**Thesis Project Form**

**Title (tentative):** The relation between the (hypoxia induced) lack of activity and eventual cell death, investigated using optogenetics

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### Description

**Motivation and application domain**

Thesis project developed @Biomedical Signal and Systems Lab, University of Twente (NL)

**General objectives and main activities**

We will infect cultures with a virus that induces channel- and / or halorhodopsins in a well-defined group of neurons (excitatory). This creates the possibility to selectively excite or inhibit neurons. We will monitor the effect of excitation during hypoxia and inhibition during normoxia on the recovery/ viability of cultured cortical neurons.

**Training Objectives (technical/analytical tools, experimental methodologies)**

- Use of micro electrode arrays and systems for data acquisition
- Development of experimental protocols
- Data analysis of multisite neurophysiological data
- Development of new algorithms

**Place(s) where the thesis work will be carried out:** University of Twente

### Additional information

**Maximum number of students:** 1

**Financial support/scholarship:** Erasmus +