Installing and running Augur

Installation

Prior to installing and running Augur, all the dependencies should be installed in the Python environment, including numpy, pandas, scikit-learn, math, scipy, collections, torch, lightgbm, xgboost, matplotlib (3.1.1), joblib, random, and time. For convenience, we strongly recommend users install the Anaconda Python environment in their local computers, which can be freely downloaded from https://www.anaconda.com/. The detailed steps of installing these dependencies are provided as follows:

Step 1. Download and install the anaconda platform:

Download from: https://www.anaconda.com/products/individual

Step 2. Install PyTorch:

Please refer to https://pytorch.org/get-started/locally/ for PyTorch installation.

Step 3. Install dependent packages

```
pip install lightgbm
pip install pandas
pip install joblib
pip install scikit-learn
pip install numpy
pip install scipy
```

Running

To run Augur, go to the installation folder of Augur and enter the following content into Command Prompt:

python Augur.py

Once Augur has started, the interface will show as demonstrated in Figure 1.

The input format of Augur

The input of Augur is a set of protein sequences in FASTA format, as shown in Figure 2.

Prediction

Upon completing the input of the protein sequence to be tested, clicking the "Predict" button will yield the prediction results, as shown in Figure 3.

0	Augur			×
Plea	ase enter your FAST	A sequence:		
Clas	ssification Results:			
		Predict		

Figure 1 The main interface of Augur

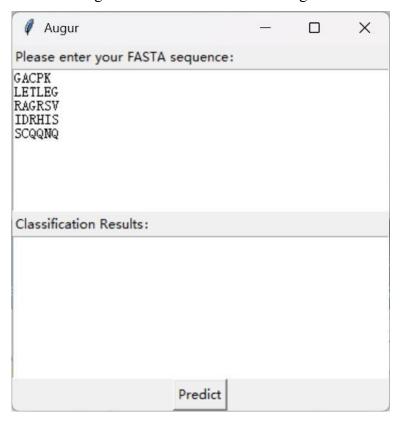


Figure 2 The example input for Augur

0	Augi	ur				_		×
Pleas	se ei	nter your FAST	A se	equence	:			
GACP LETL RAGR IDRH SCQQ	EG RSV HIS							
Class	sifica	ation Results:						
The	sequence The seque	e the result uence_1 is a possibility possibility uence_2 is a possibility possibility uence_3 is a possibility possibility possibility	B3 of of B3 of of B3 of	being being PP! being being PP! being	a a a	B3PP: non-B B3PP: non-B	0.517 3PP: (0.512 3PP: (7). 487 2). 470
				Predict				

Figure 3 The output of Augur