# EEG-to-fMRI
# Neuroimaging Cross Modal Synthesis in Python

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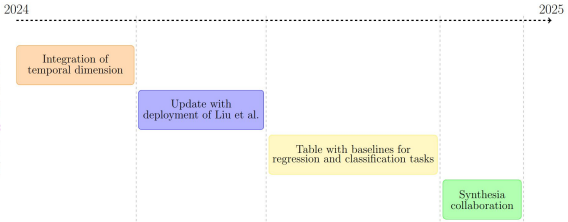
***eeg-to-fmri*** is a Python package that implements state-of-the-art regression techniques to map EEG recording segments to fMRI representations

```
import eeg_to_fmri

with tf.device('/CPU:0'):
    model = EEG_to_fMRI(latent_dimension, eeg_train.shape
                        weight_decay=weight_decay, skip_c
                        random_fourier=True, topographica
                        conditional_attention_style_prior
                        fmri_args = (latent_dimension, fm
                        max_pool, batch_norm, weight_deca
                        n_stacks, True, False, outfilter,
```

## Plan for 2024



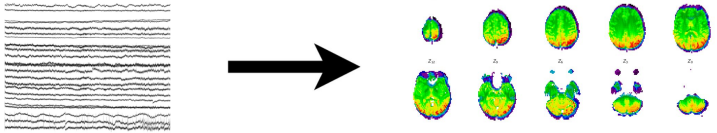

## Objectives

- provide research labs with tools to easily map EEG to fMRI;
- extend, in a package, various methods that are foundational in the task;
- extrapolation of methodologies to classification settings;
- easy integration in an health care setting.

## Open source contributions

We welcome and encourage third party scientific contributions coming from other laboratories. The goal is to allow health care software integration for diagnostic settings.

## Background



**Electroencephalography** (EEG) captures the **electrical field produced by neuronal activity**, which happens when the neurons fire. When the neurons fire, ions and energy are spent by the neuron cell. The **blood** in its turn **feeds nutrients and oxygenates** the cell, for the cell to keep functioning properly. In its turn, the blood flow is measured by **functional magnetic resonance imaging** (fMRI), by building an 3D image of the brain. Both of this signals evolve through time, being possible to **record them simultaneously**. Consequently, we can have pairs of EEG and fMRI segments and construct the basis for a **multivariate regression task**.