



# acoustic insight

## IN-VIVO OCT-VIBROMETRY PROCESSING

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.

**Your Masters or Bachelors project entails building and optimizing the entire signal processing chain to extract depth-resolved vibrational amplitudes from the raw OCT data. The interferometric information from the OCT device is capable of measuring picometer-scale displacements that can be used to measure vibrations of the tympanic membrane (trommelvlies) and ossicles (gehoorbeentjes). These displacements are induced by a tone generator and provide functional information of the middle ear (see Figure 1). You will evaluate your methods on test targets and on clinical data from real patients with different middle-ear pathologies.**

**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!

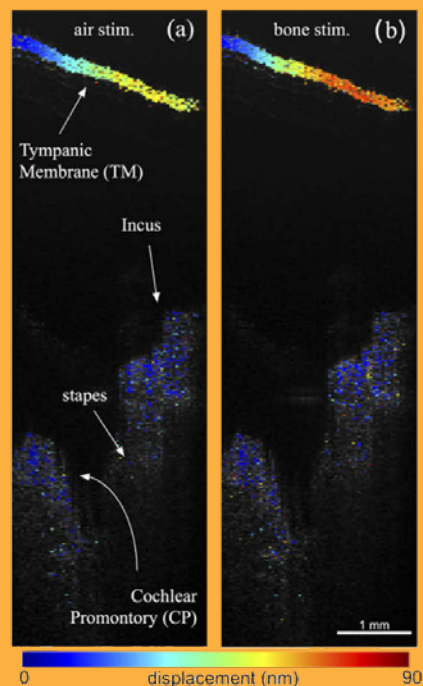


Figure 1: Overlay of vibratory response (color scale) on the morphological OCT image.<sup>1</sup>

**Curious for more information?**

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