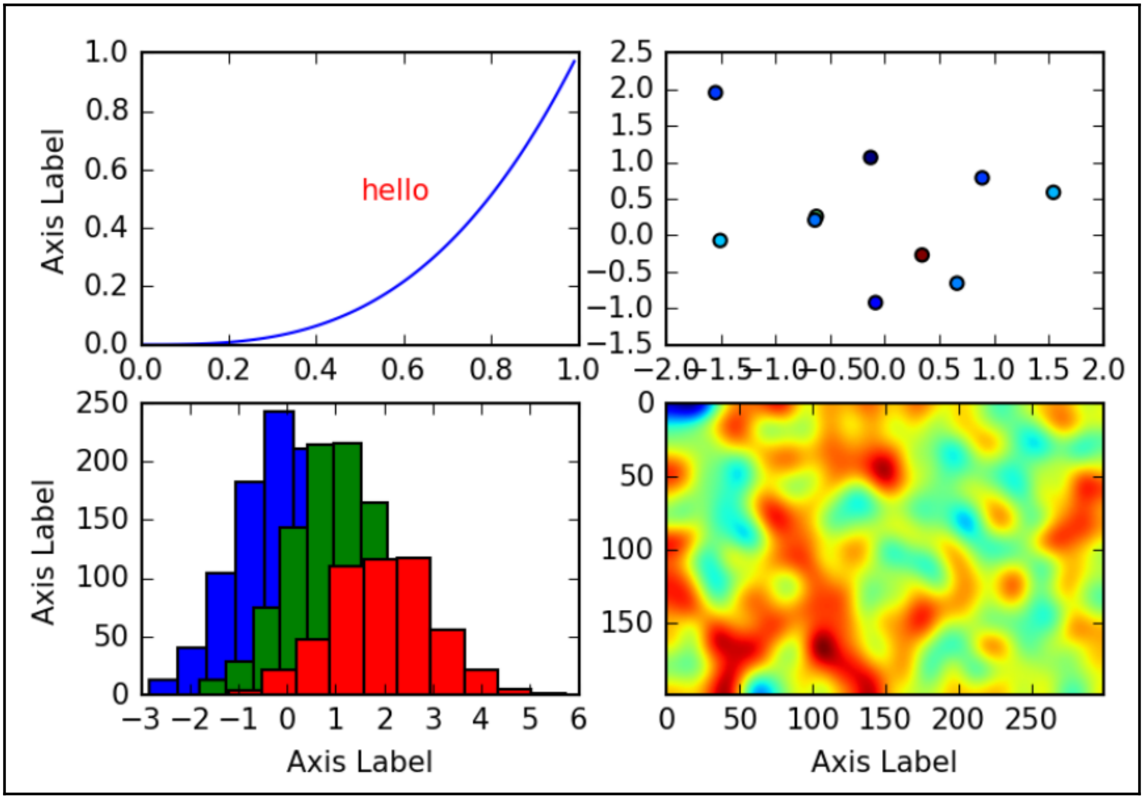
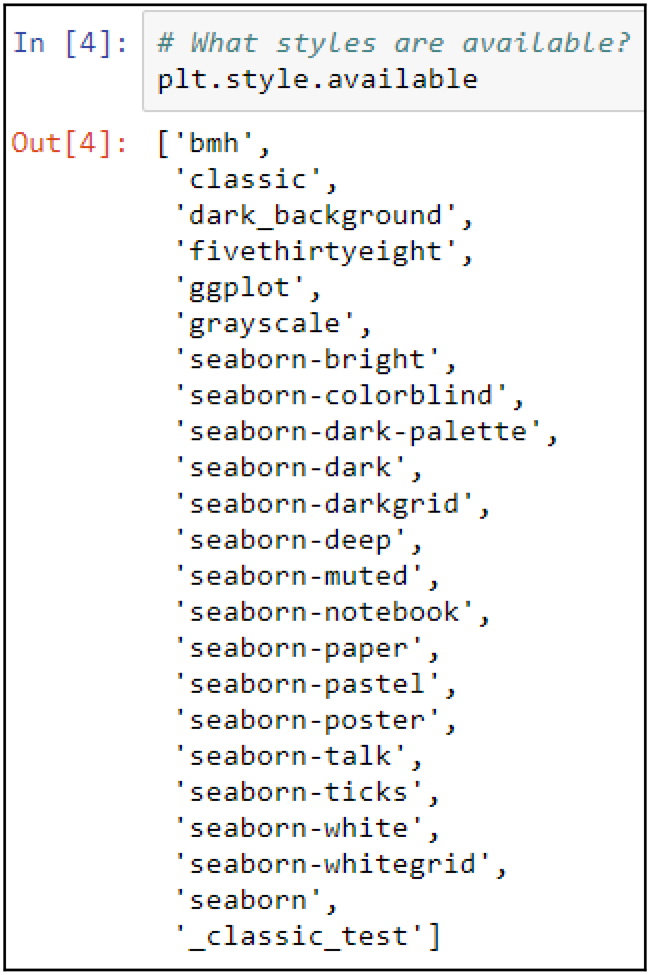
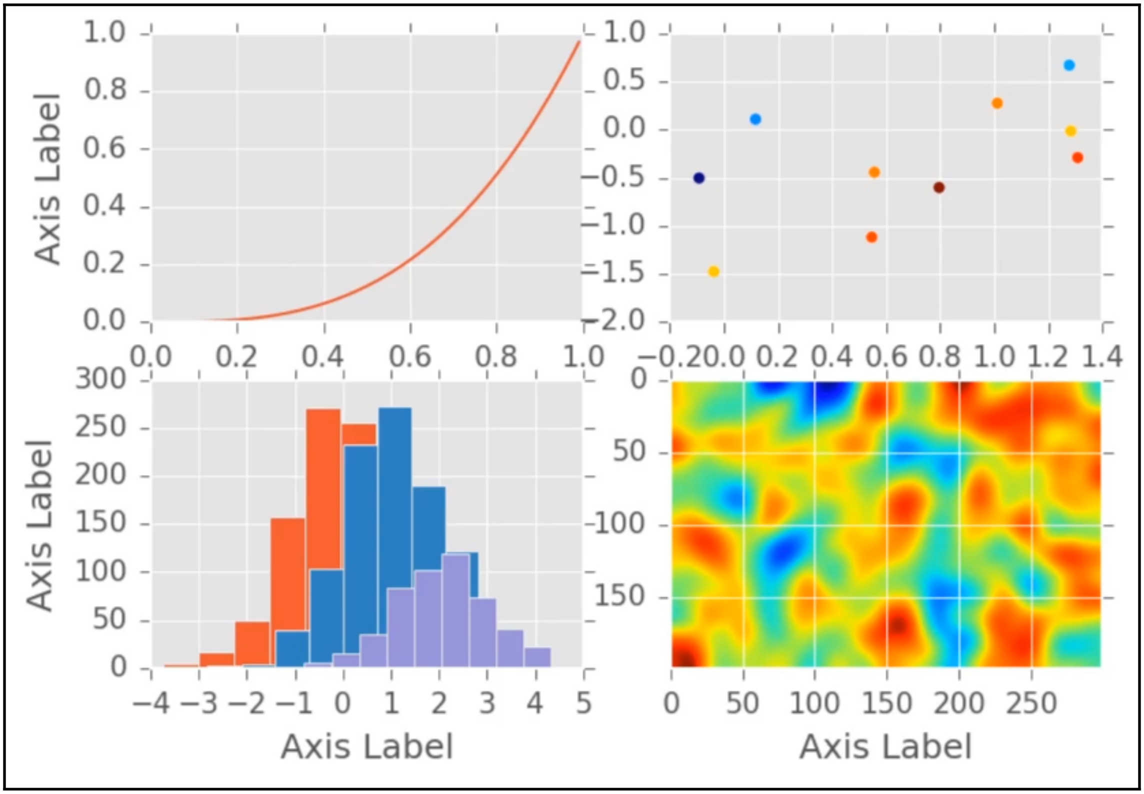
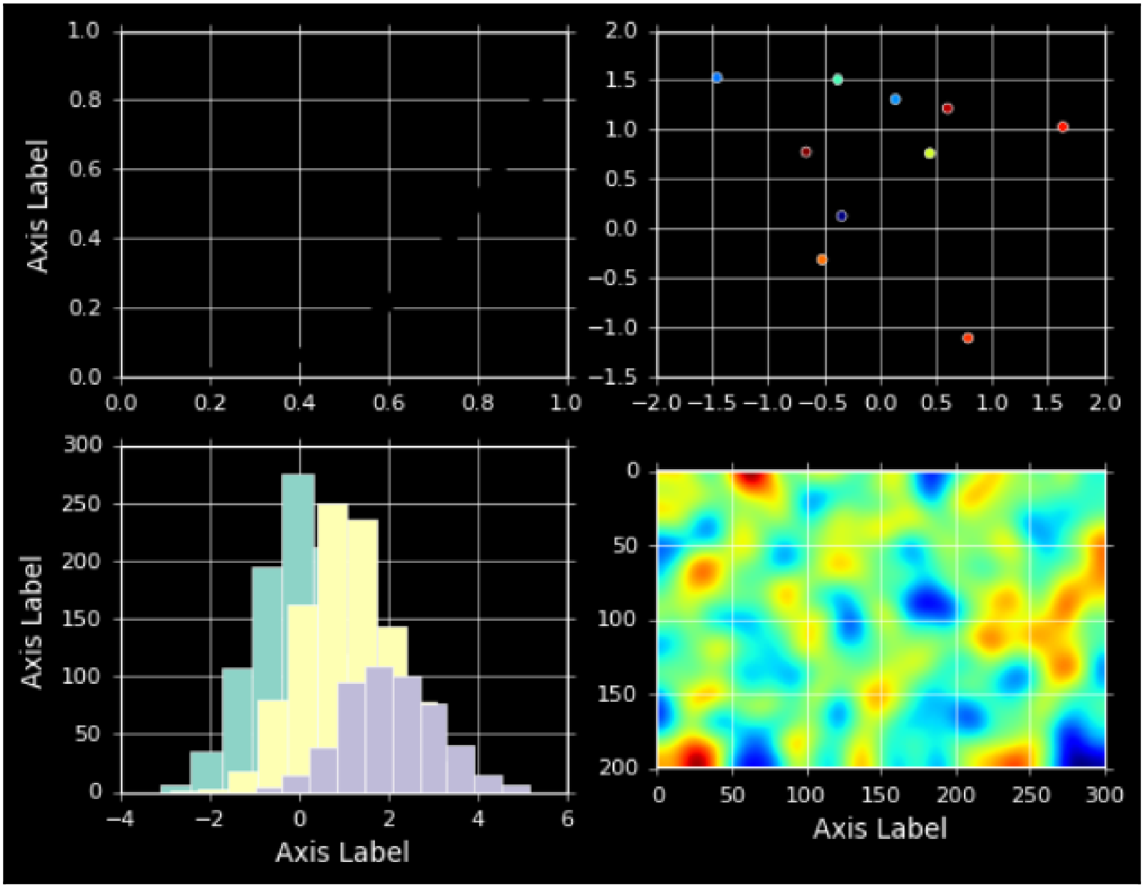
Chapter 1: Heavy Customization



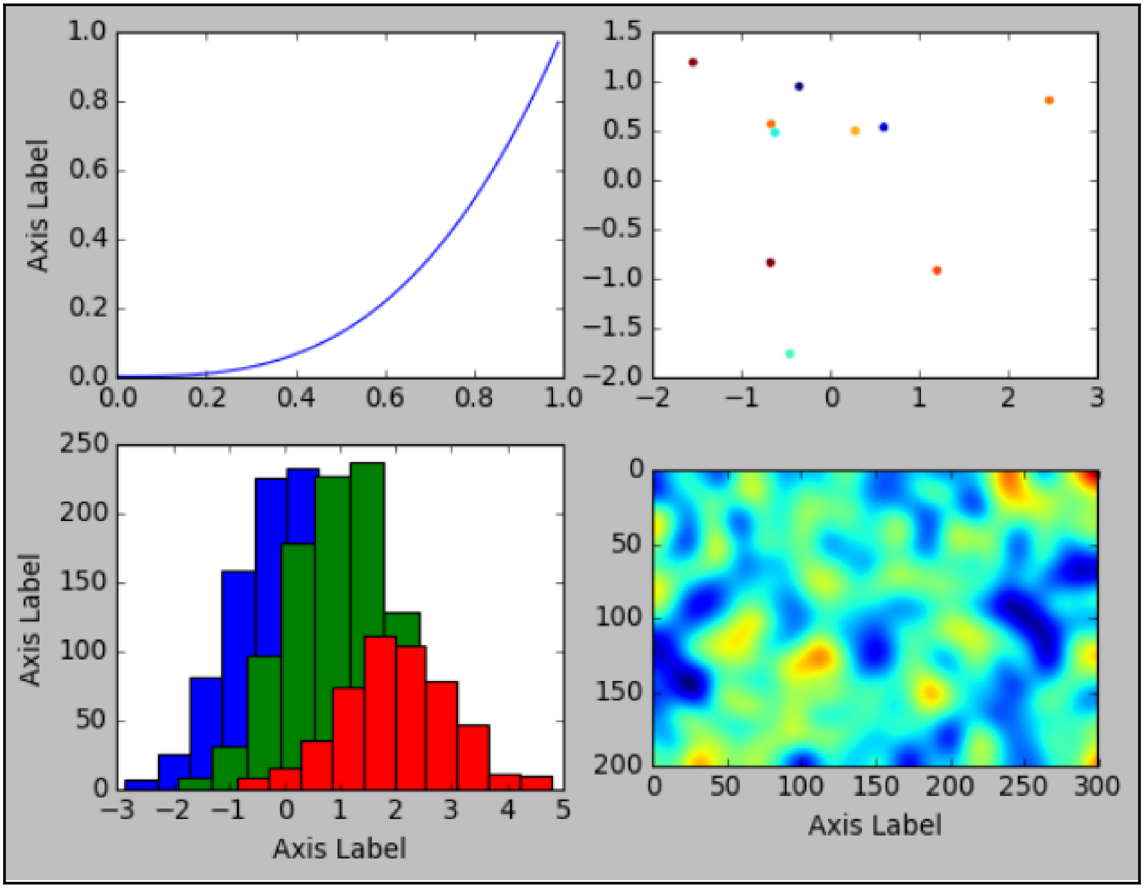


```
In [4]: # What styles are available?
        plt.style.available

Out[4]: ['bmh',
         'classic',
         'dark_background',
         'fivethirtyeight',
         'ggplot',
         'grayscale',
         'seaborn-bright',
         'seaborn-colorblind',
         'seaborn-dark-palette',
         'seaborn-dark',
         'seaborn-darkgrid',
         'seaborn-deep',
         'seaborn-muted',
         'seaborn-notebook',
         'seaborn-paper',
         'seaborn-pastel',
         'seaborn-poster',
         'seaborn-talk',
         'seaborn-ticks',
         'seaborn-white',
         'seaborn-whitegrid',
         'seaborn',
         '_classic_test']
```

