Example

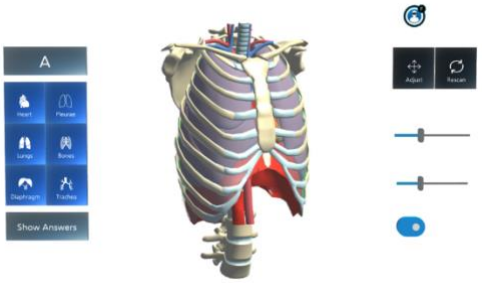
For more than four years, Leiden University's Centre for Innovation which is a member of the Media & Learning Association, has been exploring the use of immersive learning opportunities in higher education. As part of this work they have developed a variety of AR and 360 VR applications which take unique learning environments such as forests, operating rooms and archaeological sites into the classroom, teaching students about the effects of climate change, the process of a kidney transplantation and the risks of archaeological field work. These applications function as virtual field trips in that they take students to places they cannot easily reach in the normal classroom as well as enabling them to experience settings to which they may not easily have access.

One of the applications that has been created by the Centre for Innovation is an augmented reality app experience which simulates the physical examination needed to diagnose various lung diseases. This was created as a Hololens application, in close cooperation with the Leiden University Medical Centre (LUMC).

- This collaboration began with the following inquiry: How can doctors make a correct diagnosis from a simple complaint like shortness of breath? As a doctor, it is vital to be able to accurately diagnose patients that have breathing complaints. This process is challenging to learn, since clinical reasoning and auscultation (the process of listening to internal sounds of the body using a stethoscope) require a high level of both cognitive, psychomotor skills. The goal of the Hololens app that was developed was to explore if this technology would provide a missing link between theory and practice in the diagnostic process.

- By using a real stethoscope which is positionally tracked, medical students can interact with a virtual anatomic model of a torso and listen to lung sounds recorded from real patients.

- This way, medical students can practice the full process of diagnosing lung diseases in a simulated environment.



- This app integrates many of the affective, embodied, collaborative and multimodal components of a real-world setting. A video about this virtual field trip app in available (in Dutch) here.