



Acoustic insight

SCAN PROTOCOLS FOR FULL-IMAGE OCT-VIBROMETRY

Acoustic Insight is a Dutch MedTech start-up developing an innovative imaging platform for ear specialists. We're based in the inspiring start-up environment of YES!Delft.

**Do you have a special interest in medical optics and signal processing?
As a student you can make a real contribution to improving ear care.
Just join our team!**

Every year, 200.000 patients in the Netherlands visit an ear specialist with middle ear problems. Ear specialists often miss relevant information to understand why the middle ear doesn't work properly simply because they can't see the relevant structures behind the ear drum. Acoustic Insight develops Aurisvue, a new medical device based on **optical coherence tomography (OCT)** that cannot only visualize these structures but also measure the mobility of the hearing bones. With Aurisvue, medical professionals can provide the best ear care and improve the quality of life of patients with middle ear problems. The first clinical investigation is planned to start in summer 2022 at the Erasmus MC in Rotterdam.

The project

OCT provides depth-resolved imaging of semi-transparent tissue. It is an interferometric method with very high sensitivity and resolution and can be used to measure vibrations of the tympanic membrane (trommelvlies) and ossicles (gehoorbeentjes) that are induced by a tone generator, thereby providing functional information of the middle ear. Vibrations at single scan locations, such as in Figure 1, are derived from multiple measurements at the same location, obtained with disabled scan mirrors. In this project, you will develop methods to use repeated B-scans to obtain vibration information for the whole scan including define scan protocols to obtain suitable measurements and test algorithms to produce vibration measurements.

We are looking for enthusiastic and motivated BSc/MSc students that have:

- an interest in optics and signal processing;
- some programming experience (preferably Python); and
- a strong interest in medical applications.

At Acoustic Insight, we value initiative and look forward to adapt the project to your specific interests and knowledge. Contact us for more information!

¹ Applegate et al. Vol. 12, No. 8 / 1 August 2021 / Biomedical Optics Express.

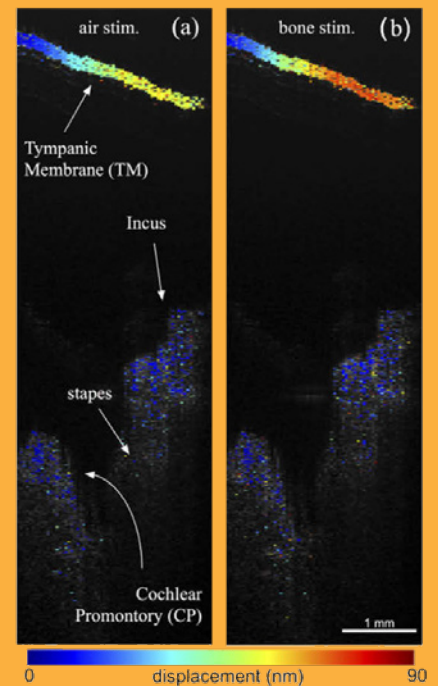


Figure 1: Overlay of vibratory response (color scale) on the morphological OCT image.¹

Curious for more information?

Please contact Koen Vermeer at k.vermeer@acoustic-insight.com

Acoustic Insight BV
Molengraaffsingel 12, 2629 JD Delft