** Feb 2021 - May 2024  
*LivePerson Centre for SLT, Dept. of Computer Science* *University of Sheffield, UK.*
  - **Funded by** LivePerson Inc.
  - **Primary research area:** Multilingual speech recognition
  - **Cross-lingual acoustic-phonetic similarities:** Investigated the behavior of acoustic models of out-of-domain languages given a target language speech signal (*Interspeech 2022*)
  - **Low-resource speech recognition:** Proposed a novel approach to leverage acoustic models of out-of-domain languages for low-resource speech recognition (*Interspeech 2022, 2023*)
  - **Multilingual knowledge distillation:** Presented a solution to bridge a long-standing gap to distil knowledge from ASR of out-of-domain languages to train a target language student model (*IEEE ASRU 2023*)
  - **Unsupervised domain adaptation** Collaborated on works towards unsupervised domain adaptation leveraging foundational speech models (*IEEE ICASSP 2023, 2024*)
- **Pre-doc Intern** Sep 2020 - Dec 2020  
*Institute of Formal and Applied Linguistics (UFAL)* *Charles University, Prague.*
  - **Funded by** European Union (EU)
  - **European Live Translator (ELITR):** Maintained the speech-related components of the EU Horizon 2020 project ELITR
- **Research Officer** June 2017 - August 2020  
*Center for Language Engineering (CLE)* *KICS, UET Lahore.*
  - **Urdu LVCSR:** Collaborated with a team of linguistics to collect speech data of Urdu and built a Large Vocabulary Continuous Speech Recognition (LVCSR) of Urdu (*Interspeech, 2019*). Also *deployed it online* for users and developed API for developers to use in real-time.
  - **Urdu-English code-switched ASR:** Enhanced Urdu LVCSR to improve its performance for Urdu-English code-switched spontaneous speech (*IEEE O-COCOSDA, 2020*)
  - **Zero-shot Punjabi ASR:** Developed a Punjabi LVCSR without using target-language acoustic data
  - **Speaker Identification:** Compared the performance of i-vector and x-vector with various feature extraction techniques for short utterances (*IEEE O-COCOSDA, 2019*)

## EDUCATION

---

- **Ph.D. Computer Science** 2021 – 2024  
*University of Sheffield* *Sheffield, UK.*
  - **Supervisor:** Prof. Thomas Hain
  - **Industry partner:** LivePerson Inc.
  - **Research areas:** Artificial Intelligence (AI), machine learning, language processing, speech recognition, foundational models, multilingualism
  - **Thesis title:** Non-linear cross-lingual mappings for low-resource speech recognition
- **M.Sc. Electrical Engineering** 2017 – 2019  
*University of Engineering & Technology* *Lahore, Pakistan.*
  - **CGPA:** 3.68/4.00
  - **Research areas:** Artificial Intelligence (AI), machine learning, language processing, speaker diarisation
- **B.Sc. Electrical Engineering** 2013 – 2017  
*University of Engineering & Technology* *Lahore, Pakistan.*
  - **CGPA:** 3.42/4.00
  - **Majors:** Computer & Electronics

## SELECTED PUBLICATIONS

---

For full list, please visit the Google Scholar profile or my publications web page

- **Progressive Unsupervised Domain Adaptation for ASR Using Ensemble Models and Multi-stage Training**  
*R. Ahmad, M. U. Farooq and T. Hain*  
ICASSP, 2024
- **MUST: A Multilingual Student-Teacher Learning Approach for Low-Resource Speech Recognition**  
*M. U. Farooq, R. Ahmad and T. Hain*  
ASRU, 2023
- **Learning Cross-lingual Mappings for Data Augmentation to Improve Low-Resource Speech Recognition**  
*M. U. Farooq and T. Hain*  
Interspeech, 2023
- **Towards Domain Generalisation in ASR with Elitist Sampling and Ensemble Knowledge Distillation**  
*R. Ahmad, M. A. Jalal, M. U. Farooq, A. Ollerenshaw and T. Hain*  
ICASSP, 2023
- **Investigating the Impact of Cross-lingual Acoustic-Phonetic Similarities on Multilingual Speech Recognition**  
*M. U. Farooq and T. Hain*  
Interspeech, 2022
- **Non-Linear Pairwise Language Mappings for Low-Resource Multilingual Acoustic Model Fusion**  
*M. U. Farooq, D. A. H. Narayana and T. Hain*  
Interspeech, 2022
- **Improving Large Vocabulary Urdu Speech Recognition System using Deep Neural Networks**  
*M. U. Farooq, F. Adeeba, S. Rauf and S. Hussain*  
Interspeech, 2019

## TEACHING AND MENTORING EXPERIENCE

---

- **Training Assistant** Feb 2024 - Present  
*University of Sheffield, UK.*
  - Developed a short course ‘*Basics of AI for Social Science: Unsupervised Machine Learning*’ for non-experts (faculty members and PhD students of social sciences)
  - Delieverd a short course ‘*Python Programming*’ on Python programming to non-experts
- **Graduate Teaching Assistant (GTA)** Sept 2022 - Present  
*University of Sheffield, UK.*
  - Assisted module leaders in delivering the lab sessions to the undergraduate and postgraduate students
  - Marked the assignments and exams of the undergraduate and postgraduate students
  - *Modules list*
- **Mentoring Interns**
  - *LivePerson Center for SLT, University of Sheffield*
    - Mentored several interns for their short projects at LivePerson Center for SLT

## CONFERENCE ORGANISATION AND RELEVANT EXPERIENCE

---

- **UK Speech 2023:** Sheffield, UK.  
*IT Support Chair, Local Organising Committee UK Speech 2023*
- **ISCA-SAC student events** at Interspeech 2023  
*Member Organising Committee, ISCA Student Advisory Committee (SAC) 2023*
- **Peer reviewer:**
  - Journal of the Acoustical Society of America (JASA)
  - Language Resources and Evaluation (LRE)
  - IEEE China Communications
  - IEEE ICASSP

## WORKSHOPS & COURSES ATTENDED

---

- **International Spring School of Advance Language Engineering (ISSALE 2019)** Moratuwa, Sri Lanka.

A two-week spring school by DAAD covering the following courses;

- Deep Learning in Natural Language Processing (NLP)
  - Grammar Engineering for South Asian Languages
  - Grammar Foundations
  - Computational Linguistics
- **CLE Post-Graduate Certificate in Prosodic Analysis Using PRAAT (2019):** Lahore, Pakistan.  
A four days course on analysing prosody, stress and intonation in Urdu language.
  - **CLE Post-Graduate Certificate in Experimental Phonology Using PRAAT (2017):** Lahore, Pakistan.  
A four days course on understanding Urdu phonology analysing Urdu speech waveform in PRAAT

## AWARDS AND HONORS

---

- **Postgraduate Publication Scholarship by the University of Sheffield** Apr 2024 - Jun 2024
- **CLE Excellence Award for Research** 2018, 2019
- **CLE Excellence Award for Development** 2017

## MEMBERSHIPS

---

- **International Speech Communication Association (ISCA)** Present
- *Student member*
- **ISCA Student Advisory Comittee (ISCA-SAC)** 2023-2024
- *Volunteer*
- **Institute of Electrical and Electronics Engineers (IEEE)** 2023
- *Student member*