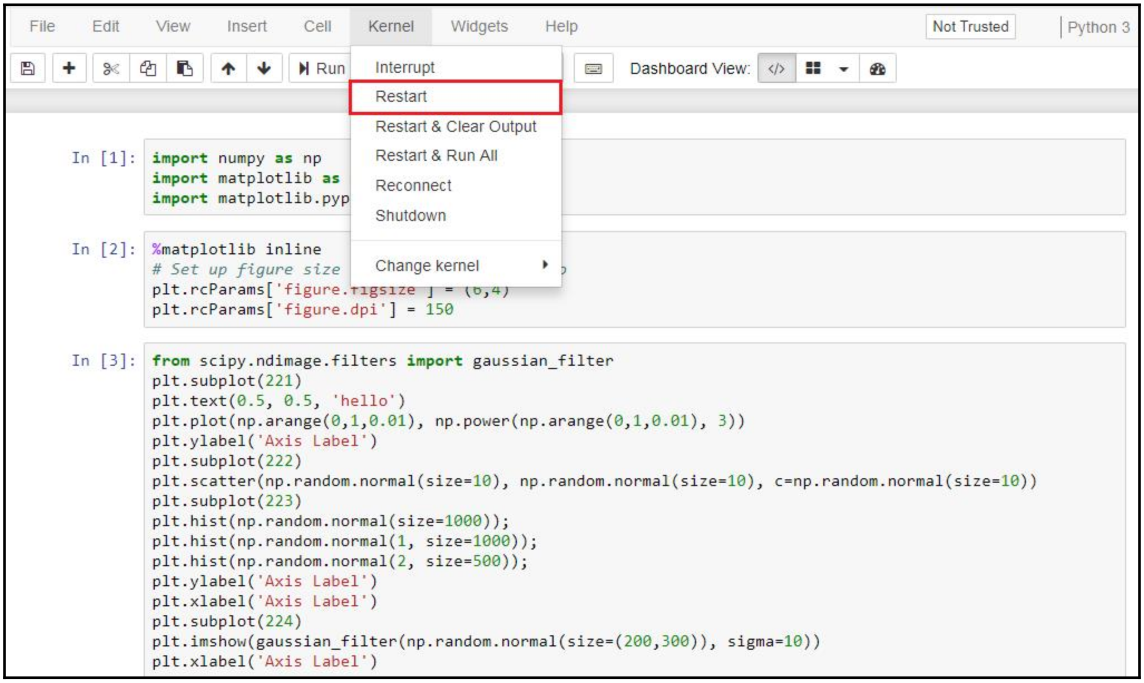

1.0
0.8
0.6
0.4
0.2
0.0
Axis Label
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−0.2 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
300
250
200
150
100
50
0
Axis Label
−4 −3 −2 −1 0 1 2 3 4 5
Axis Label
0
50
100
150
0 50 100 150 200 250
Axis Label



Axis Label
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
Axis Label
300
250
200
150
100
50
0
−4
−2
0
2
4
6
Axis Label
0
50
100
150
200
0
50
100
150
200
250
300
Axis Label



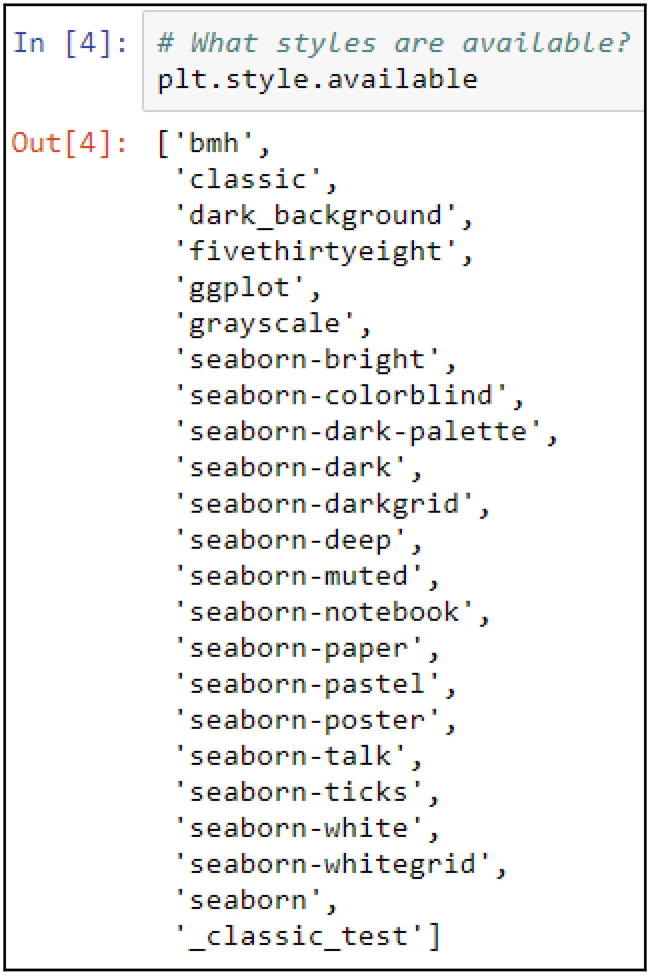
Axis Label
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2
−1
0
1
2
3
250
200
150
100
50
0
Axis Label
−3
−2
−1
0
1
2
3
4
5
Axis Label
0
50
100
150
200
0
50
100
150
200
250
300
Axis Label



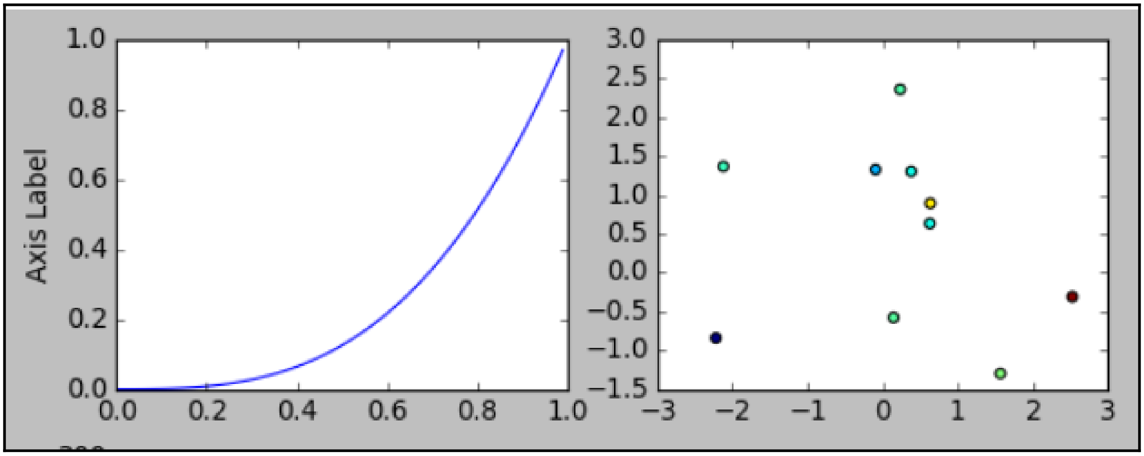
```
In [1]: import numpy as np
        import matplotlib as
        import matplotlib.pyp
```

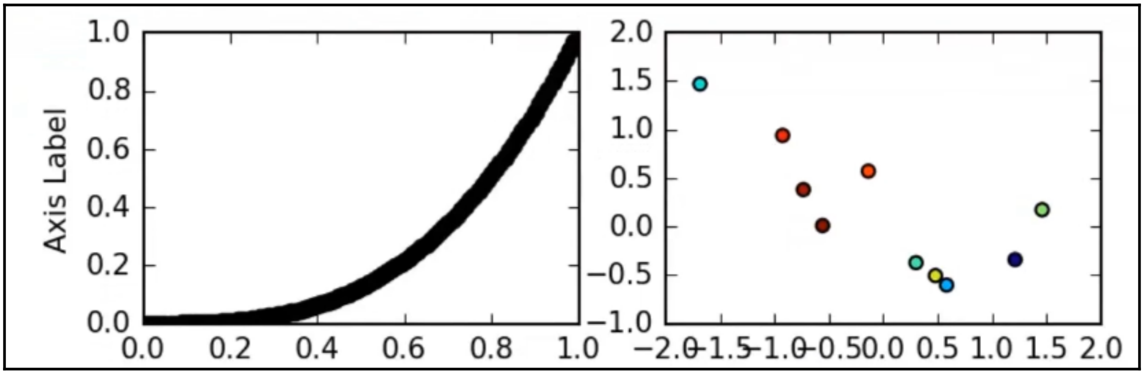
```
In [2]: %matplotlib inline
        # Set up figure size
        plt.rcParams['figure.figsize'] = (6,4)
        plt.rcParams['figure.dpi'] = 150
```

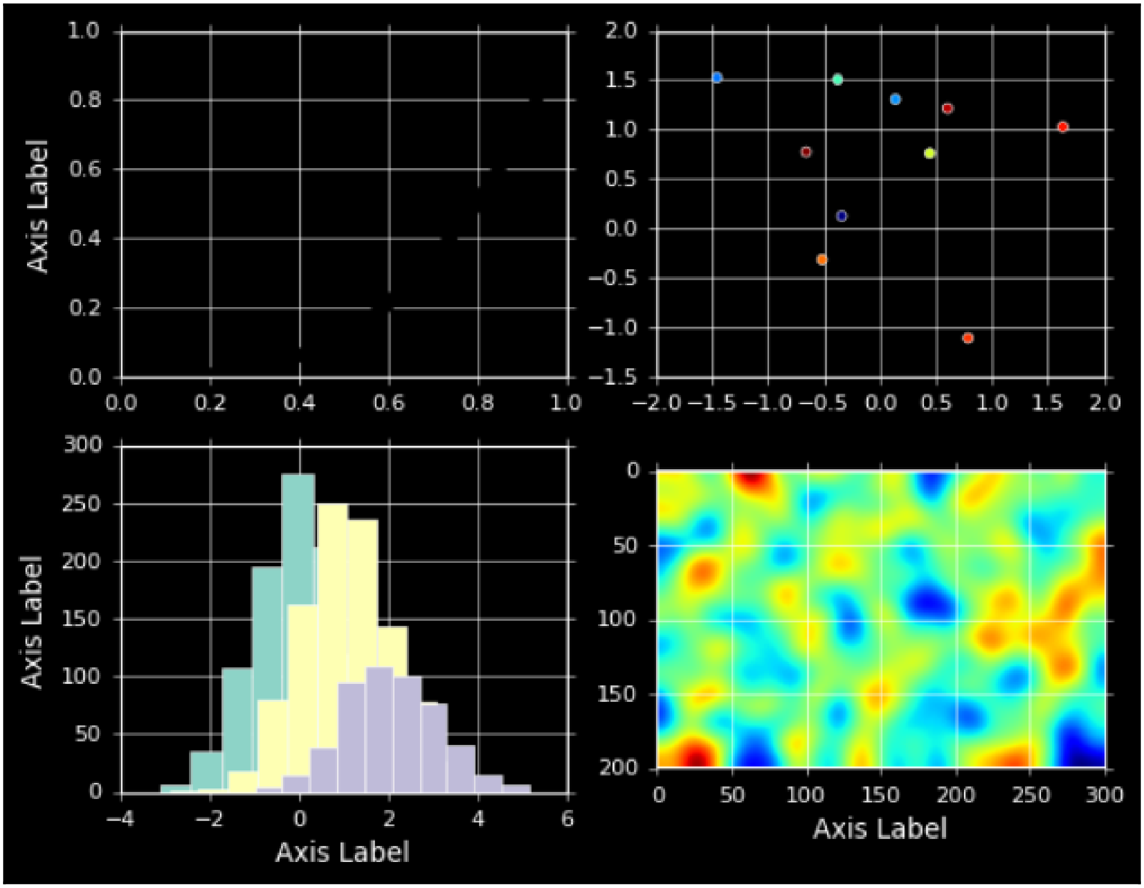
```
In [3]: from scipy.ndimage.filters import gaussian_filter
        plt.subplot(221)
        plt.text(0.5, 0.5, 'hello')
        plt.plot(np.arange(0,1,0.01), np.power(np.arange(0,1,0.01), 3))
        plt.ylabel('Axis Label')
        plt.subplot(222)
        plt.scatter(np.random.normal(size=10), np.random.normal(size=10), c=np.random.normal(size=10))
        plt.subplot(223)
        plt.hist(np.random.normal(size=1000));
        plt.hist(np.random.normal(1, size=1000));
        plt.hist(np.random.normal(2, size=500));
        plt.ylabel('Axis Label')
        plt.xlabel('Axis Label')
        plt.subplot(224)
        plt.imshow(gaussian_filter(np.random.normal(size=(200,300)), sigma=10))
        plt.xlabel('Axis Label')
```

