

## Master thesis proposal

# High channel count neural interface

The **Microsystems Materials Laboratory** at the Department of Microsystems Engineering (IMTEK) has a new Master thesis topic starting as soon as possible.

Within the European project **NeuraViPeR** ([www.neuraviper.eu](http://www.neuraviper.eu)) we are currently developing a neural interface with up to 1024 channels dedicated for experiments with larger animals. The system is based on a pedestal hosting conventional connectors that can be interfaced to a variety of 64-channel neural probes, e.g. Michigan style silicon probes or flexible probes based on polyimide. The connection between the probe connectors on the compact pedestal and an external instrumentation is achieved by custom-designed polyimide ribbon cables fabricated in house. The main tasks foreseen in the framework of this master thesis are

- Concept and design of high channel count interface for experiments with large animals
- Cleanroom fabrication of polyimide-based ribbon cables and alignment fixtures
- Development of an aligned solder process between polyimide ribbon cables and printed circuit boards
- Development of a labor-efficient test procedure for extraction of interfacing yield
- System prototyping including 3D printing of a pedestal structure
- System validation using a brain phantom

If you are interested in a challenging master thesis in the multidisciplinary field of neural engineering using MEMS technologies and keen to learn the design of lithography masks, cleanroom processing and system validation, you are the right person we are looking for.

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