



## Compute-Efficient Pretraining of Large EEG Models

Deep Learning is inspired by the intricate structure of our very own brains. But what if we told you that deep learning could, in turn, help us unlock the secrets of the brain's inner workings?

Our project dives into the realm of brain activity decoding, where we'll harness the cutting-edge power of deep learning foundation models. These models have shown remarkable success in tackling various decoding tasks, and we aim to harness their potential to crack one of the most challenging puzzles: generalization.



Generalization is the key to making brain-computer interfaces truly effective. Often, models trained for one participant fail when applied to another. The data collected during one session might differ from the next due to variations in electrode placement. Even the hardware used can introduce discrepancies. It's like solving a new puzzle every time!

We have collected a large set of datasets from different labs. Currently, we employ MAE for EEG model pretraining, with plans for further modeling advancements once the framework is optimized. However, to progress, we must enhance data loading, training efficiency, and resource utilization. The goal of this project is to first optimize the framework and then proceed to train the EEG model and evaluate its performance across different BCI tasks to determine the most effective modeling choices.

### **Requirements:**

Knowledge in Deep Learning, or solid background in Machine Learning.

**Interested? Please contact us for more details!**

### **Contact**

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