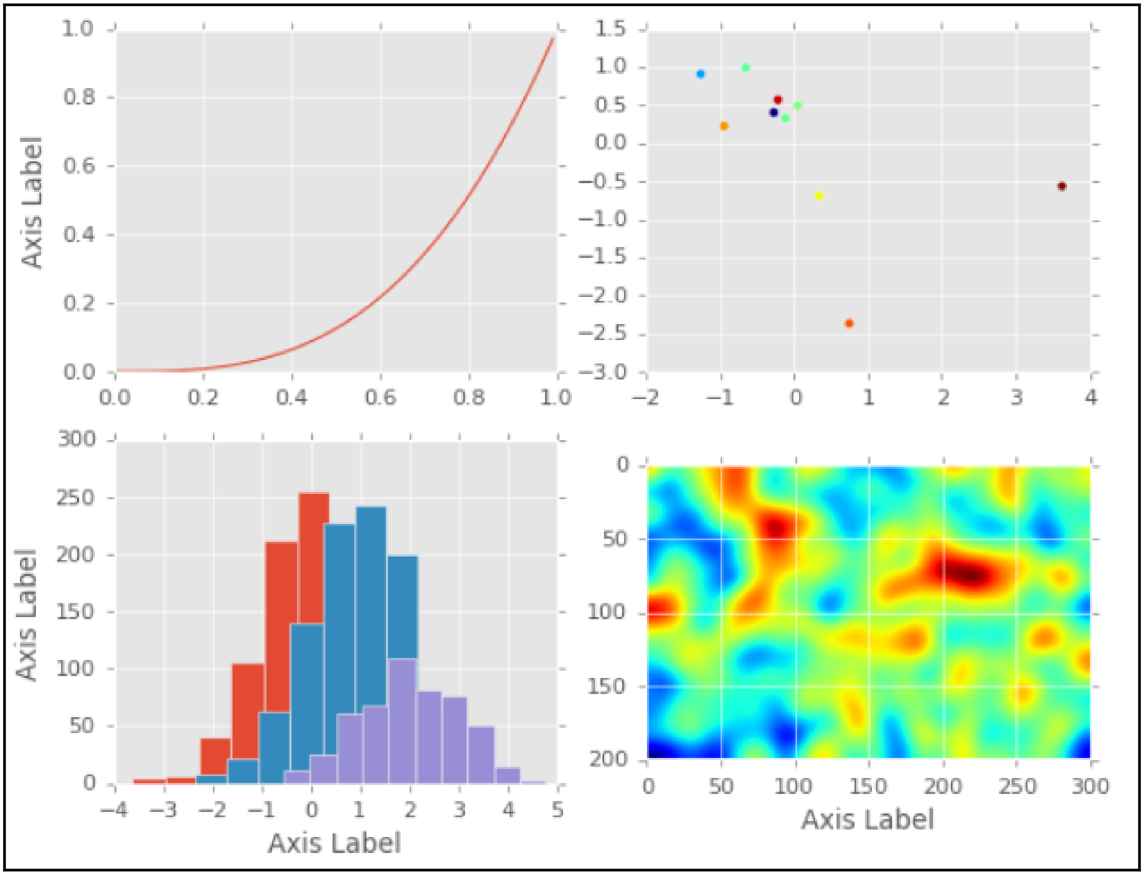


```
In [4]: # What styles are available?
        plt.style.available

Out[4]: ['bmh',
         'classic',
         'dark_background',
         'fivethirtyeight',
         'ggplot',
         'grayscale',
         'seaborn-bright',
         'seaborn-colorblind',
         'seaborn-dark-palette',
         'seaborn-dark',
         'seaborn-darkgrid',
         'seaborn-deep',
         'seaborn-muted',
         'seaborn-notebook',
         'seaborn-paper',
         'seaborn-pastel',
         'seaborn-poster',
         'seaborn-talk',
         'seaborn-ticks',
         'seaborn-white',
         'seaborn-whitegrid',
         'seaborn',
         '_classic_test']
```

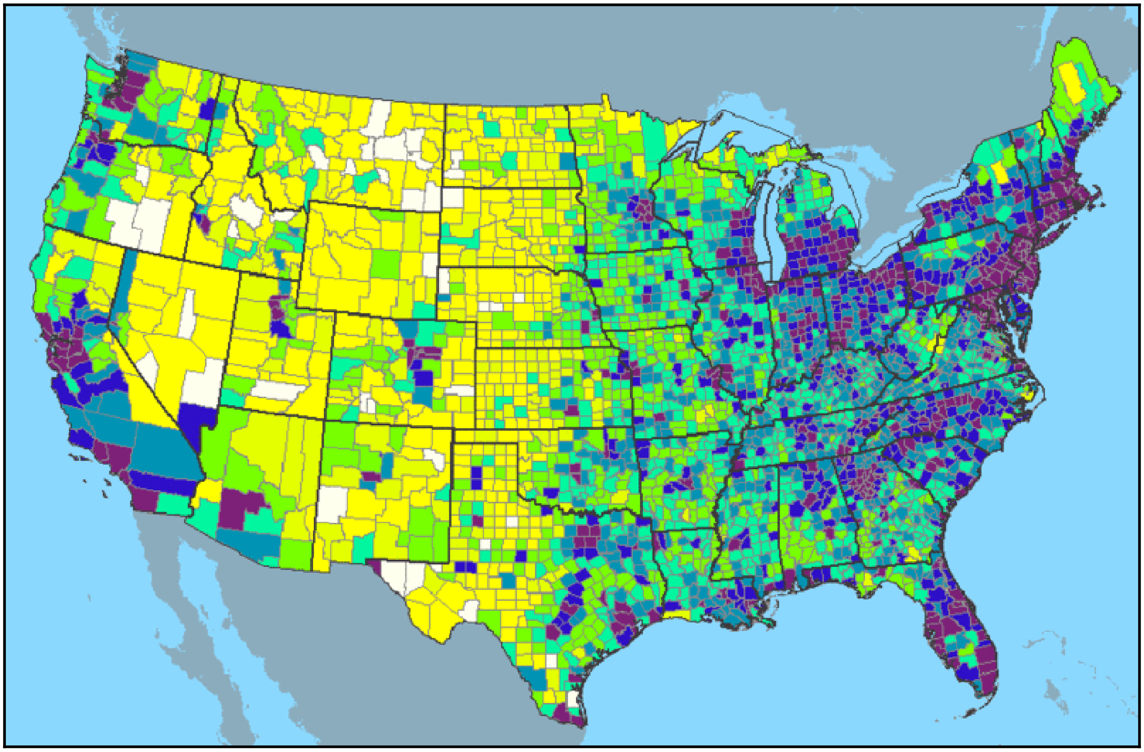

Axis Label
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−3
−2
−1
0
1
2
3

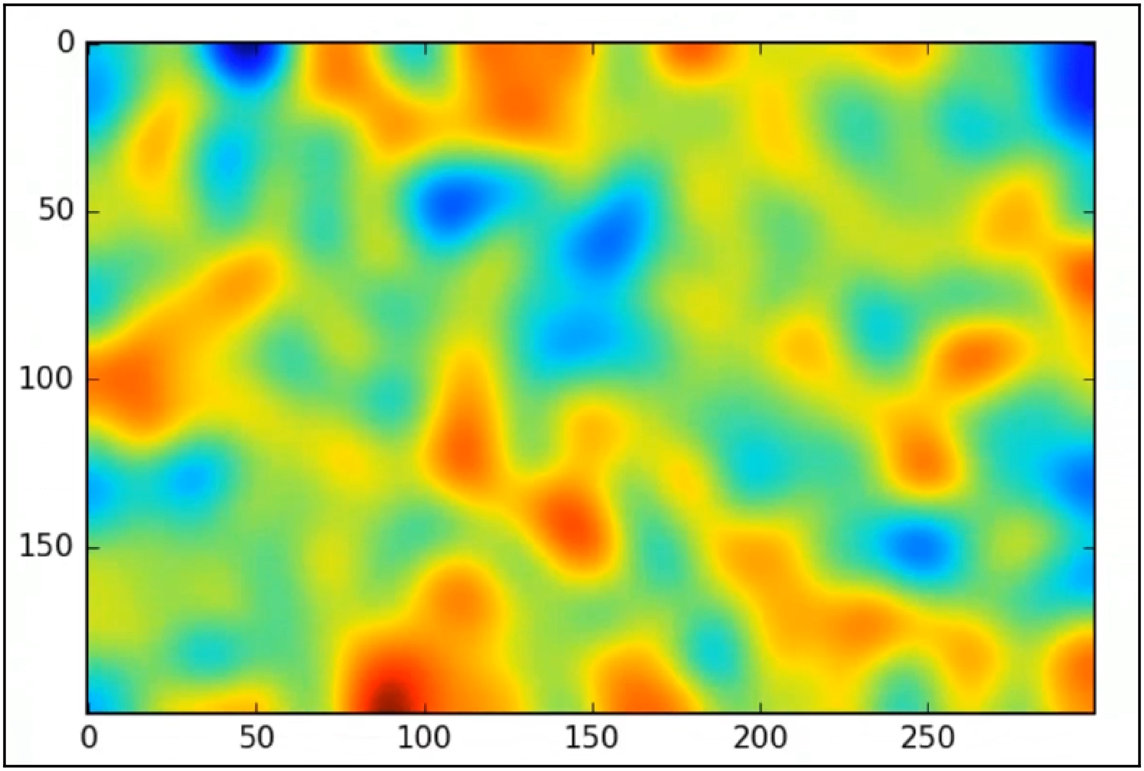

Axis Label
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0

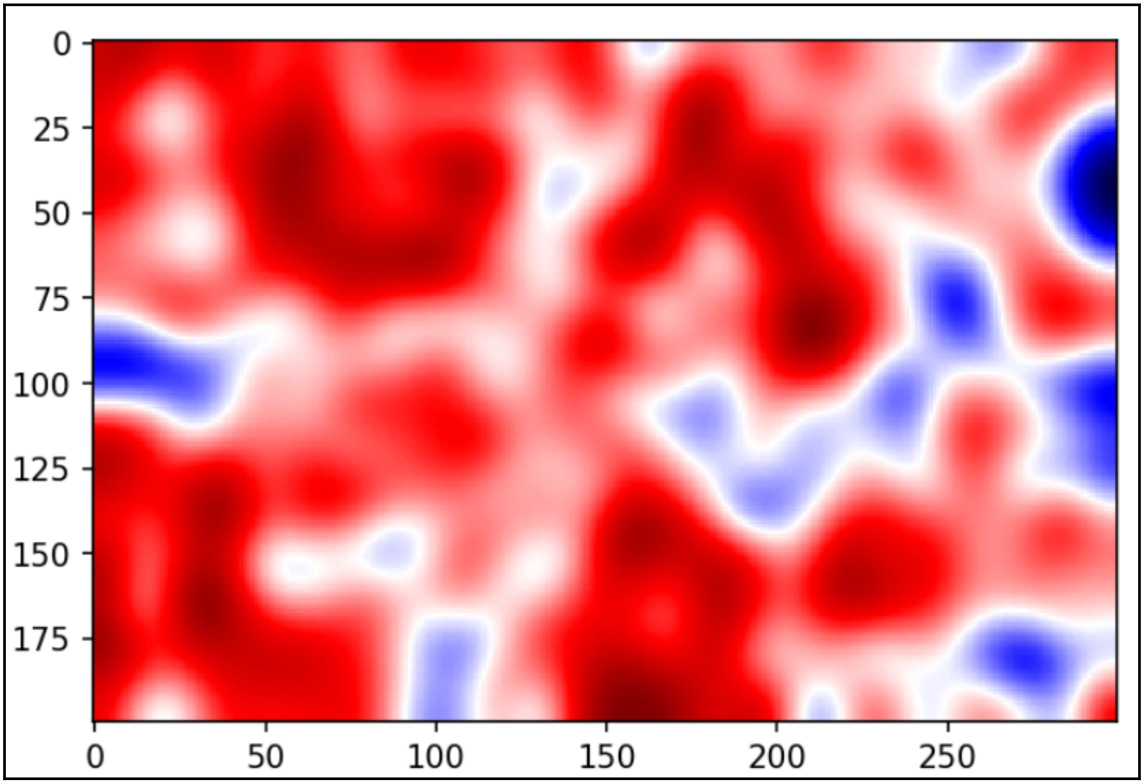

Axis Label
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
Axis Label
300
250
200
150
100
50
0
−4
−2
0
2
4
6
Axis Label
0
50
100
150
200
0
50
100
150
200
250
300
Axis Label

