

Topic for Master Thesis

The chair of Networked Electronic Systems at the Department of Electrical and Information Engineering at Kiel University is seeking a highly motivated candidate for writing a Master Thesis. The topic is focused on the technical parts of a system for brain recording from animals (anolis lizards) in conjunction with the Institute of Physiology. The research work is planned to begin as soon as possible.

Tasks:

1. Layout and build a flexible PCB
2. Assemble a brain recording system using prepared components
3. Tweak the programming of the microcontroller which is operating the system
4. Test the brain recording system on mice to get the first results

Skills requirements:

1. Basic knowledge of C language programming
2. Basic knowledge of PCB designing
3. Collaborate and communicate with assistant researchers on this project

Aims:

1. Master's thesis writing
2. Contributing towards a scientific paper (paper will be written by M.Sc. Kamran Naderi)
3. Build and possibly test a prototype

Description:

The target of this project is the detection of activity in the reptile brain. The animal is small and has low body mass. This requires innovation in the system design, including electrode choice, acquisition stage design as well as data transmission and storage when an untethered setup is envisioned.

To realize a smooth and lightweight system, the individual components will be mounted on a flexible circuit board. The shape and layout will be tailored to yield a 'wearable' system that is comfortable for the animal.

The recorded data will be stored in a memory chip and eventually wirelessly transferred to a main station for subsequent signal processing. The biological target aspects are taken into account by close collaboration with the Institute of Physiology at CAU.

Contact: kanb@tf.uni-kiel.de

