Reading into the mind’s eye Boosting automatic visual recognition with EEG signals

Studies that focus on the visual information extracted from EEG:

* Automatic image annotation using a CNN with an EEGNet architecture.
* Image reconstruction methods
* Neural networks (CNN and recurrent NN) for EEEG classification tasks
* Support vector machine (SVM), k-Nearest neighbor (k-NN), multi-layer perceptron artificial neural network (MLP-ANN) and logistic regression (LR) to extract the meaningful EEG signal patterns from a large volume of poor-quality data having artifacts noises.
* EEG decoding and visualization, deep learning with convolutional neural networks.

Combine deep learning with EEG input, using CNNs and LSTMs for image classification.

Investigate the relevance of each electrode input for classification and experimentally confirm that the most relevant EEG signals come from brain areas that are involved in higher cognitive reasoning, not from areas dedicated to early visual processing (e.g. V1).

Use Emotiv headset for EEG recording, widely used.

Multiple classification models:

* Ridge regression
* CNN
* LSTM

Deep learning architectures were trained using Stochastic Gradient Descent.