
BCI

Intelligent Systems

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1.1 Basic information

Implementation code for BCI models. The [source code](#) presented on the github.

All methods were implemented based on `pytorch` for simple parallelization by using `cuda`.

All information about this project can be found in the [documentation](#).

1.2 Requirements and Installation

A simple instruction of installation using `pip` is provided near the [source code](#).

More information about installation can be found in documentation [installation](#) page.

1.3 Example of use

A simple examples of module usage can be found in documentation [example](#) page.

INSTALLATION

2.1 Requirements

- Python ≥ 3.8
- pip ≥ 22.0

2.2 Installing by using PyPi

2.2.1 Install

```
python3 -m pip install bci-ml
```

2.2.2 Uninstall

```
python3 -m pip uninstall bci-ml
```

2.3 Installing from GitHub source

2.3.1 Install

```
git clone https://github.com/intsystems/bci-ml.git  
cd bci-ml  
python3 -m pip install ./src/
```

2.3.2 Uninstall

```
python3 -m pip uninstall bci-ml
```

EXAMPLE

3.1 Requirements

It is recommended make virtualenv and install all next packages in this virtualenv.

```
bci-ml==0.0.1
```

Include packages.

```
TODO
```

3.2 Preparing the dataset

TODO

BASE MODELS

The `bci.base_models` contains classes:

- `bci.base_models.BaseModel`
- `bci.base_models.IdentityModel`

class `bci_ml.base_models.BaseModel`

Base class for the BCI models.

fit(*input*)

Fit model for the given input data.

Parameters

input (*FloatTensor*.) – The tensor of the analyzed data.

forward(*input*)

Returns model prediction for the given input data.

Parameters

input (*FloatTensor*.) – The tensor of the analyzed data.

Returns

Model answers for the given input data

Return type

FloatTensor

class `bci_ml.base_models.IdentityModel`

A model which defines identity mapping. Mathematically define model $f(\mathbf{x}) = \mathbf{x}$.

Warning: It's just an example of BCI model, and cannot be used in real cases.

Example:

```
>>> _ = torch.random.manual_seed(42) # Set random seed for repeatability
>>>
>>> model = IdentityModel()
>>> X = torch.randn(2, 1) # Generate random tensor
>>> predict = model(X)
tensor([[0.3367],
        [0.1288]])
```

forward(*input*)

Returns model prediction for the given input data.

Parameters

input (*FloatTensor*.) – The tensor of the analyzed data.

Returns

Return similar tensor to input data.

Return type

FloatTensor

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