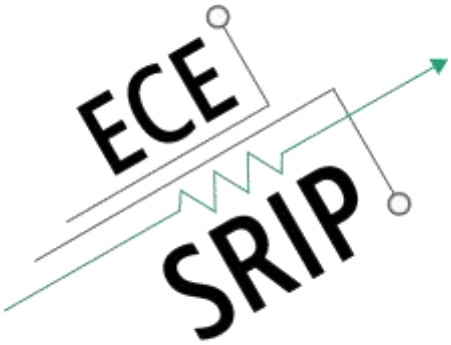


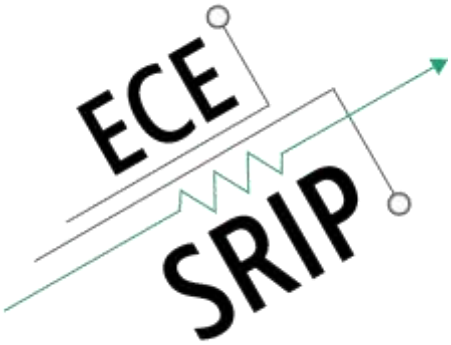
FACULTY MENTOR
Gilja, Vikash

PROJECT TITLE
The Development of an Avian Model for Neurally Driven Vocal Prostheses

PROJECT DESCRIPTION
The development of neurally driven speech prostheses is currently limited to the clinical research domain. Our goal is to accelerate this development by building a neural prosthesis that can predict birdsong in real-time from brain recordings. Birds can possess complex songs with structure similar to human speech and language. Students involved in this project will focus on the development and acceleration of neural decoding methods to predict birdsong.

INTERNS NEEDED
2 MS or BS Students

PREREQUISITES
Students should have prior data science / machine learning experience in Python. Ideal candidates will have worked with time series data and machine learning algorithms (e.g. HMMs, LSTMs, GRUs).



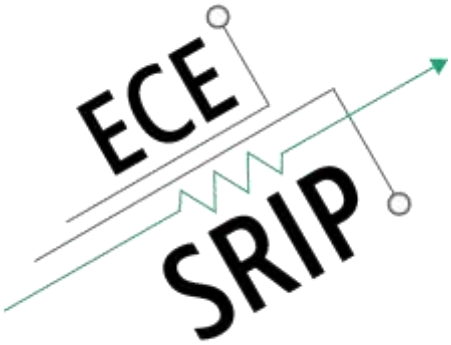
FACULTY MENTOR
Gilja, Vikash

PROJECT TITLE
Behavioral Context Decoding from Neural Activity

PROJECT DESCRIPTION
Future therapeutic and assistive neural prosthetic devices will need to identify specific behavioral states. Towards this goal, we work with data collected from patients in the epilepsy monitoring unit who have been implanted with electrodes in and on the brain. This project seeks to predict behavioral states from neural activity recorded from these electrodes. Behavioral assessments are made based upon computer vision based video analysis and neural data are modeled using time series methods.

INTERNS NEEDED
2 MS Students

PREREQUISITES
Students should have prior data science / machine learning experience in Python. Ideal candidates will have worked with time series data and machine learning algorithms (e.g. HMMs, LSTMs, GRUs) and/or with computer vision methods.



FACULTY MENTOR
Gilja, Vikash

PROJECT TITLE
Estimating Brain State with High-Density Electrode Grids

PROJECT DESCRIPTION
Recent advances in neural interface technology has enabled brain surface recordings with sub-millimeter spatial resolution. Fully leveraging this technology to provide higher fidelity views of the brain in action will require the development of novel signal processing and machine learning based algorithms. The development of these methods will inform future neural interface design and may enable higher performance neural prosthesis systems for restoring lost function.

INTERNS NEEDED
1 MS Student

PREREQUISITES
Experience with statistical signal processing and machine learning in Python or Matlab. Ideal candidates will have prior experience with source localization and/or time series modeling methods.