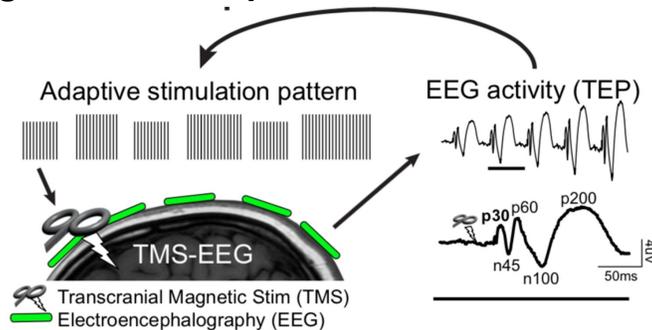# Post-Doctoral Research Associate
Developing a Closed-Loop EEG Platform to Personalize TMS

The **Keller Lab @ Stanford University (kellerlab.stanford.edu)** has an open 1-2 year federally funded postdoctoral research opportunity for a highly motivated postdoctoral fellow to conduct translational research at the intersection of neuroscience, electrophysiology, brain stimulation, engineering, psychiatry, clinical trials, and precision neurotherapeutics. Join us as we scale up our efforts to better understand how to modulate human brain circuits and develop novel treatments to improve mental illness!!

This candidate will:
1. Analyze transcranial magnetic stimulation (TMS) paired with high density EEG (hdEEG) datasets from patients with depression before, during, and after TMS treatment in order to extract mechanistic learnings about how brain stimulation modulates cortical circuits and develop biomarkers predictive of clinical response.
2. Use this information to develop a personalized brain stimulation treatment through the creation of a closed-loop platform that utilizes non-invasive brain signals to trigger stimulation at specified patterned intervals.

This work has the potential to transform how we treat neurological and psychiatric disorders with brain stimulation technologies including transcranial magnetic stimulation (TMS), deep brain stimulation (DBS), focused electrical stimulation, ultrasound, and vagus nerve stimulation.

The candidate will be expected to analyze human TMS-EEG data as well as help build, test, and optimize our real-time, closed-loop TMS platform. The candidate must be independent, motivated, and a team player with strong computational, signal processing, and communication skills.

The candidate will have the opportunity to collaborate with engineers, clinicians (neurologists, psychiatrists, neurosurgeons), and statisticians both within Stanford as well as outside institutions. The postdoc will be located at the Stanford School of Medicine. We are open to consider remote work during this time, with the expectation that the candidate relocates to Stanford when possible.

Required Qualifications:
- Extensive experience in electrophysiological recordings and analysis in humans or animals
- Extensive experience coding in matlab or python
- Experience with closed-loop systems, reinforcement learning, and control theory preferred
- PhD in biomedical/electrical engineering, computer science, neuroscience, or MD in psychiatry/neurology MD, or MD/PhD degree required
- Prior refereed journal publications
- Strong written and interpersonal communication skills

Please send a cover letter stating why you think you would be a good fit in the lab, your CV, a writing example (published lead-author manuscript), and 2-3 references to Corey Keller, MD, PhD (ckeller1@stanford.edu). We look forward to hearing from you!