

# COMP 605: Introduction to Parallel Computing

## Topic: Visualizing Results using Gnuplot

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## X11 forwarding to run Gnuplot on tuckoo

- Using X11 forwarding will allow you to visualize data or run graphical applications, e.g.:
  - ncview to view NetCDF data files or
  - ParaProf performance analyzer
- see <http://edoras.sdsu.edu/~mthomas/sp17.605/tools/ssh-xterm.pdf>

## Gnuplot: Simple Plot Example

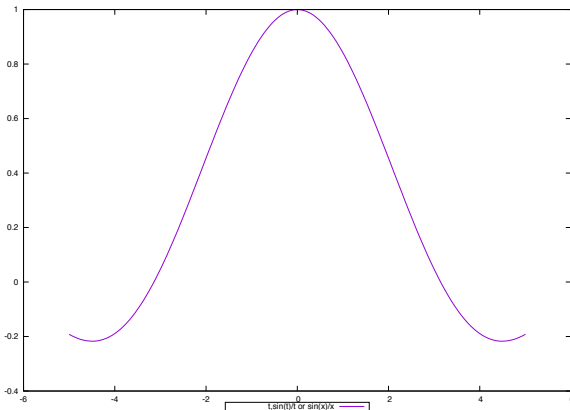
- Run using Interactive commands:
- run Gnuplot and then type in gnuplot commands:

```
[mthomas] gnuplot
gnuplot> set terminal postscript eps enhanced color
                    font 'Helvetica,10'
gnuplot> set output 'sine.ps'
gnuplot> set parametric
gnuplot> set dummy t
gnuplot> set autoscale
gnuplot> set samples 160
gnuplot> set title ""
gnuplot> set key box
gnuplot> set key below
gnuplot> plot t, sin(t)/t title "t, sin(t)/t or sin(x)/x"
gnuplot> reset
```

## Gnuplot: Run using gnuplot script:

```
[mthomas@gidget:~/working/gnuplot/demo] cat sine.gplt
set terminal jpeg
set output 'sine.jpg'
#set terminal postscript eps enhanced color
      font 'Helvetica,10'
#set output 'sine.ps'
set parametric
set dummy t
set autoscale
set samples 160
set title ""
set key box
set key below
plot t,sin(t)/t title "t,sin(t)/t or sin(x)/x"
reset
```

# Gnuplot



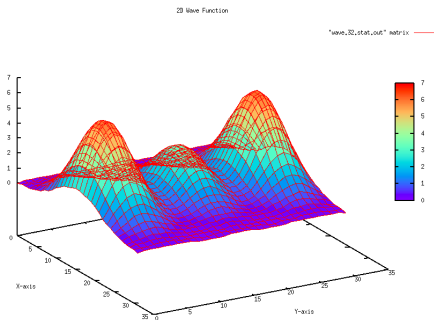
$\sin(x)/x$

# Gnuplot Surface Plot Example

- run Gnuplot: `[mthomas] % gnuplot`

```
set pm3d
set view 60, 60, 1, 1
set title "Plot of My Data"
set ylabel 'Y-axis'
set xlabel 'X-axis'
plot 'wave.32.stat.out' matrix with lines
set palette rgbformulae 22,13,-31
```

# Gnuplot commands/script



"Wave" Generator using parallel MPI code, wave-dyn.c, running on tuckoo to calculate Airy Disk Function ( $N=32, f=0.5, g=0.25, s=4$ )



## Gnuplot Refs

- <http://lowrank.net/gnuplot/index-e.html>
- <http://www.gnuplotting.org/output-terminals/>
- <http://gnuplot.sourceforge.net/demo/>
- [http://www.ma.utexas.edu/users/ktaliaferro/gnuplot\\_examples.html#3dpar](http://www.ma.utexas.edu/users/ktaliaferro/gnuplot_examples.html#3dpar)
- <http://www.cs.princeton.edu/courses/archive/fall99/cs323/precepts/plotting/gnuplot.html>
- and many more