

COG-MHEAR Research Fellow



Role Description

GRADE

Grade 5

LOCATION

Merchiston, Edinburgh

LINE MANAGER

Amir Hussain

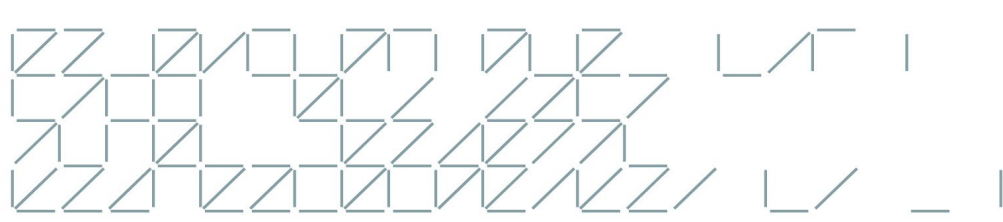
Role Summary

COG-MHEAR Senior Research Fellow in Multi-modal Hearing Assistive Technology – Fixed term for up to 16 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 6 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 role in COG-MHEAR under the direction of Prof. Hussain, working on privacy-preserving and explainable AI and multi-modal speech enhancement for next-generation hearing-aids and assistive technology. This will also involve management, supervision and administrative responsibilities associated with research duties.

Line Management Responsibility for:

This role does not have any line management responsibilities currently.



Main Duties and Responsibilities

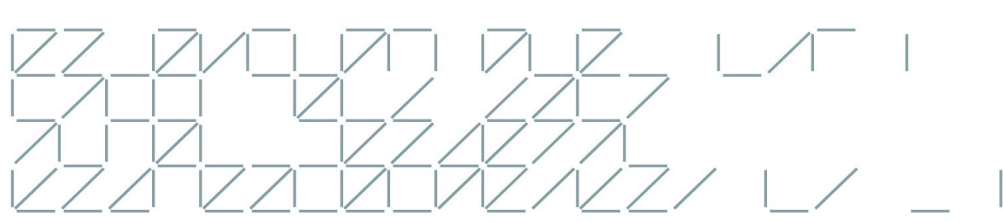
- Undertake world-leading research in developing and evaluating real-time multi-modal machine learning models for hearing-aid speech enhancement and naturalistic evaluation in real-world environments. Priority research areas of interest include real-time multi-modal (e.g. audio-visual) speech enhancement and separation in real-life environments. Of particular interest are innovative low-latency and energy-efficient neural network models (including human-auditory inspired models) for implementation in mobile/edge AI (e.g. AI embedded FPGA) based multi-modal Hearing-Aid demonstrators.
- Undertake management, supervision and administrative responsibilities associated with research duties.
- Identify and implement appropriate data collection strategies (including through the organisation of appropriate meetings and networks) and analyse and interpret research results using appropriate techniques focusing on primarily quantitative and, where appropriate, qualitative data.
- Conduct and analyse findings of speech intelligibility/listening trials with normal-hearing and hearing-impaired human volunteers in real and laboratory 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

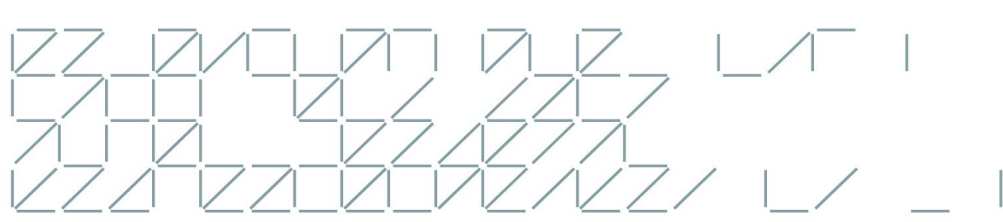
Education / Qualifications

- Awarded a PhD degree in a closely relevant field (e.g. Machine Learning, Speech Processing, Systems Engineering) ✓
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Skills / Experience

• Excellent programming skills.	✓	
• A strong background in statistical modelling/machine learning, computer vision, signal processing, natural language processing/generation, real-time Edge AI or a related area	✓	
• Research experience in artificial intelligence, speech processing, multi-modal signal/image processing, or a related area	✓	
• A strong relevant publications record in top international journals and conferences.	✓	
•	✓	
• Experience of defining and formulating real-world research problems and questions and, where appropriate, formulating interdisciplinary hypotheses that can be tested in scientific research	✓	
• Excellent quantitative research skills	✓	
• Presentation of research findings at conferences and workshops	✓	
• A track record of making effective independent contributions to collaborative research teams	✓	
• Excellent ability in applying quantitative techniques to interpret and analyse complex data	✓	
• Excellent communication skills to disseminate research findings to specialised and general audiences both orally and in writing	✓	
• Excellent interpersonal skills, including the ability to engage and communicate with academic colleagues, students and collaborator	✓	
• Excellent organisational ability, with the ability to prioritise own workload to meet tight deadlines.	✓	
• A track record of continuous professional development	✓	
• Previous work in COG-MHEAR areas (e.g. privacy-preserving/trust-worthy machine learning, audio-visual speech enhancement, hearing-aid signal processing, conversational AI, Edge AI)		✓



	ESSENTIAL	DESIRABLE
<ul style="list-style-type: none">• Knowledge of challenges relating to technology integration (e.g. privacy-preserving AI with hearing-aid signal processing, 5G, IoT, wireless wearable sensing, flexible reconfigurable electronics, ASR, robotics)		✓
<ul style="list-style-type: none">• Experience of real-time software and hardware prototype design and development cycle		✓
<ul style="list-style-type: none">• Knowledge of the assistive technology/healthcare industry landscape and commercialisation of scientific research.		✓
<ul style="list-style-type: none">• Experience of qualitative research techniques in related fields		✓
<ul style="list-style-type: none">• Experience of, and ability to prepare proposals for funding and secure funding		✓
<ul style="list-style-type: none">• Proven ability to generate and implement new ideas		✓