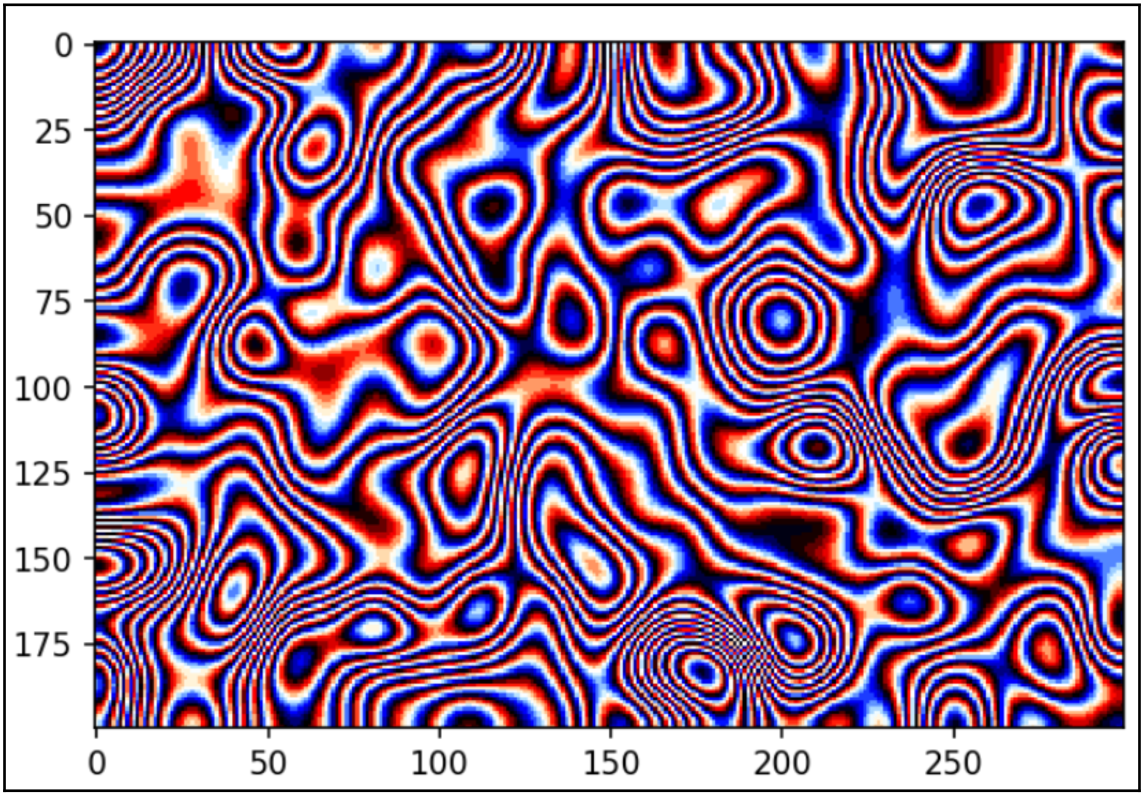


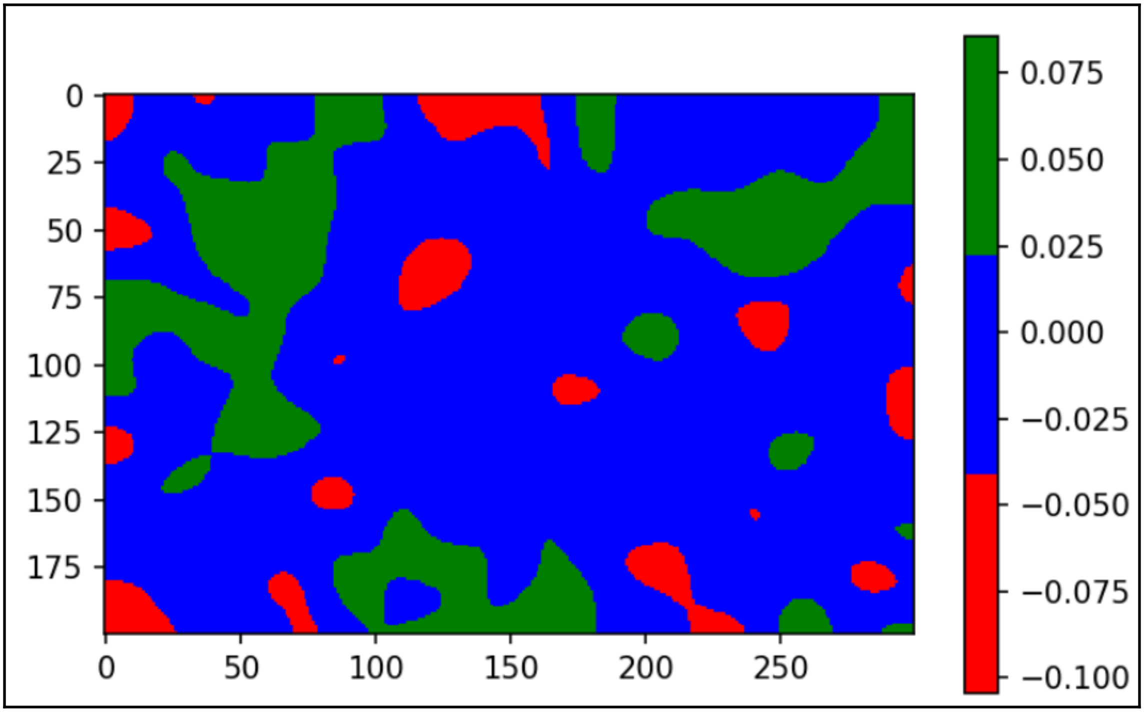
1.0
0.8
0.6
0.4
0.2
0.0
Axis Label
0.0
0.2
0.4
0.6
0.8
1.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
−3.0
−2
−1
0
1
2
3
4
300
250
200
150
100
50
0
Axis Label
−4
−3
−2
−1
0
1
2
3
4
5
Axis Label
0
50
100
150
200
0
50
100
150
200
250
300
Axis Label

