**Studentship Title:** EPSRC Doctoral Training Partnership  
**Research Area/ Project Title:** Perception of sound location and movement during head rotation in hearing-aid users  
**Location:** School of Psychology  
**Expected Start Date:** 1st October 2017  
**Duration:** 3 Years  
**Deadline for Application:** 1st February 2017

**Description of Research Opportunity:**

The project uses a novel technique to investigate dynamic space perception in hearing-impaired listeners as a means of guiding the priorities of the hearing-aid industry. One goal will be to understand the degree to which ‘behind-the-ear’ (BTE) hearing-aids distort spatial cues as the head rotates. The project therefore benefits from collaboration with Oticon Ltd.

Evidence shows that hearing-impaired listeners who experience high levels of handicap also report difficulty with spatially-dynamic acoustic scenes. Listening under dynamic conditions may therefore be a hidden problem in hearing impairment and one that is overlooked by current hearing-aid design. We will therefore make use recent innovations in the study of dynamic scenes (Freeman, Culling, Akeroyd & Brimijoin, in press, JEP:HPP) to test hearing-impaired listeners.

Changes in sound-source direction relative to the head are most frequently caused by head rotation, because most sources are earth-stationary. Yet hearing with and without impairment is typically studied using listeners who do not move. We have developed a new technique that provides the much-needed fine-grained control over the motion of sound sources relative to freely moving listener. The technique integrates real-time measurement of head rotation with the source-motion across a 48-speaker array. The technique will be used to investigate the effect of head rotation on the perceived stability of the auditory scene in hearing-impaired listeners, with and without hearing aids. The results will be compared to normal listeners. In addition to scoping the ability of hearing-impaired to recover auditory space while moving, the experiments will also determine the degree to which they are able integrate acoustic information with signals encoding self-motion (e.g. vestibular cues).

In a set of simulation experiments, normal listeners will be fit with BTE hearing aids (zero insertion gain), supplied by Oticon Ltd, as a means of directly exploring the distortions they impose on critical cues to dynamic space perception in moving listeners (e.g. pinna-cues and interaural timing differences).
Award:

The studentships will commence in October 2017, and will cover your tuition fees (at UK/EU level) as well as a maintenance grant. In 2016-17 the maintenance grant for full-time students was £14,296 per annum. As well as tuition fees and a maintenance grant, you will receive a participant allowance of £300 per annum, and conference funding (approx. £750 per annum). You will also receive a computer and office space. You will become a member of, and have access to courses offered by the University's Graduate College.

Eligibility:

Full awards (fees plus maintenance stipend) are open to UK Nationals, and EU students who can satisfy UK residency requirements. To be eligible for the full award, EU Nationals must have been in the UK for at least 3 years prior to the start of the course for which they are seeking funding, including for the purposes of full-time education.

As only one studentship is available and a very high standard of applications is typically received, the successful applicant is likely to have a very good first degree (a First or Upper Second class BSc Honours or equivalent) and/or be distinguished by having relevant research experience.

How to apply:

You can apply online - consideration is automatic on applying for a PhD in Psychology, with an October 2017 start date (programme code RFPDPSYA).

Please use our online application service at www.cf.ac.uk/regis/general/applyonline/index.html and specify in the funding section that you wish to be considered for School funding.

Please specify that you are applying for this particular project.

Application deadline: 1st February 2017 with interviews (either in person or by Skype) being held on or at the end of February 2017 and decisions being made by the end of April 2017.

General Information:

The School of Psychology is one of the largest and most successful in the UK (http://www.cf.ac.uk/psych/). The School’s excellent standard of research and teaching has been recognised in every Research Assessment Exercise. It has its own brain-imaging centre (http://www.cf.ac.uk/psych/cubric/), enhancing the international-leading research in behavioural neuroscience, cognitive ergonomics, forensic, social and developmental psychology.

Cardiff is the youngest capital city in Europe and the fastest growing in the UK. It plays host to many national and international sporting events at the Millennium Stadium (http://www.millenniumstadium.com/). Culturally, the city is thriving, with the Wales Millennium Centre (http://www.wmc.org.uk/) in Cardiff Bay. Cardiff is in very close proximity to the beautiful Welsh countryside (http://www.breconbeacons.org/), has a two
hour rail link to London and a (cheap) one hour air link to Paris and Amsterdam ([http://www.cardiffairportonline.com/](http://www.cardiffairportonline.com/))

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