

## **Master Thesis Abstract**

### **Coupling Mechanism between Arterial Pulse Wave and Auditory Canal**

The research group of the Laboratory of Medical Electronics at the University of Applied Sciences Lübeck found out that the pulse wave can be detected in the form of pressure changes in the sealed auditory canal. The explicit origin and genesis of the pressure changes could not be clarified until now. This master thesis investigates the coupling mechanism between the arterial pulse wave and the auditory canal. Therefore, the ear is analyzed for motions. This is achieved by video recordings. Due to the fact, that the expected motion values are in the range of micrometers, a motion amplification is performed. At the ear, a movement is detected. The relation between measured pressure curve and detected movement is proven by their signal morphologies and frequency components.