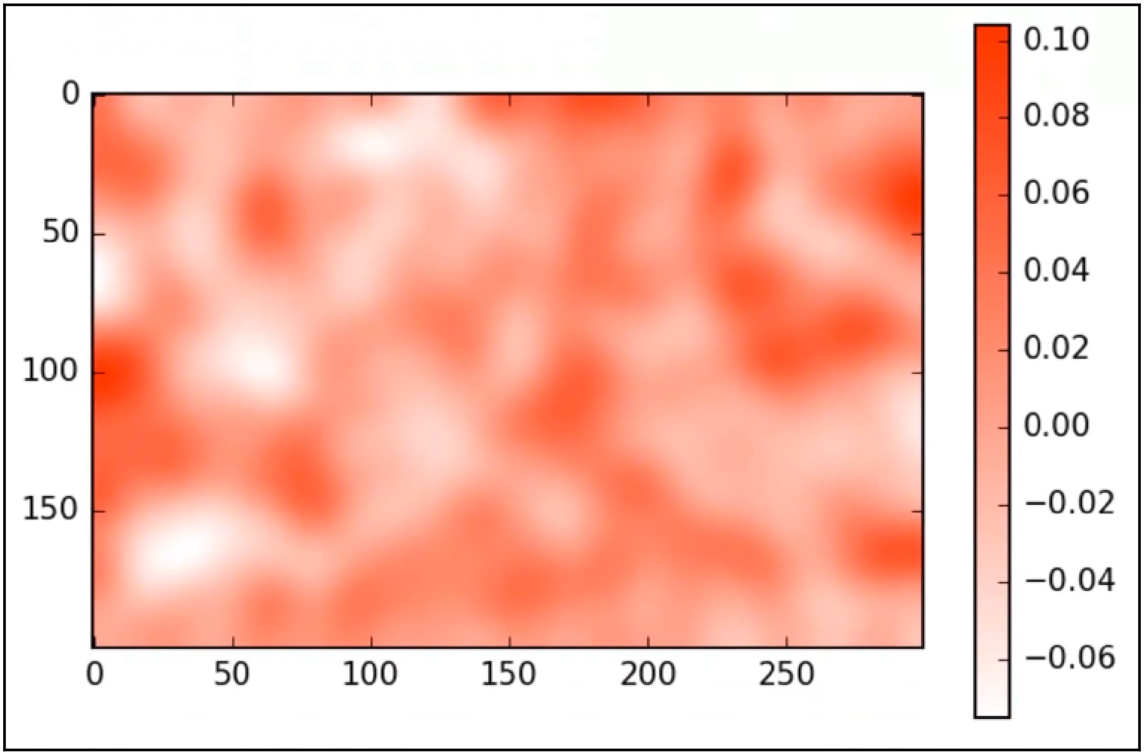


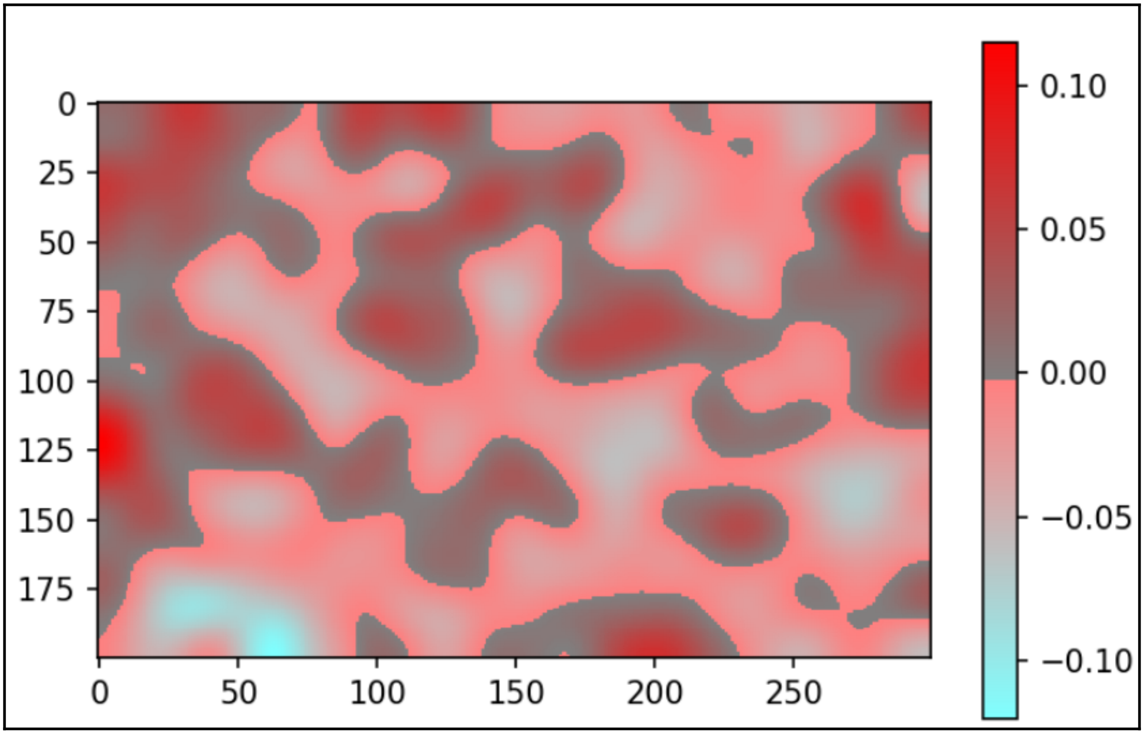

0
50
100
150
0
50
100
150
200
250

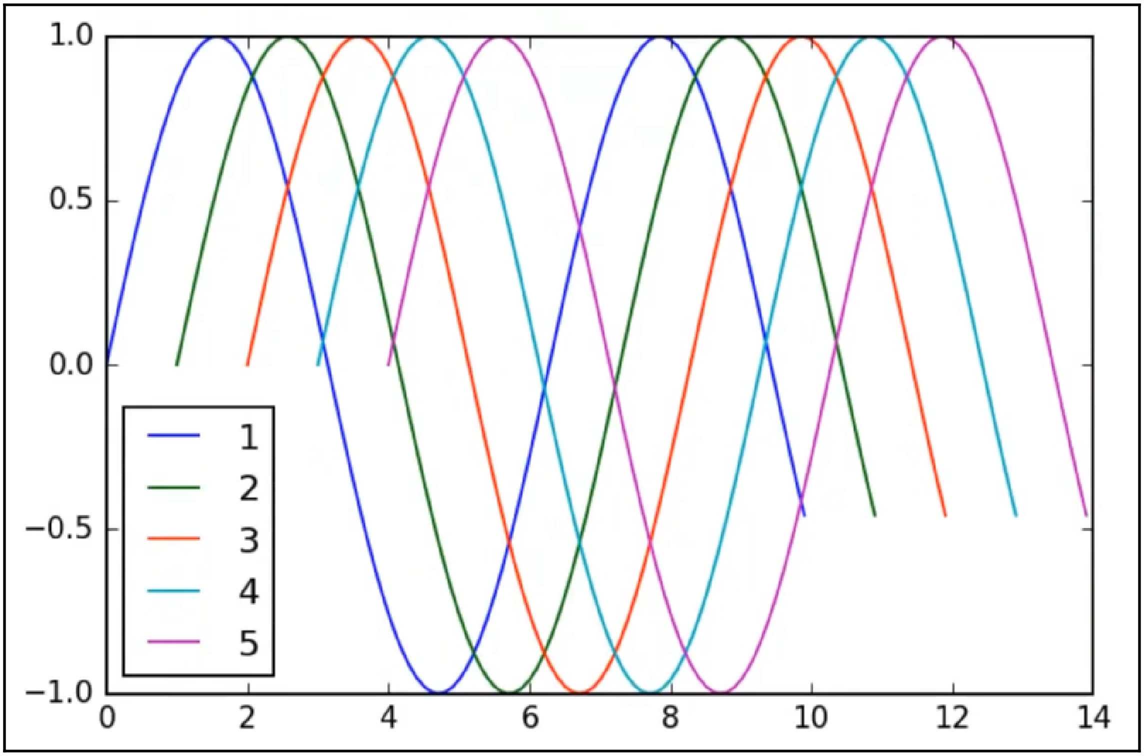

0
25
50
75
100
125
150
175
0
50
100
150
200
250

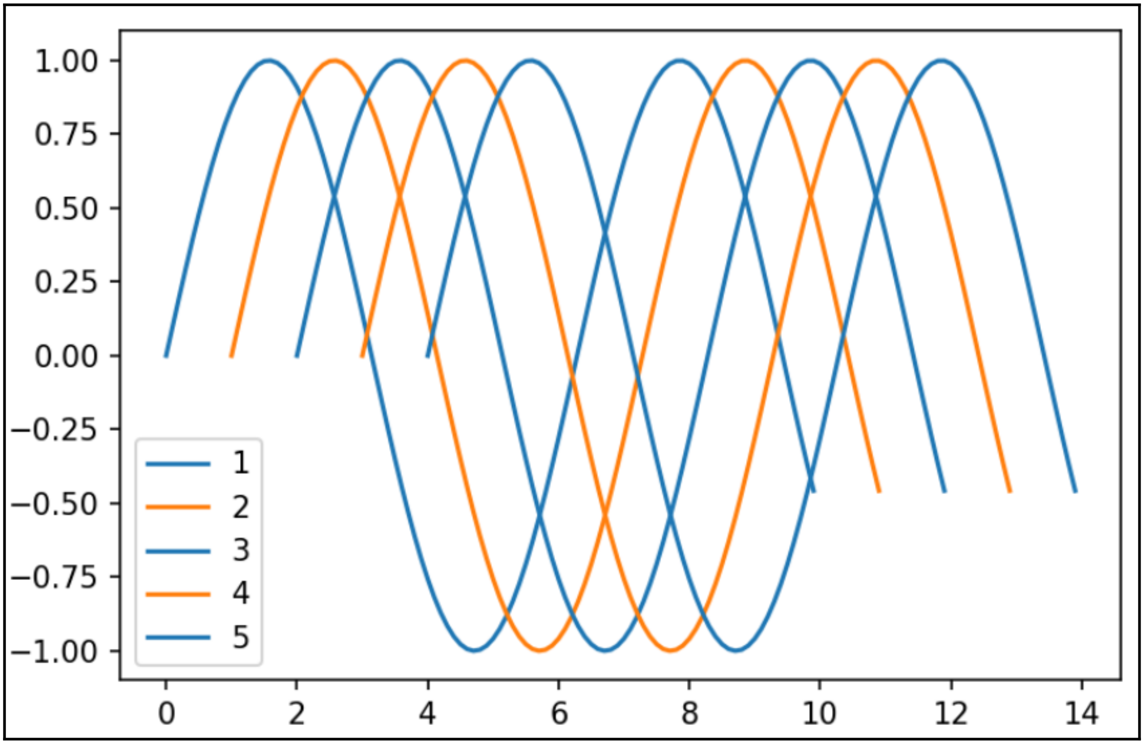

0
25
50
75
100
125
150
175
0
50
100
150
200
250

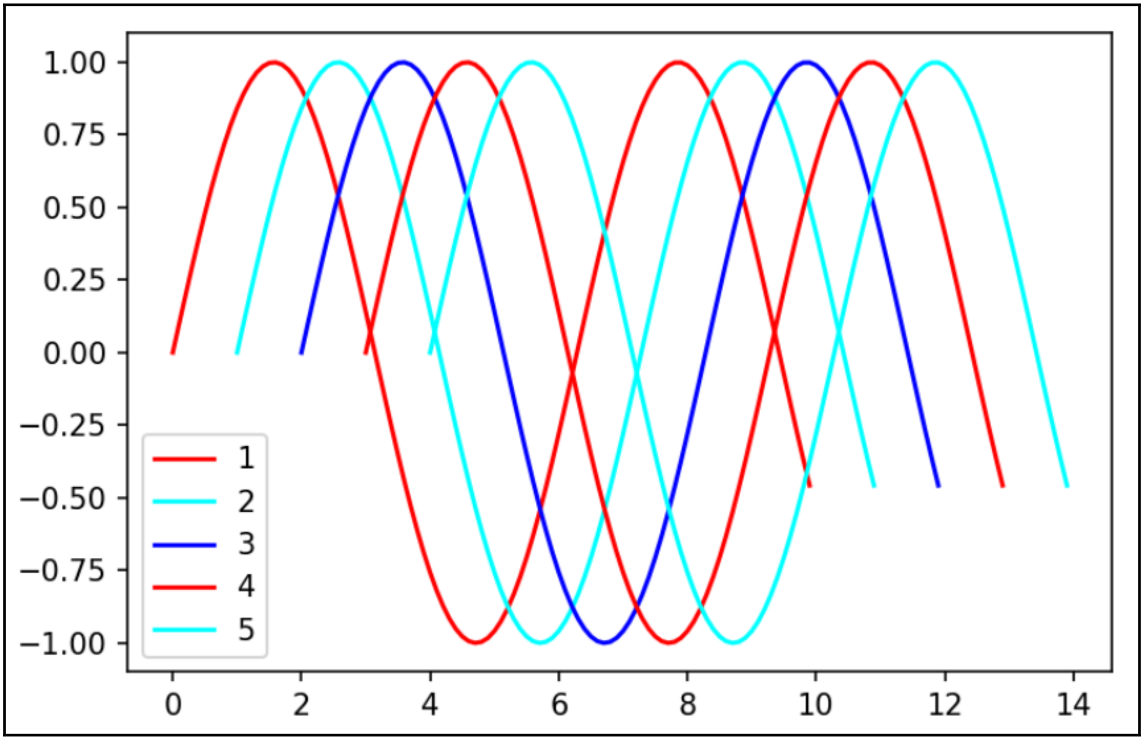

0
25
50
75
100
125
150
175
0
50
100
150
200
250
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
−0.100

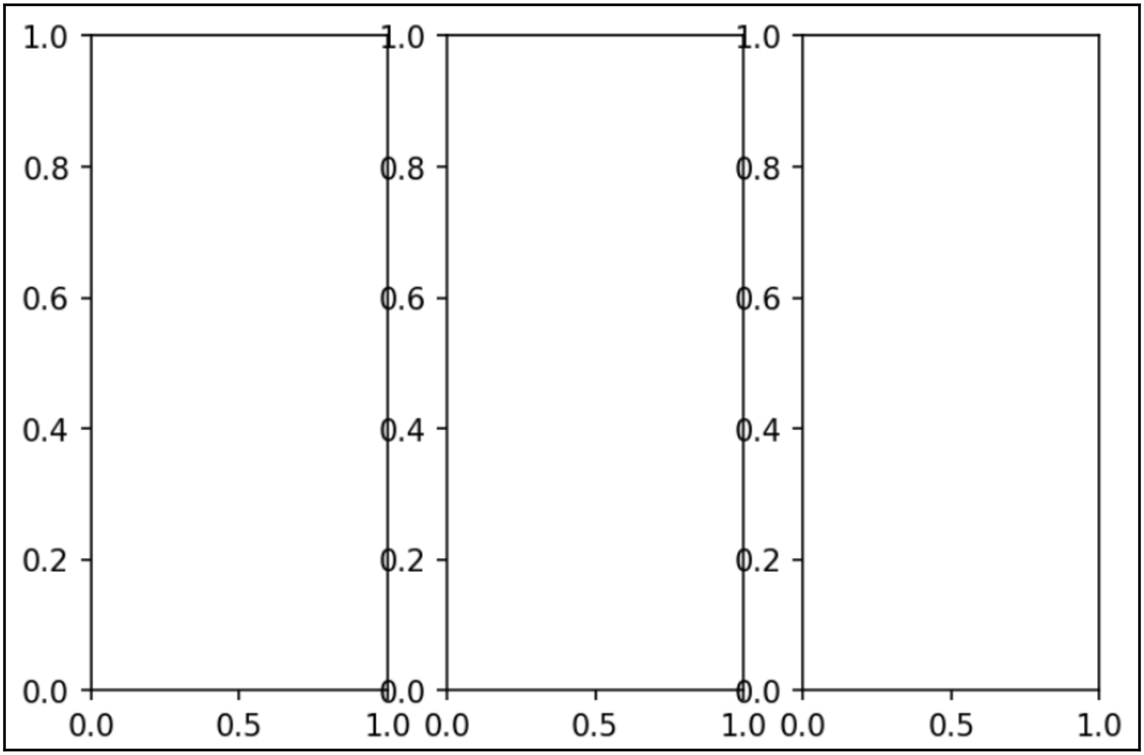

0
50
100
150
0
50
100
150
200
250
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06

