

Research Fellow



Role Description

GRADE

Grade 5

LOCATION

Merchiston, Edinburgh

LINE MANAGER

Professor Amir Hussain

Role Summary

COG-MHEAR Senior Research Fellow in Multi-modal Hearing Assistive Technology – Fixed term for up to 8 months (1 FTE, 100% full-time).

COG-MHEAR is a world-leading, cross-disciplinary research programme funded under the EPSRC Transformative Healthcare Technologies 2050 Call. It includes academic partners from 7 other UK Universities (including Edinburgh, Glasgow, Heriot-Watt, Manchester, Wolverhampton and Nottingham) and a User Group comprising industrial and clinical collaborators, and end-user engagement organisations. The ambitious programme aims to develop the world's first multi-modal hearing-aid demonstrator by radically exploiting and integrating the transformative potential of privacy-assuring and explainable AI, 5G, IoT and cybersecurity, coupled with flexible (skin-based) electronics. More details on: <http://cogmhear.org> (and <https://cogmhear.org/news.html>)

The role involves taking a leading position in the COG-MHEAR programme under the direction of Prof. Hussain, focusing on the real-time design, integration and federated Edge-implementation of trustworthy AI-powered multimodal speech enhancement models for next-generation hearing aids and assistive technologies. This role will also include management, supervision, and administrative responsibilities associated with interdisciplinary research activities, reflecting a strong combination of clinical and computational audiology expertise.

Line Management Responsibility for:

This role does not have any line management responsibilities currently.

Main Duties and Responsibilities

- Undertake world-leading research in the design, integration and Edge-implementation and testing of real-time multimodal machine learning models.
- Priority research areas of interest include federated Edge based real-time audio-visual speech enhancement and separation technologies in real-life environments.
- Manage interdisciplinary research activities, including supervision and administrative tasks related to research duties and relevant project coordination.
- Identify and implement appropriate data collection strategies (including through the organisation of appropriate meetings and networks) and analyse and interpret research results using appropriate statistical and AI techniques focusing on primarily quantitative and, where appropriate, qualitative data.
- Collaboratively conduct and analyse multimodal speech intelligibility and listening tests with normal-hearing and hearing-impaired human volunteers in laboratory and real-world environments.
- Preparation of peer-reviewed publications for quality journals, conferences and dissemination of research results at international and national conferences.
- Plan and manage own research activity in collaboration with other COG-MHEAR project teams.
- Participate in external research networks or appropriate events in order to build new relationships, exchange ideas and disseminate findings including through the development of relationships with researchers, PhD students and COG-MHEAR User Group members.
- Regular liaison with other COG-MHEAR project researchers, our collaborating companies, clinicians and end users in the User Group, to ensure overall programme goals are met.
- Develop and contribute to proposals to secure future research and innovation funding.
- Undertake other activities as appropriate to COG-MHEAR, under the direction of the PD.
- Role model the University's values & behaviours.
- Be responsible for ensuring that the information and records processed (received, created, used, stored, destroyed) on behalf of the University are managed in compliance with all applicable legislation, codes and policies e.g. [Data Protection](#), [Information Security](#) and [Records Management](#).

PERSON SPECIFICATION

	ESSENTIAL	DESIRABLE
Education / Qualifications		
<ul style="list-style-type: none"> Awarded, or currently working towards (in the write-up stage of) a PhD in a closely relevant interdisciplinary field (e.g., Federated/Edge AI, Real-time Speech Processing), or possessing a demonstrable level of research experience equivalent to a PhD in a closely related field. 	✓	
<ul style="list-style-type: none"> Research experience in federated and multimodal AI-powered speech processing applications. 		✓
Skills / Experience		
<ul style="list-style-type: none"> Strong machine and deep learning background, including a focus on multimodal signal processing. 	✓	
<ul style="list-style-type: none"> Experience in federated AI and Edge-based machine learning applications. 	✓	
<ul style="list-style-type: none"> Proficient programming skills (e.g., Python) 	✓	
<ul style="list-style-type: none"> Interdisciplinary research experience in Cloud and Edge based multimodal AI for real-world applications. 	✓	
<ul style="list-style-type: none"> A strong, relevant publications record in top international journals and conferences. 	✓	
<ul style="list-style-type: none"> Experience in defining and formulating real-world research problems and questions and, where appropriate, formulating interdisciplinary hypotheses that can be tested in scientific research. 	✓	
<ul style="list-style-type: none"> Excellent quantitative research skills. 	✓	
<ul style="list-style-type: none"> Presentation of research findings at conferences and workshops. 	✓	
<ul style="list-style-type: none"> A track record of making effective independent contributions to collaborative research teams. 	✓	
<ul style="list-style-type: none"> Excellent ability in applying quantitative techniques to interpret and analyse complex data. 	✓	

	ESSENTIAL	DESIRABLE
<ul style="list-style-type: none"> Excellent communication skills to disseminate research findings to specialised and general audiences, both orally and in writing. 	✓	
<ul style="list-style-type: none"> Excellent interpersonal skills, including the ability to engage and communicate effectively with academic colleagues, students, and collaborators. 	✓	
<ul style="list-style-type: none"> Excellent organisational ability, with a proven capacity to prioritise workload and meet tight deadlines. 	✓	
<ul style="list-style-type: none"> A strong commitment to continuous professional development demonstrated through academic and/or clinical activities. 	✓	
<ul style="list-style-type: none"> Previous experience in COG-MHEAR or related projects integrating Cloud and Edge AI for (e.g., multimodal machine learning-powered speech enhancement models) for real-time hearing-aid signal processing. 		✓
<ul style="list-style-type: none"> Knowledge of challenges relating to real-time integration, Edge implementation and testing of hearing-aid technology (e.g., privacy-preserving AI with hearing-aid signal processing, real-time audio-visual speech-in-noise processing). 		✓
<ul style="list-style-type: none"> Experience in real-time software and hardware prototype co-design, development, and testing cycles. 		✓
<ul style="list-style-type: none"> Knowledge of the assistive technology and healthcare industry landscape, and commercialisation of scientific research. 		✓
<ul style="list-style-type: none"> Experience with qualitative research techniques in related fields. 		✓
<ul style="list-style-type: none"> Experience or ability in preparing proposals for funding and securing research grants. 		✓
<ul style="list-style-type: none"> Proven ability to generate and implement new ideas. 		✓