

This package consists of the source code of ConceptNN, which were developed by Dr. Yun-Long Mi for dynamic stream learning. One can use them freely (for academic purposes only) at your own risk. For other purposes, please contact Dr. Yun-Long Mi directly.

Quickstart for ConceptNN:

Python~=3.10, tensorflow~=2.10.0, keras~=2.10

Data format: The Data of the CSV format file looks like the following:

```
29.7037,21.3278,1.8359,0
30.4719,5.5551,36.8715,0
33.2494,-3.937,52.1075,0
...
```

Step 1: set the file path and set some parameters in ParameterUtils.py

```
train_data = pd.read_csv('./data-kdd/train.csv', delimiter=',', header=None, engine='python');
test_data = pd.read_csv('./data-kdd/test.csv', delimiter=',', header=None, engine='python');
```

Here, for the dynamic learning process, the initial training of Configurations of the ConceptNN:

Relu activation, Adam optimizer, cross-entropy loss function, epochs=100, batch_size=8 for the small datasets (i.e., Iris, Hayes-Roth, Sonar, Glass, Monks-2, Vowel, Banknote, and Usenet-2), and batch_size=32 for the slightly larger datasets (that is, IS, Satimage, Pendigits, Letter, Weather, Shuttle, KDD-Cup1999, Covertypes, MNIST, f-MNIST, driver_drowsiness(1), driver_drowsiness(2), TrafficStream 1 and TrafficStream 2).

Step 2: set the parameter epsilon in ConceptNN_D_MLP.py

```
概念相似度:
simArr = [0.975, 0.98, 0.985, 0.99, 0.995, 1]; # 搜索范围0.975, 0.98, 0.985, 0.99, 0.995, 1
```

Step 3: run ConceptNN in ConceptNN_D_MLP.py

NOTE: Please cite our work if you use this source code in any way as follows:

- 1、Y. -L. Mi. Concept neural network based on time-delay regret for dynamic stream learning, IEEE Transactions on Pattern Analysis and Machine Intelligence, 2025, 47(5): 3796-3814. doi: 10.1109/TPAMI.2025.3535636
- 2、The **decompression password** for the original code compressed package is: 20250128