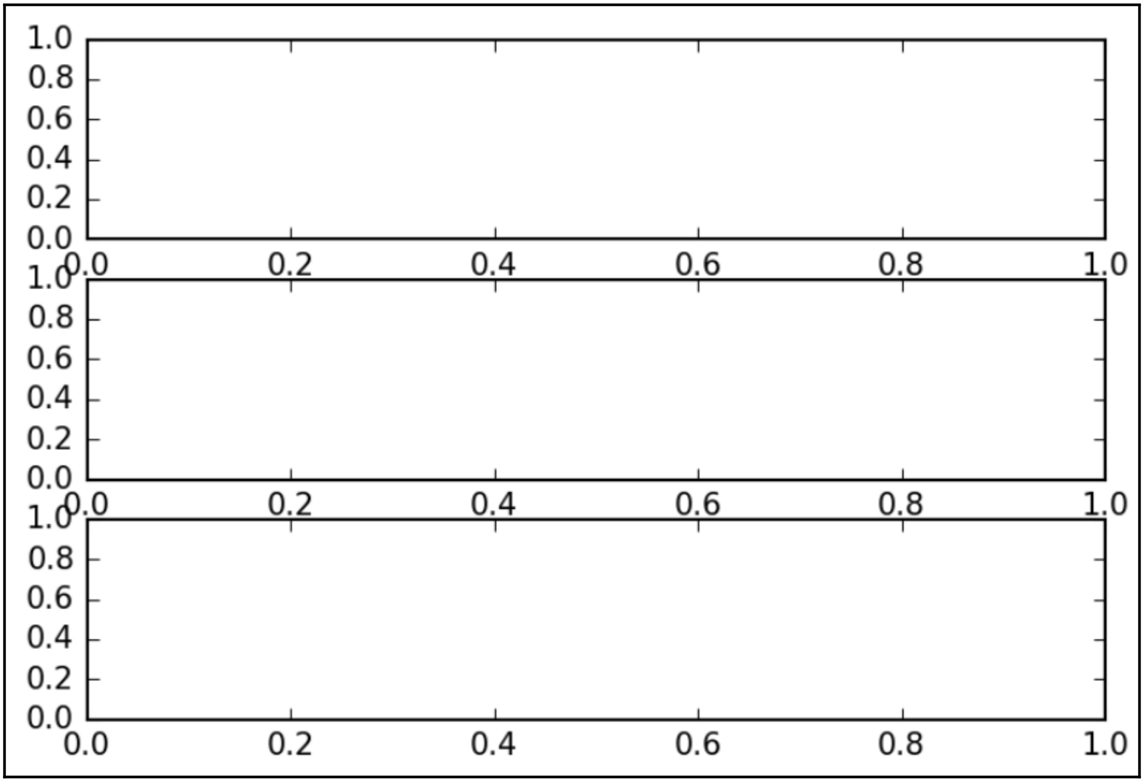

0
25
50
75
100
125
150
175
0
50
100
150
200
250
0.10
0.05
0.00
−0.05
−0.10

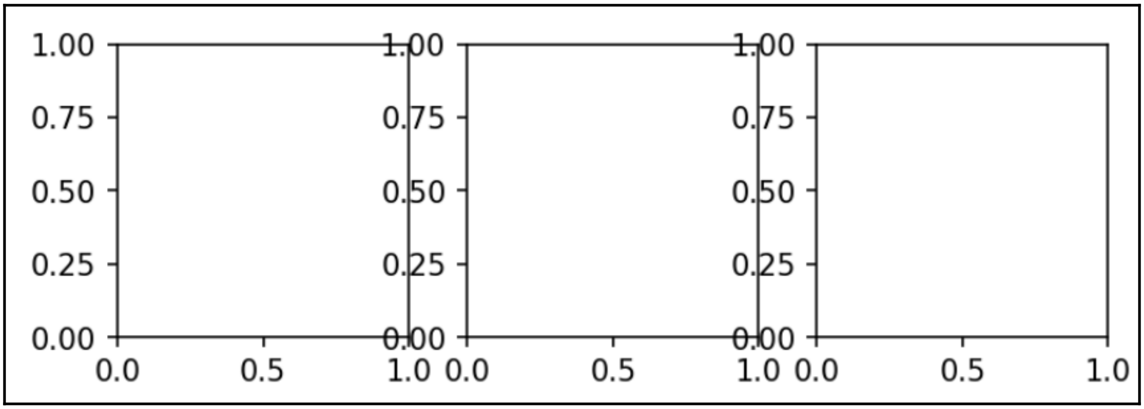

1.0
0.5
0.0
−0.5
−1.0
0
2
4
6
8
10
12
14
1
2
3
4
5

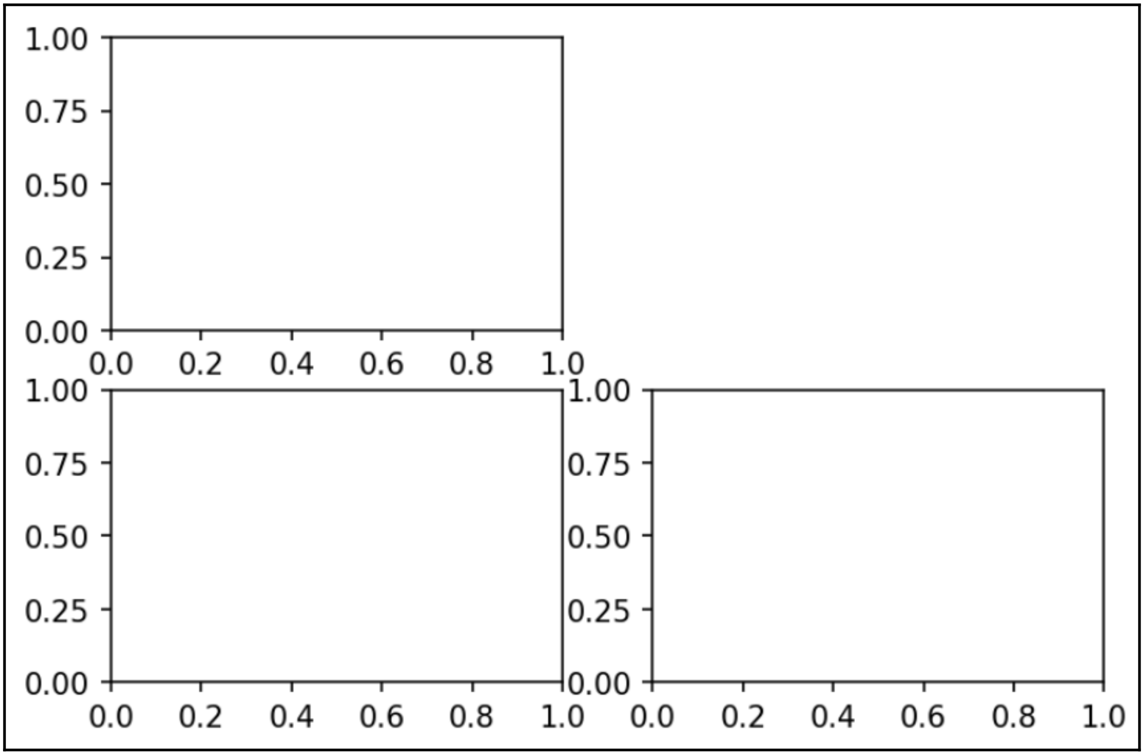

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
12
14
1
2
3
4
5

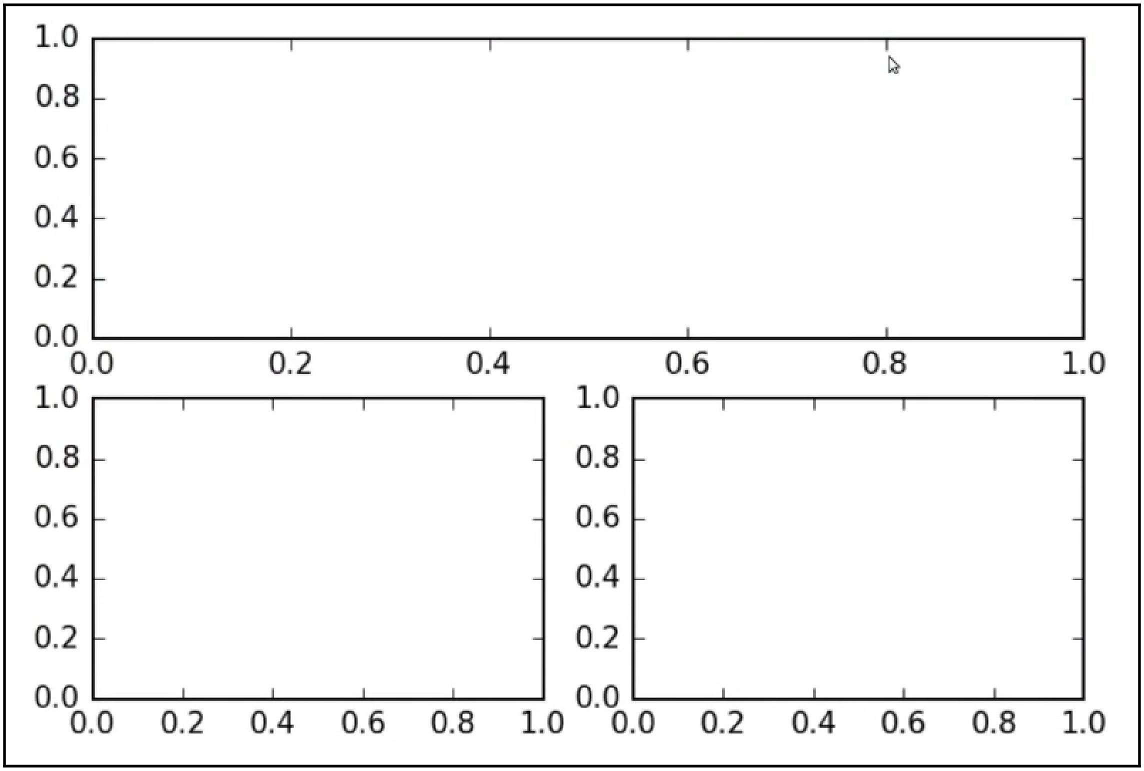

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
12
14
1
2
3
4
5

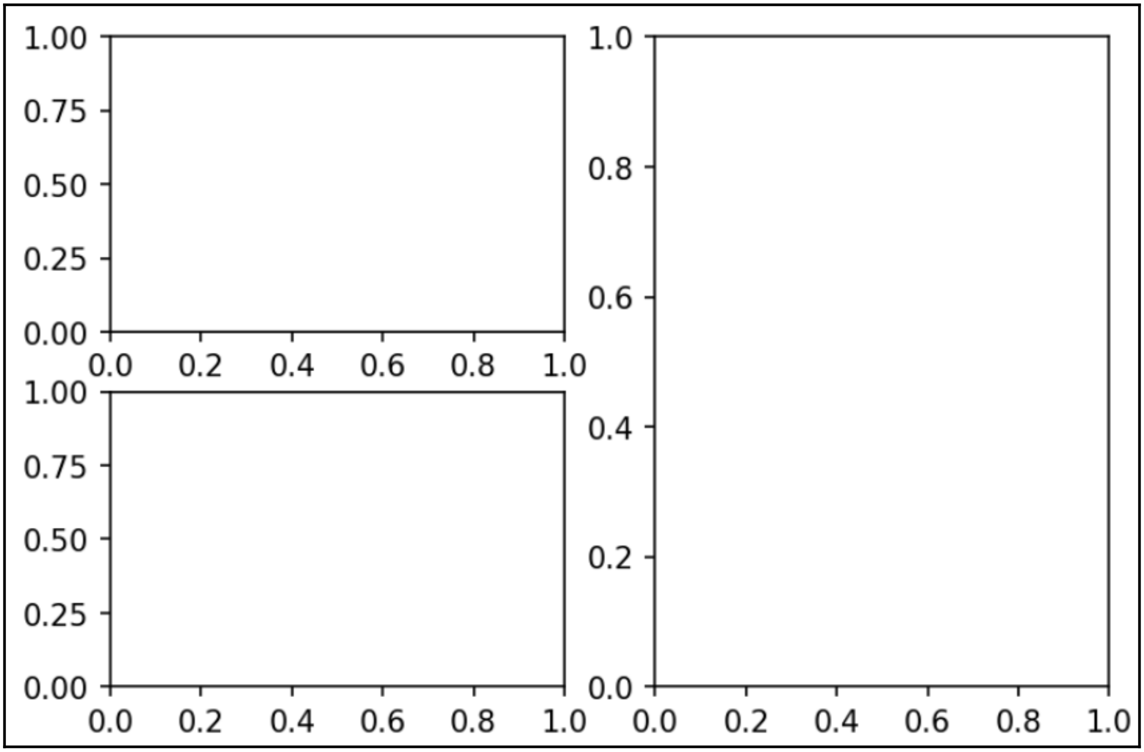

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0

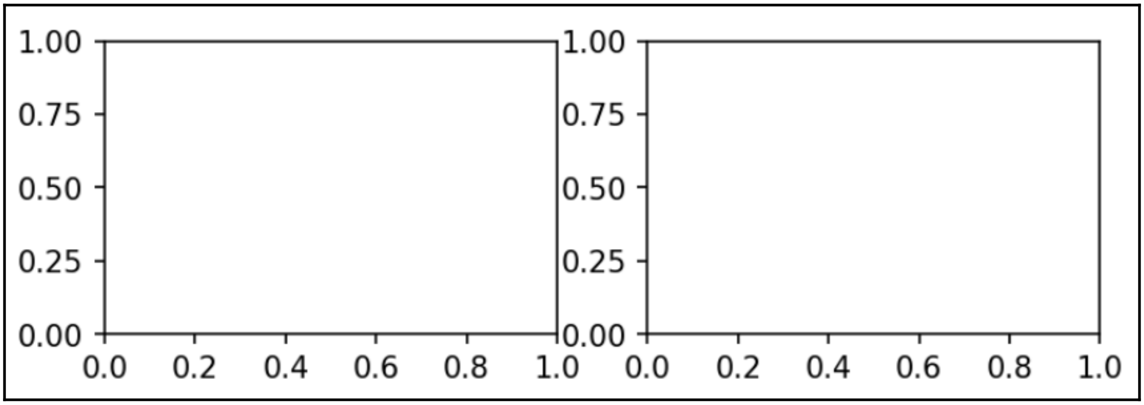

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

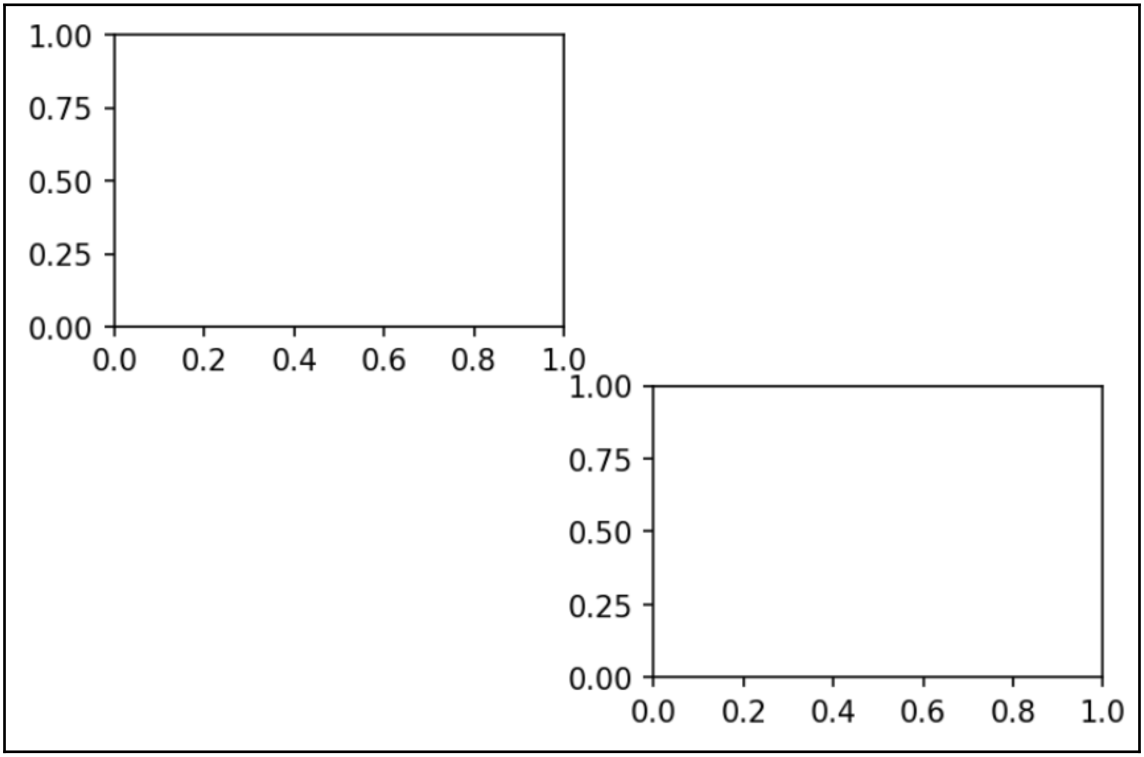

1.00
0.75
0.50
0.25
0.00
0.0
0.5
1.0

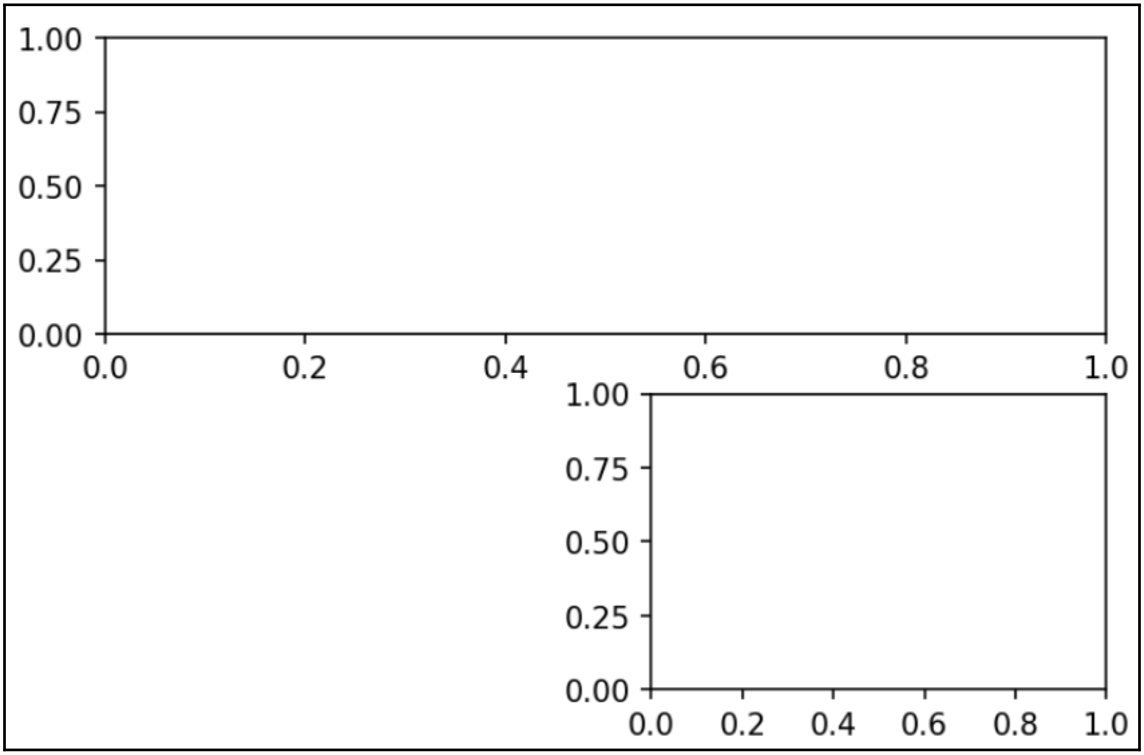

1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0
1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0
1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0

