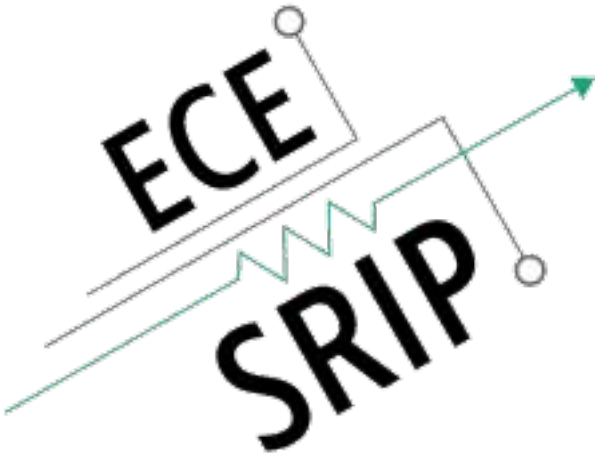


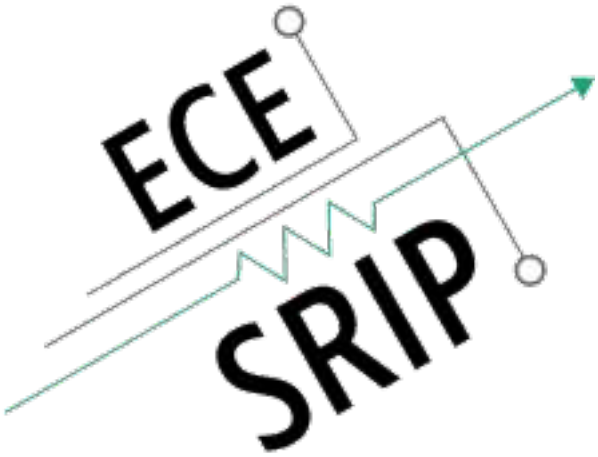
FACULTY MENTOR
Imanuel Lerman

PROJECT TITLE
Development of Focused Ultrasound Stimulation Therapy for Neuronal Diseases

PROJECT DESCRIPTION
Description: We are developing focused ultrasound devices that can stimulate peripheral nerves. These devices are carefully controlled utilizing 3D positioning and convolutional neural networks to identify target nerves.

INTERNS NEEDED
2 MS or BS

PREREQUISITES
Preferred Qualifications:
1. System and device fabrication/production for research and commercial purposes.
2. MATLAB programing, including data acquisition, analysis and system control.
3. LabVIEW programing for some of the system control.
4. Machine Learning for Image Recognition (medical ultrasound).
5. Circuit building for accessories (trigger generator, bandpass filter, modulation generator).
6. Testing troubleshooting and System operation.
7. Involvement in human trials (safety parameter assessment)



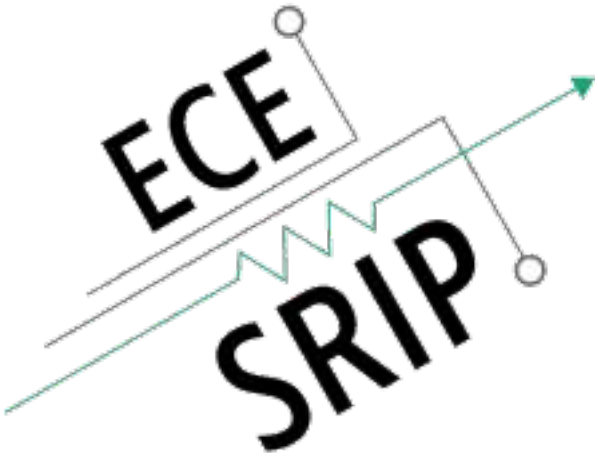
FACULTY MENTOR
Imanuel Lerman

PROJECT TITLE
Optically Pumped Magnetometers to Detect Peripheral Neuronal Signals

PROJECT DESCRIPTION
Description: The objective of this project is to detect and classify vagus nerve action potentials (in summative neurograms) with the Vagus nerve Sentinel Optically Pumped Magnetometer (VS-OPM) in living humans. The goal is to develop signal processing techniques to characterize nerve waveforms that indicate if a patient has an infection, bypassing the usual laboratory tests.

INTERNS NEEDED
1-2 MS or BS

PREREQUISITES
Preferred Qualifications:
1. System and device fabrication/production for research and commercial purposes.
2. MATLAB programing, including data acquisition, analysis and system control.
3. LabVIEW programing for some of the system control.
4. Machine Learning for Image Recognition (medical ultrasound).
5. Circuit building for accessories (trigger generator, bandpass filter, modulation generator).
6. Testing troubleshooting and System operation.
7. Involvement in human trials (safety parameter assessment)



FACULTY MENTOR
Imanuel Lerman

PROJECT TITLE
Vagus Nerve Stimulation Effects on Sleep and Learning

PROJECT DESCRIPTION
Description: We are testing the effects of neuromodulation(vagus nerve stimulation on sleep). The subjects will undergo interaction with artificial intelligence that will require a level of trust, before and after sleep deprivation. The AI agent will identify potential military targets and the subject will confirm the target. The project will determine if neuromodulation can improve learning in and trust accuracy(trust of artificial intelligent agent) in sleep deprived stated.

INTERNS NEEDED
1 BS and 1 MS

PREREQUISITES
Preferred Qualifications:
1. System and device fabrication/production for research and commercial purposes.
2. MATLAB programing, including data acquisition, analysis and system control.
3. LabVIEW programing for some of the system control.
4. Machine Learning for Image Recognition (medical ultrasound).
5. Circuit building for accessories (trigger generator, bandpass filter, modulation generator).
6. Testing troubleshooting and System operation.
7. Involvement in human trials (safety parameter assessment)