# tESSingleStimMicroelectrode Project

## Setup

* Create a base folder named tESSingleStimMicroelectrode.
* Data used for this project should be kept in tESSingleStimMicroelectrode/data.
* Programs are available in the repository <https://github.com/supratimray/tESSingleStimMicroelectrodePrograms>. This folder should be cloned in tESSingleStimMicroelectrode/ tESSingleStimMicroelectrodePrograms.
* If you wish to modify and develop your codes as a repository, you can first fork the repository on your account and then clone that folder.

## Requirements

* CommonPrograms: Please clone and add to your Matlab’s path the programs available in <https://github.com/supratimray/CommonPrograms>. This folder can be kept anywhere on the computer.
* Chronux Package: <https://chronux.org/>. Please install as instructed.

## Description

In this project, gamma inducing stimuli were shown to monkeys repeatedly in 6 blocks. In the second block, non-invasive transcranial electrical stimulation (tES) was applied. The aim is to test how gamma varies over time due to tES.

## Data

Raw data recorded using Cerebus was first segmented using a pipeline used in the lab. We also found bad trials. These are saved as data/{monkeyName}/{protocolName} following standard lab convention. Each block has a different protocolName. Hence, each experiment consists of 6 protocolNames. This data is not available as part of the repository on Github, which contains only programs and some intermediate data.

## Programs

#### commonAnalysisCodes (this folder and all subfolders should be in Matlab add Path)

#### commonAnalysisCodes/informationCodes

* protocolLists: A “protocolList” refers to an experiment in which a particular experimental setting is used. For example, tACS\_Alpha\_Stim\_Single, in which tACS is applied once at alpha (10 Hz) frequency. Each protocolList is a separate file kept in the folder protocolLists. Each file contains the protocolNames corresponding to the experiment (6 protocolNames for each experiment). Note that each experiment is done several times.
* getAllProtocolLists: gets all protocolList files that are part of the project and should be available in the protocolLists folder.
* getProtocolListDetails: if the file is available, reads the file and returns the experiment dates (expDates) and protocolNames.
* {monkeyName}MicroelectrodeRFData – contains the list of good electrodes
* getGoodLFPElectrodes – returns the set of usable LFP electrodes for each expDate.

runDisplayDataSingleExperiment – once data is collected, this program uses a generic program called displaySingleChannelGRFs which is available in CommonPrograms for a quick view of the data.