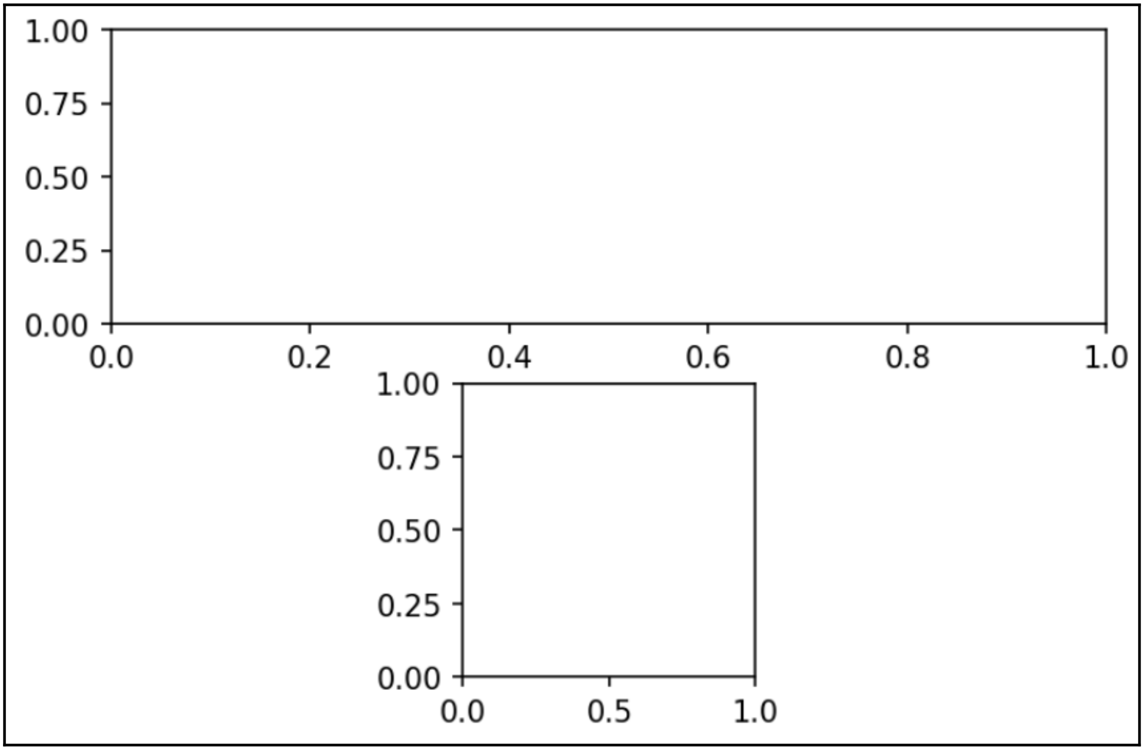

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

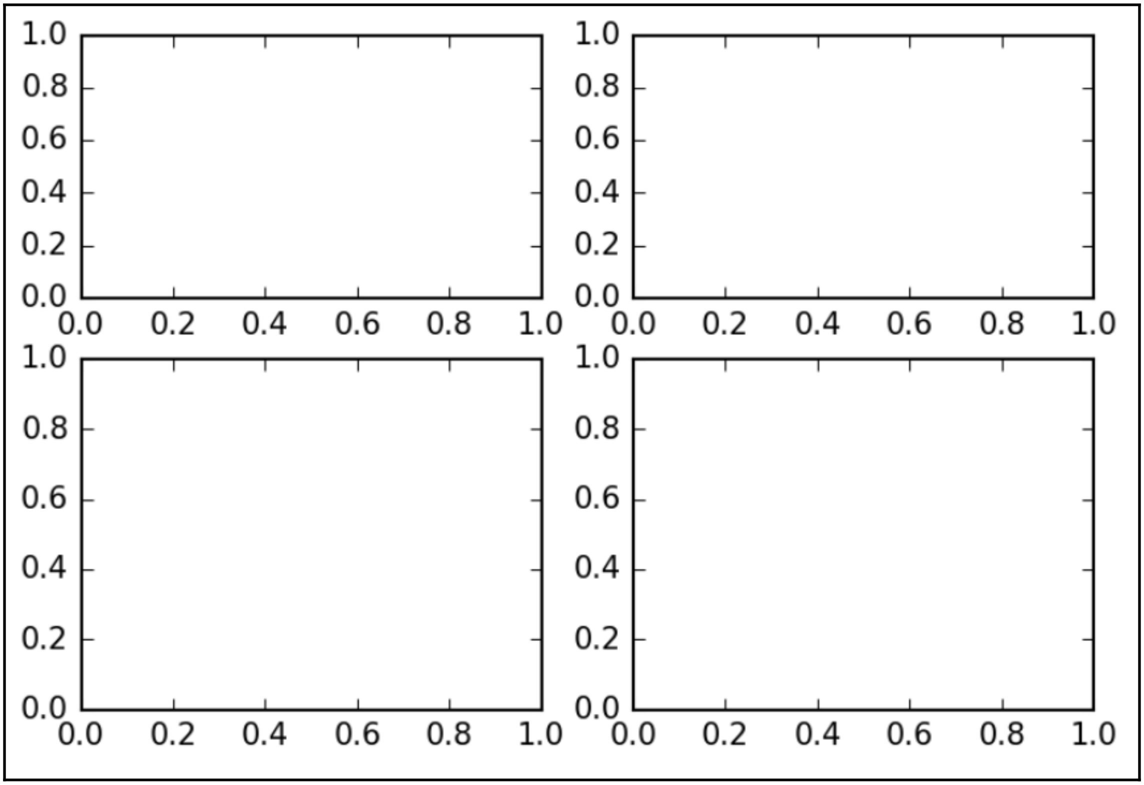

1.00
0.75
0.50
0.25
0.00
0.0 0.2 0.4 0.6 0.8 1.0
1.00
0.75
0.50
0.25
0.00
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0

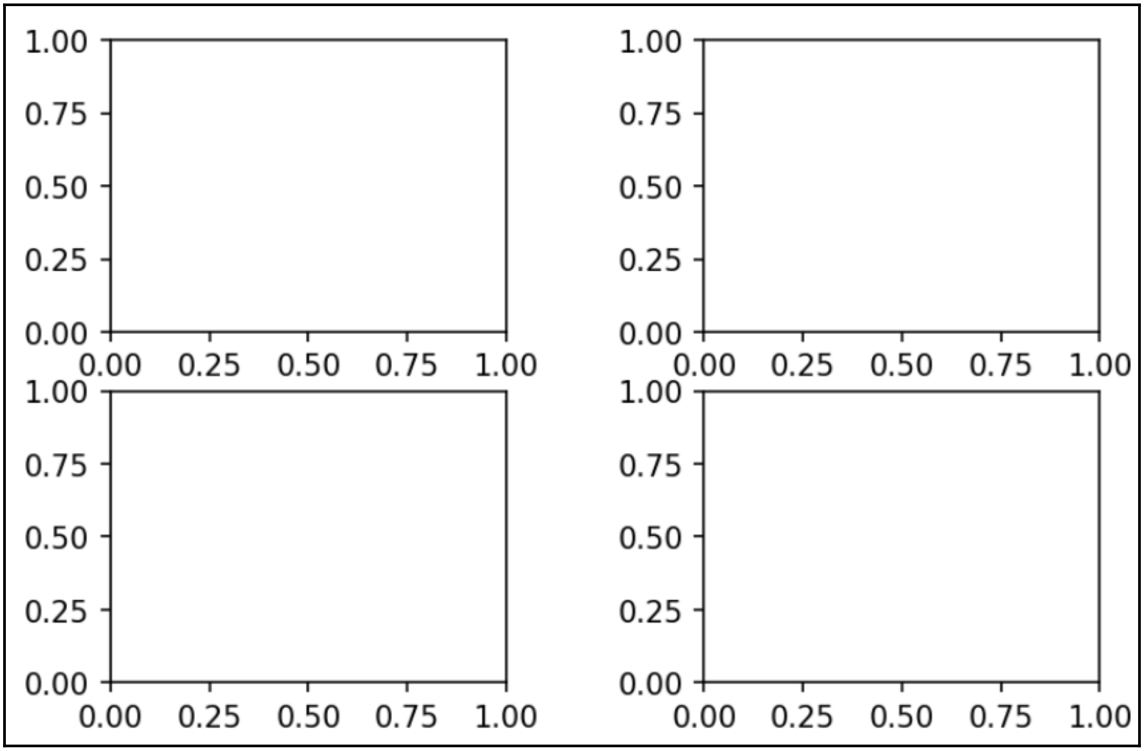

1.00
0.75
0.50
0.25
0.00
0.0 0.2 0.4 0.6 0.8 1.0
1.00
0.75
0.50
0.25
0.00
0.0 0.2 0.4 0.6 0.8 1.0

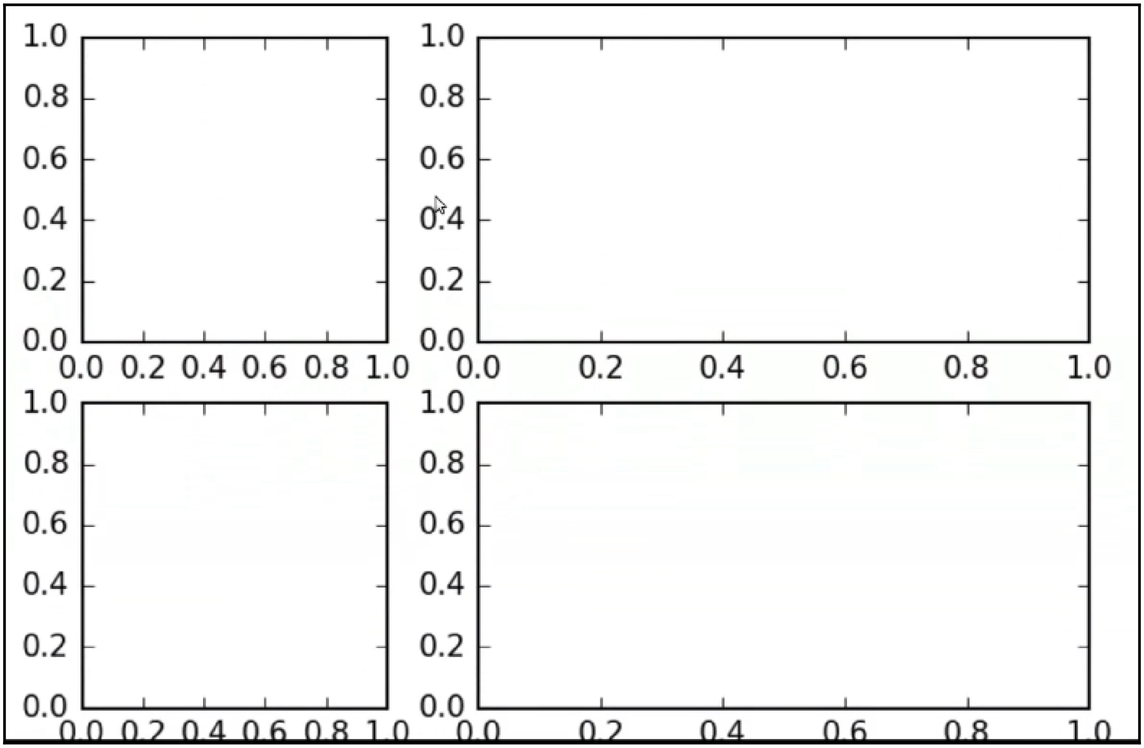

1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0
1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0

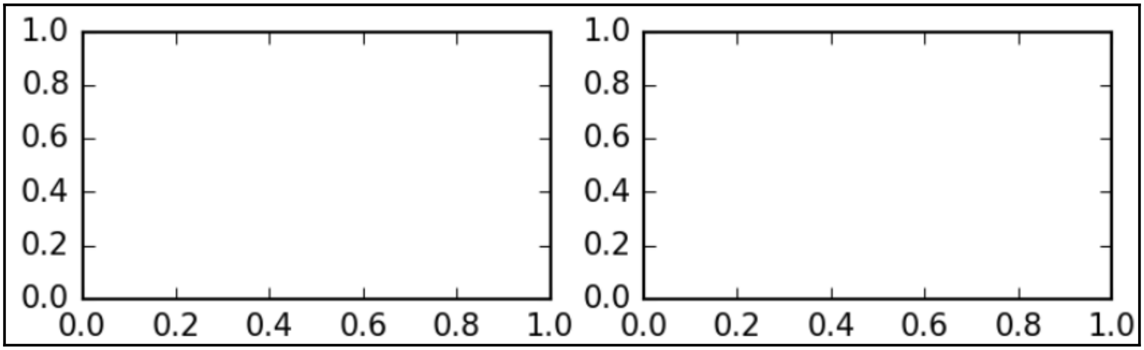

1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0
1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0

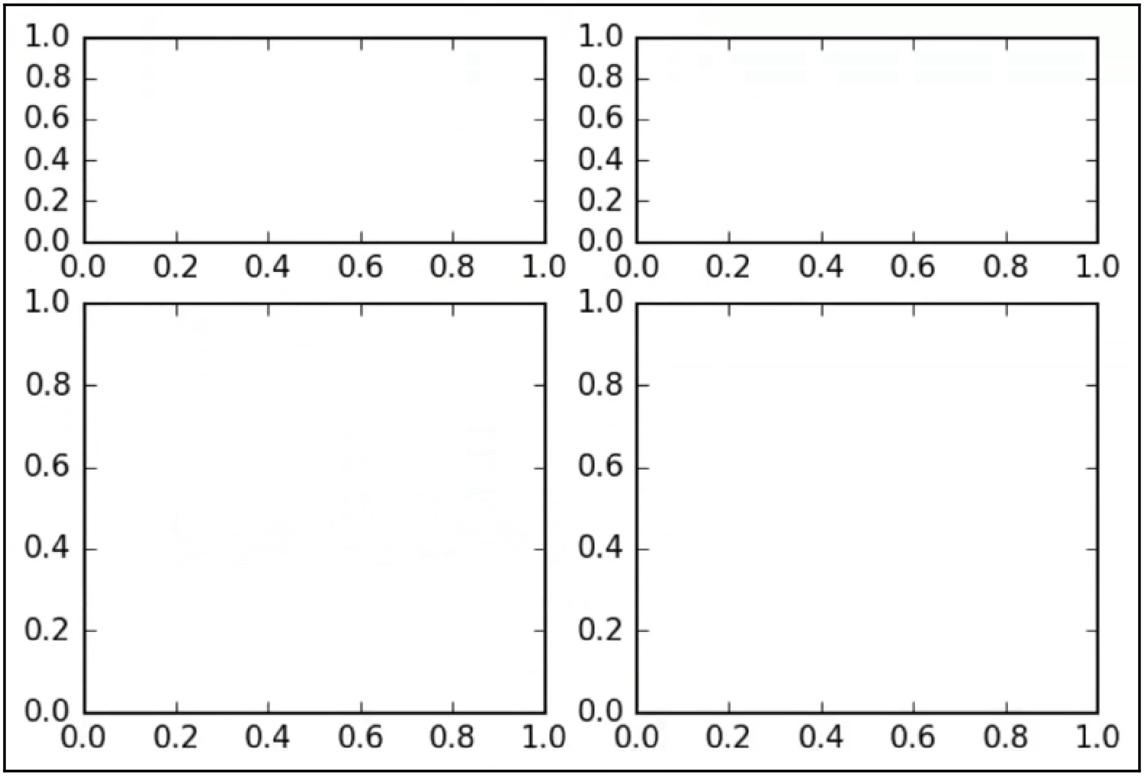

1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0
1.00
0.75
0.50
0.25
0.00
0.0
0.5
1.0

