

HOW TO USE

LANCELOT

Artificial Neural Net for Periodograms (A. Gaspani, 1995)

Artificial Neural Network computing the Periodogram of an
unequally spaced noisy time serie $x(t)$.

Input File: TEST.DAT

Input file must be an ASCII file with the following format:

Time	[space]	Magnitude
0.00000		33.00
0.31416		30.52
0.62832		24.02
0.94248		15.98
1.25664		9.48
...		...
28.90265		24.02
29.21681		15.98

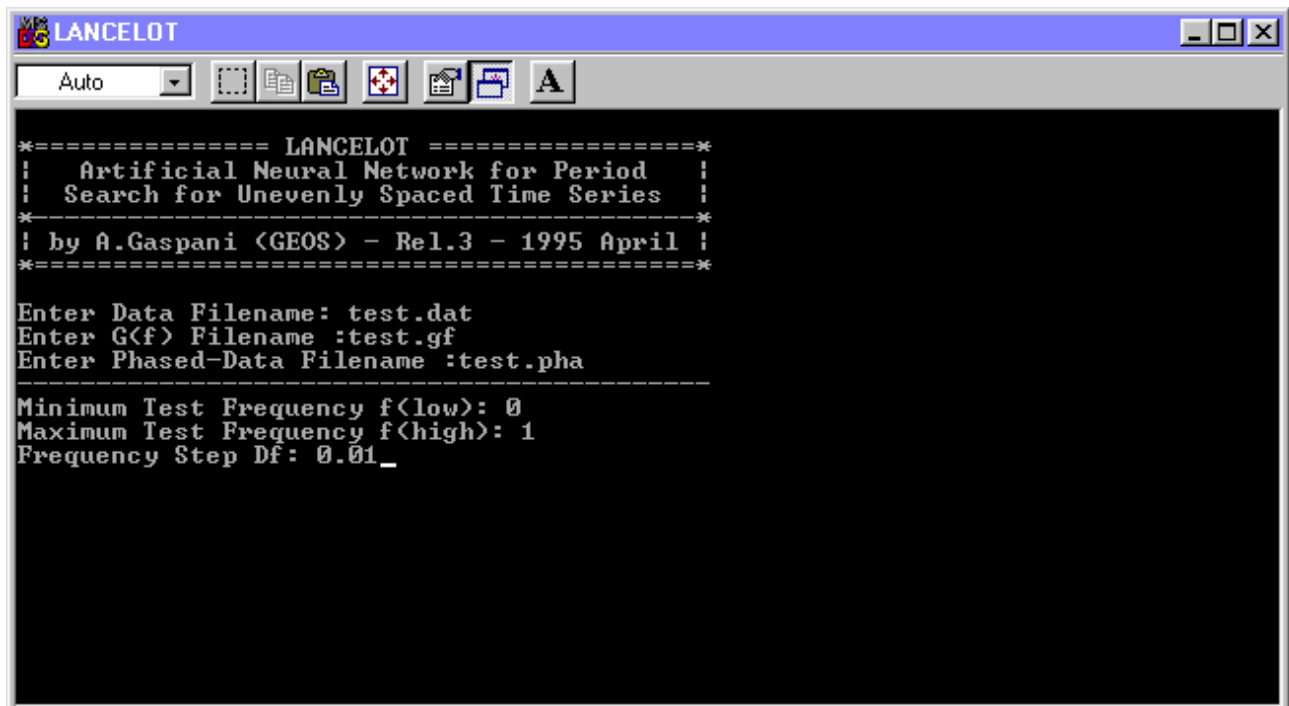
Run LANCELOT computer program.

Data filename: name of the DAT file (test.dat)

G(f) filename: name of the power spectrum output file (test.gf)

Phased-data filename: name of the phased-data output file (test.pha)

Insert the minimum and maximum values of test frequency and its step.



```
===== LANCELOT =====
| Artificial Neural Network for Period |
| Search for Unevenly Spaced Time Series |
=====
| by A.Gaspani <GEOS> - Rel.3 - 1995 April |
=====

Enter Data Filename: test.dat
Enter G(f) Filename :test.gf
Enter Phased-Data Filename :test.pha
-----
Minimum Test Frequency f(low): 0
Maximum Test Frequency f(high): 1
Frequency Step Df: 0.01_
```

press enter to obtain the value of the best frequency:

```

Esecuzione terminata - LANCELOT
Auto
9.000000E-001 1.412593E-016
9.100000E-001 6.879009E-018
9.200000E-001 2.543850E-016
9.300000E-001 4.352023E-015
9.400000E-001 1.831979E-016
9.500000E-001 2.077956E-009
9.600000E-001 1.307728E-008
9.700000E-001 1.253269E-012
9.800000E-001 7.287415E-017
9.899999E-001 3.141259E-016
1.000000 1.272193E-014

---- SUMMARY OF THE ADOPTED MESOSTRUCTURE ----
Number of input neurons:          94
Number of hidden neurons:         4
Number of output neurons:         1

-----
The best frequency is:  fo=  3.200000E-001
                      ....done!!...

