TripNet 1.1 User Manual

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5 june 2010

0.1 Pre-requierements

Download and install these softwares before using TripNet:

1. python 2.x version from http://python.org/download/
2. Java jre 6+ from http://java.sun.com/javase/downloads/index.jsp
3. GraphViz from http://graphviz.org/Download..php

0.2 Running TripNet

If you have some sequences and you want to draw their network you can use tripnet.py in Linux shell or windows command line as follows:

Usage:

```
>> python tripnet.py file_name [slow | normal | fast]
```

- *file_name* is the path of input file or directory, there is some options for this.

1. If file_name is the name of a file containing sequences first some triplet will be created based on sequences and then the network for this triplets will be created.

* In this case the file format should be in FASTA format like this:

my sequences.txt:

```
>sse94
ggtgcgcgagggcggccgcccgataagcggcgacaccggtctgcgcga
>und8
ggtacgcgagggcgcccgcccgataagcggcgacaccggtctgcgcga
>und64
ggtgcgcgagggcgtccgcccgataagcggcgacaccggtctgcgcga
>she49_1
ggggcgcgagggcgcccgcacgataagcggcgacaccggtctgcgcga
>und79
```

```
ggtgcgcgagggcgaccgcccgataagcggcgacaccggtctgcgcga
>Smb_17
ggtgcgcgagggcgcccgcccgataagcggcgacaccggtctgcgcga
```

2. If file_name refers to a triplets file, the network will be created directly from these triplets.

* In this case your input file should have one triplet in each line, and the numbers in the file should be between 1 and n, like this:

mytriplets.txt:

```
4 5 1
4 5 2
4 5 3
3 6 1
3 6 2
6 3 4
6 3 5
5 4 6
```

* In this case, you can use a .names file. This file contains the names of the species that are used in the triplets file by numbers. The file name of a .names files should be triplets_file_name+.names. For an instance in the above example if you like to provide a .names file, its name should be mytriplets.txt.names, and its format should be like this:

mytriplets.txt.names:

```
1 Rsericophyllus1
2 Rsericophyllus4
3 Rpachyrhizus1
4 Rgunnianus
5 Rpinguis1
6 Rpinguis2
```

This operation can also be done by providing a GraphViz[1] .dot file and a .names file using the rename.py included in the bin directory.

3. If file_name is the name of a directory, each file in the directory will be processed individually as described above.

- The second input is the speed of algorithm, in a higher speed you will obtain a network with higher level, but choosing a slow speed will provide you a better network but it may take a long time for the algorithm to finish.

examples:

Running TripNet on a triplet file:

[1] http://graphviz.org

```
>> python tripnet.py mytriplets.txt normal
```

Running TripNet on all files of a directory::

```
>> python tripnet.py dir fast
```

This code is still under development. If for some reason you encounter a bug or a problem, please inform me on: aazadi [at sign] gmail [dot] com

0.2.1 Problems on run

If you see this error on fedora: /lib/ld-linux.so.2: bad ELF interpreter: No such file or directory, run this on terminal:

>> yum install glibc.i686

0.3 Source Code

The code is written in Java (Some utilities are written in Python) and is thus platform independent. The source codes are placed under the src directory. Main class is TripNet, while some classes may not be used in this version, but they are use full if you want to use another integer programming tools. This program is written based on GraphLab (http://graphlab.sharif.edu) which is a mathematical graph theory platfrom. The code can be compiled using jar files located in the lib directory. There is a compile.sh file which can guide you through the compile process. In windows/Mac systems the compilation can be done similarly.

0.4 License

All source codes and other materials are published under the GPL license. Pleae cite this work in the case that you are using TripNet in your studies.