

M2 Fundamental and Clinical Neurosciences



MASTER 2 Fundamental and Clinical Neurosciences

Internship proposal 2023-2024

(internship from January to June 2024)

Host laboratory: IMPACT team from the CRNL

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https://www.crnl.fr/fr/equipe/impact

Internship supervisors : GAVEAU Valérie, professor assistant, valerie.gaveau@inserm.fr

Project title : Spatial hearing maturation in complex auditory environments in normal hearing children

Project summary :

Recent studies have brought new insights in spatial hearing by using virtual reality to record spatial hearing performance in 3D and the impact of active listening (i.e. free head exploration during sound emission)¹: children WITH bilateral cochlear implantation (bCI) showed spatial hearing difficulties related to front–back confusions and distance perception², which partly resulted from the reduction in auditory cues by the CI settings. However, bCI children notably improved under conditions of active listening², suggesting that interaction with environment could represent a rehabilitation entry strategy to help bCI users when faced with complex auditory scenes in daily life.

In our project, we will propose a spatial hearing rehabilitation program adapted to bCl children from 8 to 17 years old, based on our previous pilot study on bCl adults³. We will also include normal hearing (NH) children as age-matched control groups to perform spatial auditory tests in noise. These NH groups will bring new insights of spatial hearing maturation in complex auditory environments.

Please send your proposal to <u>marion.richard@univ-lyon1.fr</u> for publication on the Master of Neuroscience website.



3-5 recent publications :

1.Benefits of active listening during 3D sound localization. Gaveau V, Coudert A, Salemme R, Koun E, Desoche C, Truy E, Farnè A, Pavani F.Exp Brain Res. 2022 Nov;240(11):2817-833. doi: 10.1007/s00221-022-06456-x. Epub 2022 Sep 7 2.Spatial Hearing Difficulties in Reaching Space in Bilateral Cochlear Implant Children Improve With Head Movements. Coudert A, Gaveau V, Gatel J, Verdelet G, Salemme R, Farne A, Pavani F, Truy E.Ear Hear. 2022 Jan/Feb;43(1):192-205. 3.Intensive Training of Spatial Hearing Promotes Auditory Abilities of Bilateral Cochlear Implant Adults: A Pilot Study. Coudert A, Verdelet G, Reilly KT, Truy E, Gaveau V.Ear Hear. 2023 Jan-Feb 01;44(1):61-76

3.Adapting to altered auditory cues: Generalization from manual reaching to head pointing. Valzolgher C, Todeschini M, Verdelet G, Gatel J, Salemme R, Gaveau V, Truy E, Farnè A, Pavani F.PLoS One. 2022 Apr 14;17(4):e0263509.

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