```

best period is equally to $(1/\text{best frequency}) = 1/0.32 = 3.125$

Output Files:

TEST.GF

ASCII output file containing power spectrum data in the following format:

Frequency	G(f)
.0000000	.0000000
1.000000E-002	8.493683E-014
2.000000E-002	8.493683E-014
...	...
9.800000E-001	7.287415E-017
9.899999E-001	3.141259E-016
1.0000000	1.272193E-014

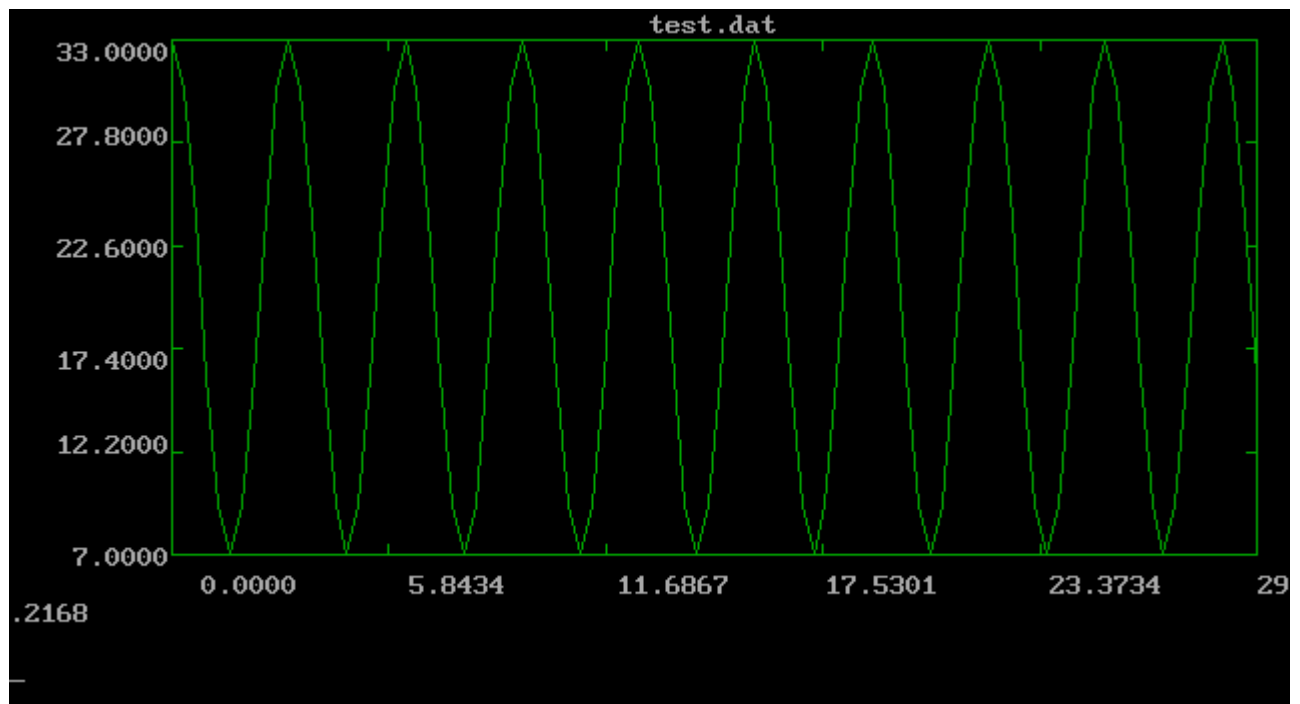
TEST.PHA

ASCII output file containing phased-data:

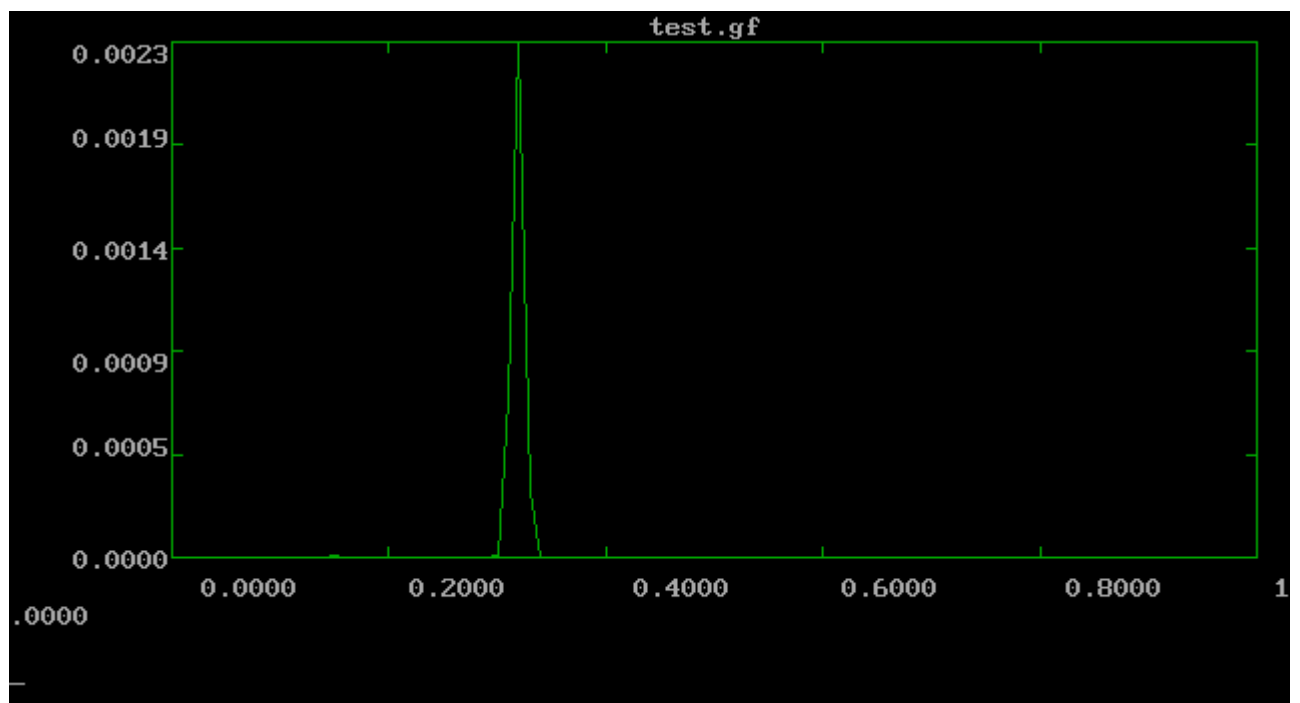
.0000000	33.0000000
1.005312E-001	30.5200000
2.010624E-001	24.0200000
...	...
1.483164E-001	30.5200000
2.488480E-001	24.0200000
3.493795E-001	15.9800000

Run MNG program

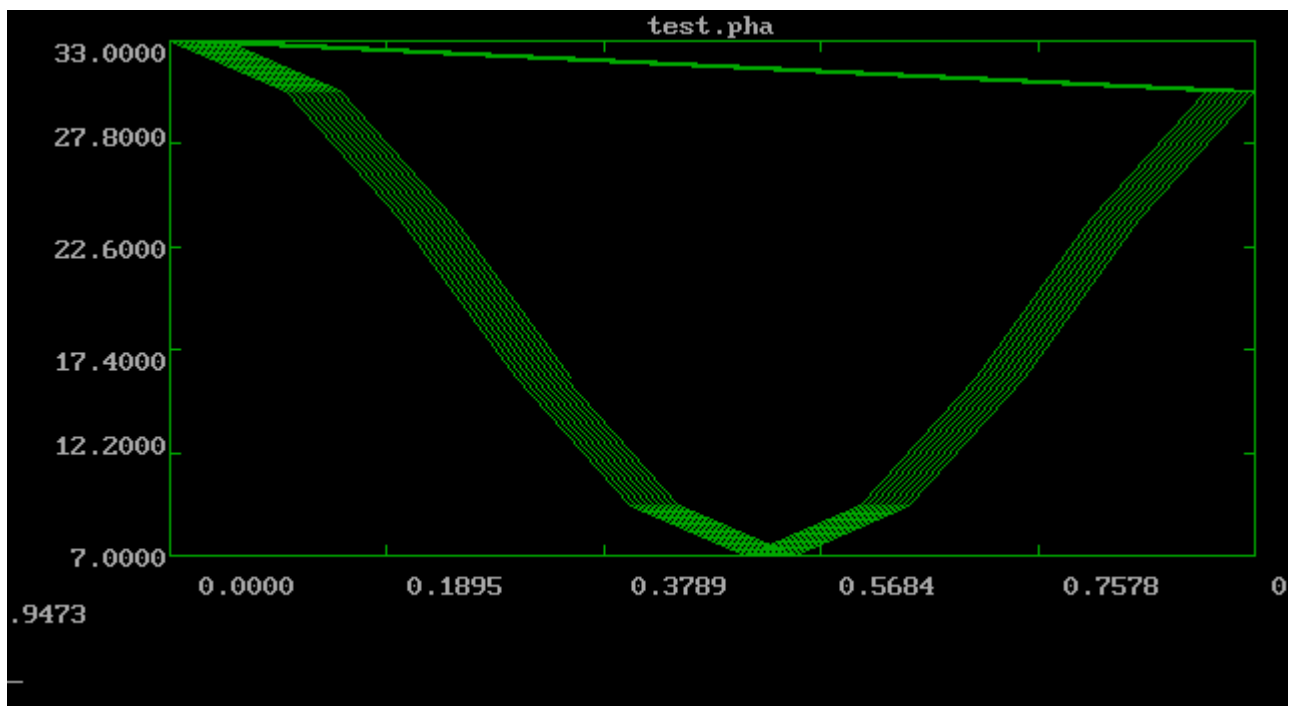
Type "plot test.dat" and press enter to see the DATA file:



type "plot test.gf" and press enter to see the power spectrum:



type "plot test.pha" and press enter to see the phased-data:



type "end" and press enter to exit from MNG