Lucas Sainburg

Vanderbilt University Institute of Imaging Science

Graduate Student, Biomedical Engineering

“"Informing Epilepsy Surgery with Advanced Functional Neuroimaging"

Abstract:

About a third of patients with epilepsy are resistant to anti-epileptic medications. For these patients, the next best treatment is often surgical removal of their epileptic brain tissue. The surgical planning process for epilepsy is complex and involves a multimodal battery of clinical, imaging, and electrophysiological data. However, many patients who receive surgery do not achieve seizure freedom despite this in-depth workup. Moreover, we still do not fully understand how epilepsy surgery impacts brain tissue that remains after surgery. Here, I will discuss advanced functional neuroimaging methods, including analyses of functional magnetic resonance imaging (fMRI) and positron emission tomography (PET), that have potential to aid in presurgical planning of epilepsy surgery. Additionally, I will describe the effects of epilepsy surgery on brain activity using functional neuroimaging.