



Paid Research Assistant Opportunity for Master's Students

Translational Research in Neuroimaging and Data Science (TRENDS) at GSU, Georgia Institute of Technology, and Emory University

Project description: A large majority of the United States population will experience at least one traumatic event in their lifetime, and 5-10% will develop posttraumatic stress disorder (PTSD). Trauma-focused therapy is the recommended treatment for PTSD, but 30-50% of patients do not respond. There is significant interest in using focal neuromodulation, such as transcranial magnetic stimulation (TMS), to induce functional brain changes as a potential treatment for psychiatric disorders. Quantifying TMS's functional and neurophysiological effects and their link to symptom severity change is essential to understanding TMS's neural mechanisms and developing more effective and individualized TMS therapies. This project explores an electrophysiological biomarker by comparing electroencephalography (EEG) signals before and after 10 days of TMS in patients with PTSD symptoms. In more detail, we aim to develop a machine-learning model quantifying the effect of TMS in patients with PTSD. The resulting model would benefit and help optimize future TMS therapy for the patients with PTSD.

Responsibilities include:

- 1- Organizing data
- 2- Analyzing EEG data
- 3- Having weekly meeting with mentor (remotely)
- 4- Preparing conference and journal papers with the help from mentor

Qualifications:

- 1- An interest in multidisciplinary project
- 2- Master's degree student in Neuroscience, Computer Science, or any related field
- 3- Prior experience in analyzing EEG data and machine learning (preferred but not required)
- 4- Having US work permission (Green card or US citizen)

Benefits:

- 1- Getting monthly payment (~\$1400 for 60 hours per month)
- 2- Being author of resulting conference and journal publication.
- 3- Getting experience with machine learning analysis in neuroscience.

If interested, please email a resume or curriculum vitae to Mohammad Sendi at msendi@mclean.harvard.edu

TRENDS website: <https://trendscenter.org/>

SNL website: [Trauma | Stress and Neuromodulation Lab \(SNL\) \(stressneurolab.com\)](https://trauma.stressneurolab.com)