FACULTY MENTOR   Gilja, Vikash

PROJECT TITLE   Neural Signal Processing Swiss Army Knife
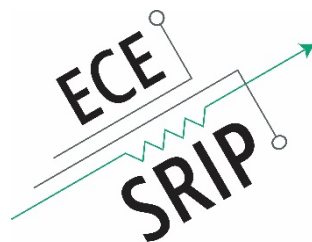
PROJECT DESCRIPTION

The goal of this project is to develop an ARM Cortex Microcontroller system for real-time acquisition and processing of data collected from electrodes implanted in or on the brain. The developed model will be used in a variety of experimental settings for neural prosthesis applications. Students working on this project will write microcontroller code and testing the overall system design to enable low latency system interpretation of collected data.

INTERNS NEEDED   1 MS Student OR 1 Undergrad Student

PREREQUISITES

Experience with microcontrollers, C programming, and digital signal processing.

FACULTY MENTOR   Gilja, Vikash

PROJECT TITLE   Semi-automated system for labeling patient behavior

PROJECT DESCRIPTION

To better understand the relationship between neural activity and human behavior, we collect continuous datasets of free-behavior in clinical scenarios that require the implantation of electrodes in or on the brain. These datasets are composed of audio and color and depth map video acquired from a Microsoft Kinect. To connect underlying behavior with recorded neural activity, behaviors (such as arm movements, initiation of speech) must be tagged with precision while protected patient privacy. Students working on this project will develop software to enable this process.

INTERNS NEEDED   2 MS Students OR 2 Undergrad Students

PREREQUISITES

Experience with Matlab and/or Python programming, signal processing and experience applying machine learning algorithms.