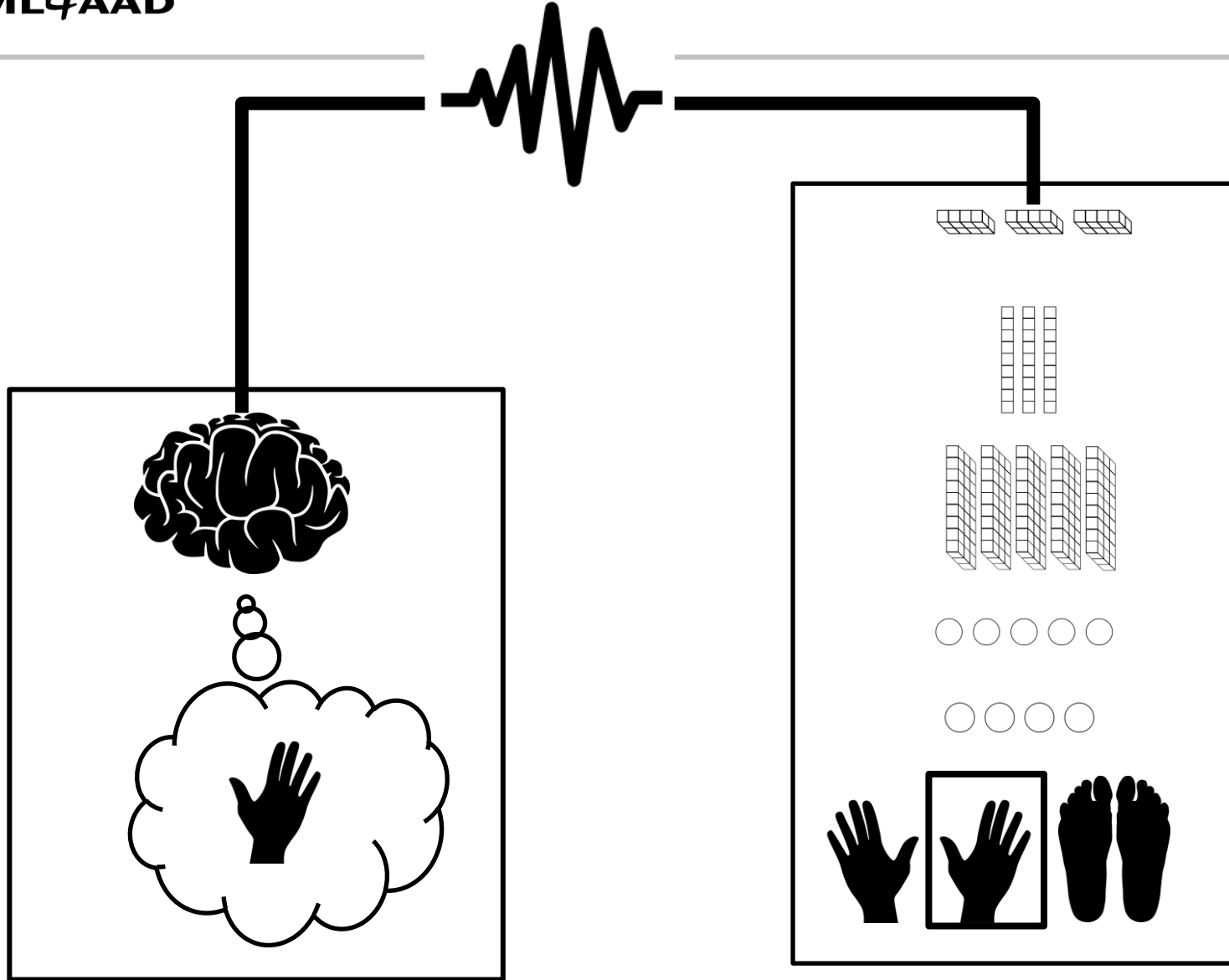




Student Projects

# **PRACTICAL TUNING OF A BRAIN SIGNAL PROCESSING PIPELINE**

# Brain Signal Processing Pipeline





# Projects Ideas

We have (access to):

- Recordings from 20 patients
- Deep Learning Processing Pipeline
- Robin, who built the pipeline
- Baseline Results

All Projects require:

- Strong knowledge of Python (e.g. numpy/scipy/theano/sklearn)
- Deep Learning Experience

## Structure Search

Improve on baseline results by empirically evaluating different architectures. Speed up with:

- Hyperband
- Learning Curve Prediction

## Improve Training Procedure

Improve on baseline results with

- Optimal Batch Selection (Ilya)
- Restarts (Ilya)

## Transfer Learning

Multi-Task Learning: Train Neural Networks across subjects.

- Pretrain on all, finetune on one dataset
- Progressive Neural Networks

## Data Augmentation

Evaluate data augmentation for datasets.

- Optimize over augmentation methods
- Start with computer vision datasets