# Internship/Study Project

*Laboratory for Biomedical Microtechnology – Prof. Dr.-Ing. Thomas Stieglitz*

**Topic: GUI for Real-time Echo-Signals and Vital Parameters**

### *Introduction*

Continuous measurements are crucial for improving cardiovascular illness prevention and detection. A cuffless sensor design enables a seamless real-time wearable blood pressure (BP) system, ensuring uninterrupted monitoring throughout the day. Among various methodologies being explored for continuous monitoring, ultrasound echo tracking shows promise by tracking blood pressure, arterial thickness, and flow velocity. Swift evaluation of measurement quality and the translation of echo signals into essential cardiovascular parameters are vital for refining and enhancing the system under development.



### *Objectives*

Development of Graphic User Interface (GUI) for echo-signals post-processing and real-time display of cardiovascular parameters.

### *Your tasks*

- Development of a GUI with various input/output parameters: pulse repetition frequency, diameter distension, stiffness, and compliance.
- Acquisition of data.
- Presenting and writing the report.

### *Your profile*

- You have programming experience with Python and MATLAB App Designer (C++ is ideal but not mandatory).
- You have experience with data acquisition.
- You are enthusiastic and proactive in your work.
- You can work in a concentrated, focused and structured way.

### *Logistics*

- Location: Campus for Intelligent Machine-Brain Interfacing Technology (IMBIT)
- Earliest starting date: October 2023 (can be discussed)
- Maximum length of the internship: 3 months (can be discussed)

### *Contact*

M.Sc. Carolina Seabra

Laboratory for Biomedical Microtechnology

Department of Microsystems Engineering (IMTEK)

IMBIT // NeuroProbes

University of Freiburg

Georges-Koehler-Allee 201 (Room 01.027)

E-Mail: carolina.seabra@imtek.uni-freiburg.de

URL: www.imtek.de/bmt