

Job Description

Role Title: Research Technical Professional: Perception
Engineering Laboratory

School / Dept: Faculty of Science, Engineering and
Environment

Reference: MPF4244

Grade: Grade 7

Full or Part time: Full time – 24 months – Fixed Term Contract

Hours: 1.0 FTE

Reports to: Professor of Acoustics

Overview

The main focus of your role is to develop, deploy and run a new Multimodal Perception Laboratory (MPLAcE), which will be housed in the University of Salford's new £24M Acoustics Building. The lab will use a virtual environment and perceptual sensing to give in-depth understanding of how humans respond to sound. This will enable us to engineer better sounding environments, products and technologies. Unwanted sound damages health - a 2024 House of Lords' report labelled noise as a "neglected pollutant." In contrast, sounds like speech and music are vital to life. Speech is our primary communication channel, and music has proven benefits to health and wellbeing. The Multimodal Perception Laboratory will unlock new understanding of sound perception for diverse listeners. By placing perception at the heart of engineering, we can reduce the harms of noise and exploit other sounds to enhance health, wellbeing and accessibility.

MPLAcE will be an immersive sonic and visual VR CAVE where participants can interact with the environment and each other. The laboratory offers a versatile, acoustic-led facility, which can reproduce realistic multisensory cues alongside gathering behavioural (e.g. reaction times) and physiological responses (e.g. brain response via EEG). The infrastructure also includes systems for measurement of sleep disturbance. A key part of MPLAcE is producing a permanently installed infrastructure with turnkey solutions that make the facility accessible and maximise the use of the laboratory. MPLAcE will be a unique facility in the UK and one of the few with similar capabilities in the world.

You will be based in The Acoustics Innovation Institute, Faculty of Science, Engineering and Environment, University of Salford. The Institute is internationally renowned for its

research in Acoustics, for example it hosts two doctoral centres funded by the Leverhulme Trust and EPSRC. The commercial Acoustics Laboratory generates 25% of the University's income from working with industry. The Centre has a long track record of carrying out industry and grant funded research into: Healthy and Productive Acoustic Environments; Inclusive Personalised Sound and Perception; and Data-Driven Engineering.

Start date 1st September 2027.

Role Purpose

To work with the MPLAcE team to commission, install, and run a new Multimodal Perception Laboratory. To become recognized as the recognised technical authority for MPLAcE.

Principal Duties & Responsibilities

- Proactively support the MPLAcE team to procure, commission and install the new Multimodal Perception Laboratory.
- Act as the technical lead for the Multimodal Perception Laboratory, providing authoritative advice on experimental infrastructure, software, instrumentation and data acquisition systems
- Lead the development of the coding and data infrastructure, and turnkey solutions for standard test methodologies to allow efficient and effective use of the laboratory.
- Lead commissioning experiments to demonstrate the laboratory meets objective specifications and replicates key perceptual results.
- Exercise independent professional judgement in the specification, configuration and optimisation of laboratory systems.
- Develop novel technical methodologies and workflows to address emerging research requirements.
- Develop networks with internal users, external laboratories, industry and research stakeholders to maximise impact and utilisation of the facility.
- Develop a web presence for the laboratory.
- Develop an online booking system for internal and external users to maximise use of laboratory.
- Be an advocate to Aural Diversity for perceptual experimentation in the laboratory to challenge default thinking in psychoacoustics.
- Set project milestones and deliverables, method testing, evidence and documentation to meet the KPIs of the MPLAcE laboratory.
- Ensure the laboratory has robust systems so that experiments within it meet the University's Health and Safety and Ethics policies.
- Ensure the laboratory has robust systems so that experiments meet requirements for Trusted Research and Responsible Research and Innovation.
- Liaise with researchers, academics and industrial partners within and external to Salford to facilitate use of the laboratory.
- Work as part of a team within Salford and a larger team across the project, to ensure the successful delivery of project outcomes.

- To engage with the Acoustics Innovation Institute in its activities to support and develop research.

Generic Duties

- Perform any other duties appropriate to the grade as may be required by the Head of School/Head of Division etc.
- Comply with the personal health and safety responsibilities specified in the University Health and Safety policy.
- To engage with the University's commitment to put our students first and deliver services which are customer orientated, represent value for money and contribute to the financial and environmental sustainability of the University when undertaking all duties and aspects of the role.
- Advance equality, support our work towards eliminating unlawful discrimination, foster an inclusive study and work environment for students, staff and visitors in accordance with our public sector equality duties and university policy.

This role detail is a guide to the work you will initially be required to undertake. It may be changed from time to time to meet changing circumstances. It does not form part of your Contract of Employment.

Person specification follows on next page

Person Specification

The successful candidate should demonstrate the following, which are 'Essential' (E) or 'Desirable' (D)

Qualifications

1. A PhD in Audio, Acoustics or Experimental Psychology (E)

Background and Experience

2. Perceptual experiment design and statistical analysis for high-quality research (E)
3. Installing, calibrating and maintaining scientific instrumentation for perceptual tests featuring audio (E)
4. Software coding for perceptual experimentation (E)
5. Developed shared coding via github (D)
6. Training and supporting researchers, postgraduate students and laboratory users (D)

Knowledge

7. Ethical approval processes and laboratory health and safety requirements, risk assessments and safe systems of work (E)
8. Understanding of research environments and the requirements for supporting academic and industrial research projects (E)
9. Quality assurance procedures for scientific experimentation, reproducibility and handling of data including sensitive health and commercial data (D)

Skills and Competencies

10. Ability to apply specialist technical expertise to develop innovative solutions to complex research challenges, influencing experimental design and contributing directly to research delivery and outcomes (E)
11. Laboratory management: (D)
 - Customer-service approach to supporting research users.
 - Ability to schedule and coordinate laboratory resources across multiple users and projects

12. Experience of procuring, managing equipment maintenance and external suppliers (D)

13. Experience of establishing laboratory procedures, documentation and quality systems (D)

14. Communication and interpersonal skills (E)

- Strong written and verbal communication skills including explaining complex technical concepts to users with varying levels of expertise.
- Ability to explain complex technical concepts to users with varying levels of expertise.
- Ability to work effectively with academic staff, students, external collaborators and industry partners.
- Commitment to equality, diversity and inclusion

15. Planning and organisation (E)

- Ability to prioritise competing demands and manage multiple activities simultaneously.
- Ability to work independently with minimal supervision to deadlines