



NAME OF LABORATORY: Brain Informatics and Compu-translation lab

PI: Dr. Tomer Gazit PhD

Director of Department: Prof. Talma Hendler MD, PhD

Research Objectives:

- To characterize neural dynamics of normal (motivation and memory) and abnormal (epilepsy) from single neuron to the whole brain.
- To develop methods to capture deep brain activity for scalp recordings.
- To develop tools to detect and localize abnormal electrical activity (as in epilepsy) using combined electrophysiology and imaging.

Main Research topics:

- We combine fMRI and EEG with an innovative system which records EEG, detects epileptic activity and combines it with fMRI to identify the source of this activity.
- Mapping electrophysiological activity before during and after an epileptic seizure at the scale of single neurons.
- Developing novel tools for brain impedance mapping.
- Developing machine learning based tools to monitor deep brain activity using scalp EEG recordings
- Study motivational processes and how they effect human decision making using a unique multi-level examination from single neurons to whole brain fMRI
- Multilevel examination of memory processes.
- Developing machine learning based algorithms to detect functional brain areas prior to neurosurgery

Staff:

- Dr. mordehay medvedovsky – PhD
- Dr. Hagar Yamin – postdoc
- Ilana Klovatch-Podlipsky –Biomedical Engineer
- Noa Cohen – MA, Doctrate student
- Guy Gurevitch – MA student

Active Grants:

- Human Brain Project - European FET flagship project
- Brain study department young research grant – TASMC internal

Collaborations:

- Prof. Itzhak Fried, Functional Neurosurgery Unit
- Dr. Firas Fahoum, EEG monitoring unit, Neurology

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