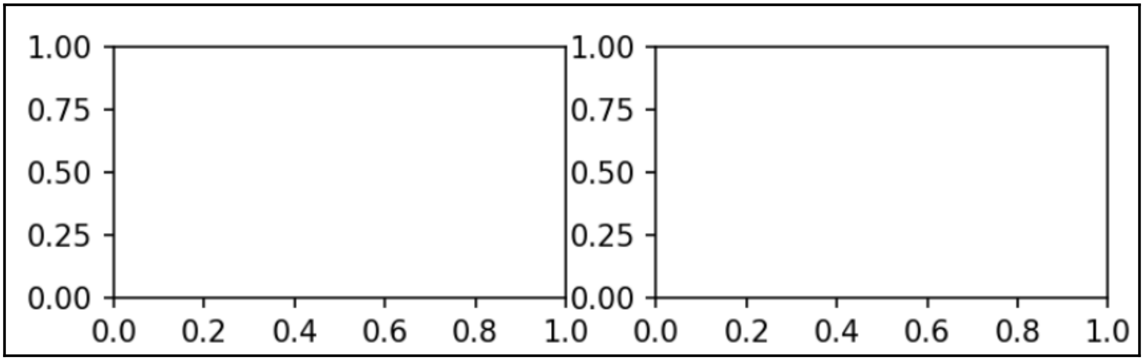

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

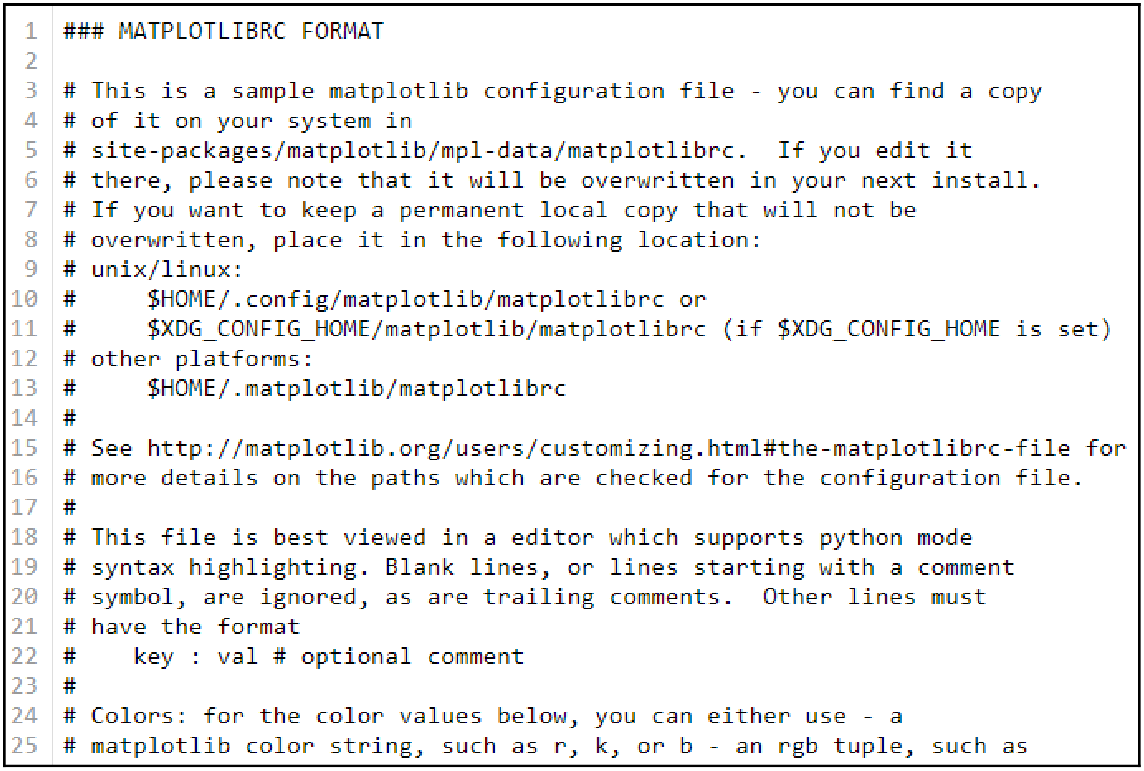

1.00
0.75
0.50
0.25
0.00
0.00 0.25 0.50 0.75 1.00


1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0

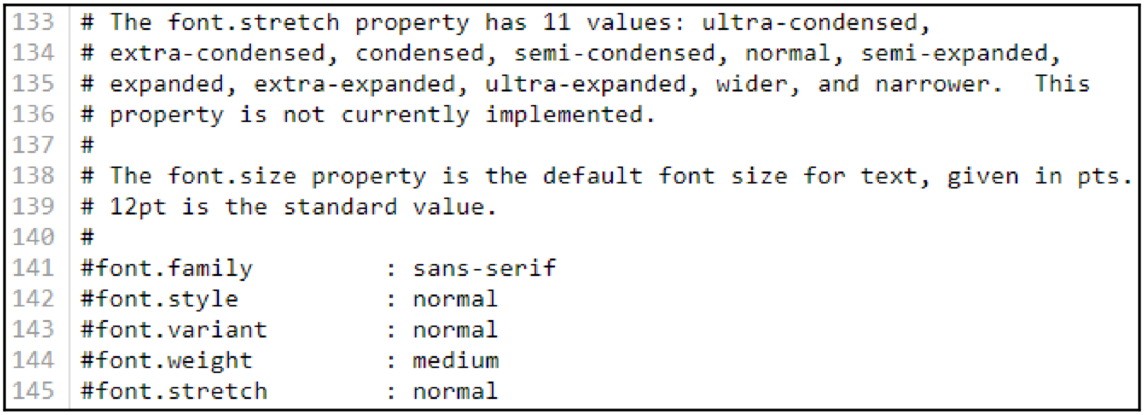

1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0


1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0
1.0
0.8
0.6
0.4
0.2
0.0
0.0 0.2 0.4 0.6 0.8 1.0

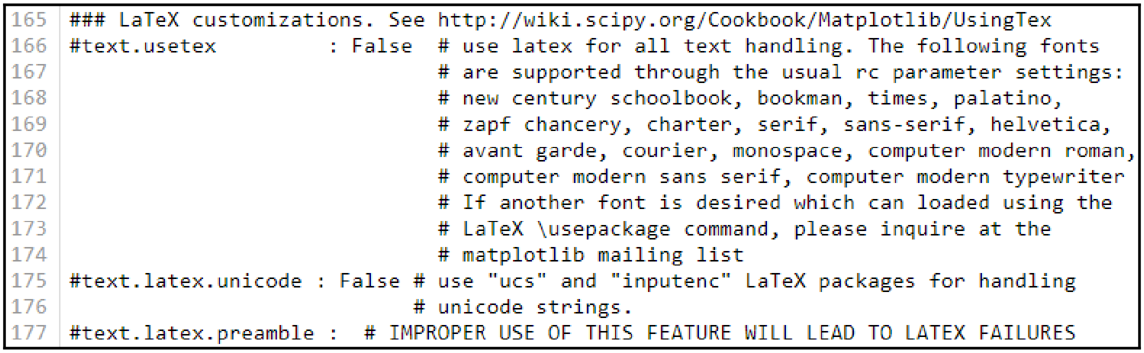

1.00
0.75
0.50
0.25
0.00
0.0 0.2 0.4 0.6 0.8 1.0
1.00
0.75
0.50
0.25
0.00
0.0 0.2 0.4 0.6 0.8 1.0



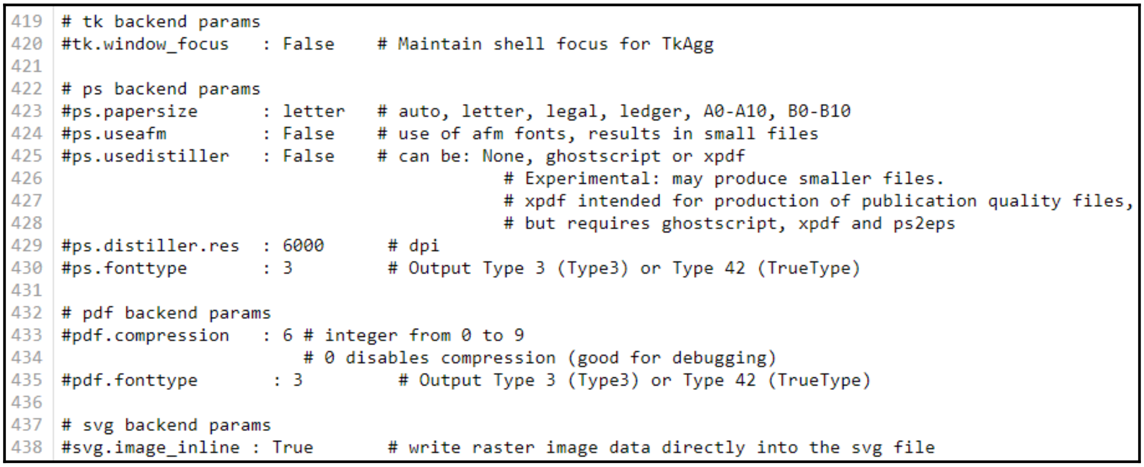
```
### MATPLOTLIBRC FORMAT

# This is a sample matplotlib configuration file - you can find a copy
# of it on your system in
# site-packages/matplotlib/mpl-data/matplotlibrc.  If you edit it
# there, please note that it will be overwritten in your next install.
# If you want to keep a permanent local copy that will not be
# overwritten, place it in the following location:
# unix/linux:
#     $HOME/.config/matplotlib/matplotlibrc or
#     $XDG_CONFIG_HOME/matplotlib/matplotlibrc (if $XDG_CONFIG_HOME is set)
# other platforms:
#     $HOME/.matplotlib/matplotlibrc
#
# See http://matplotlib.org/users/customizing.html#the-matplotlibrc-file for
# more details on the paths which are checked for the configuration file.
#
# This file is best viewed in a editor which supports python mode
# syntax highlighting. Blank lines, or lines starting with a comment
# symbol, are ignored, as are trailing comments.  Other lines must
# have the format
#    key : val # optional comment
#
# Colors: for the color values below, you can either use - a
# matplotlib color string, such as r, k, or b - an rgb tuple, such as
```



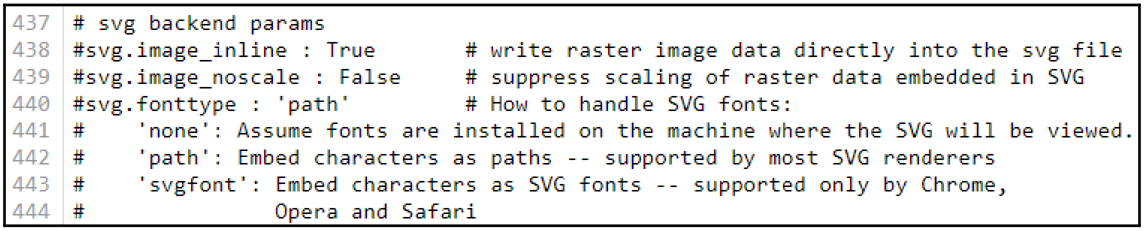
```
# The font.stretch property has 11 values: ultra-condensed,
# extra-condensed, condensed, semi-condensed, normal, semi-expanded,
# expanded, extra-expanded, ultra-expanded, wider, and narrower.  This
# property is not currently implemented.
#
# The font.size property is the default font size for text, given in pts.
# 12pt is the standard value.
#
#font.family         : sans-serif
#font.style          : normal
#font.variant        : normal
#font.weight         : medium
#font.stretch        : normal
```



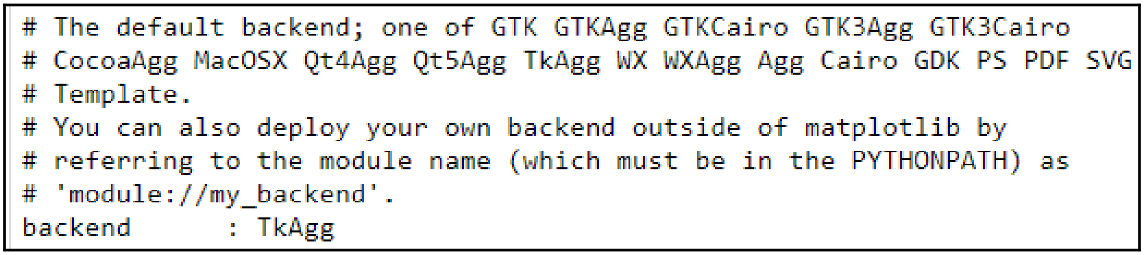
```
### LaTeX customizations. See http://wiki.scipy.org/Cookbook/Matplotlib/UsingTex
#text.usetex         : False  # use latex for all text handling. The following fonts
                              # are supported through the usual rc parameter settings:
                              # new century schoolbook, bookman, times, palatino,
                              # zapf chancery, charter, serif, sans-serif, helvetica,
                              # avant garde, courier, monospace, computer modern roman,
                              # computer modern sans serif, computer modern typewriter
                              # If another font is desired which can loaded using the
                              # LaTeX \usepackage command, please inquire at the
                              # matplotlib mailing list
#text.latex.unicode : False # use "ucs" and "inputenc" LaTeX packages for handling
                            # unicode strings.
#text.latex.preamble :  # IMPROPER USE OF THIS FEATURE WILL LEAD TO LATEX FAILURES
```



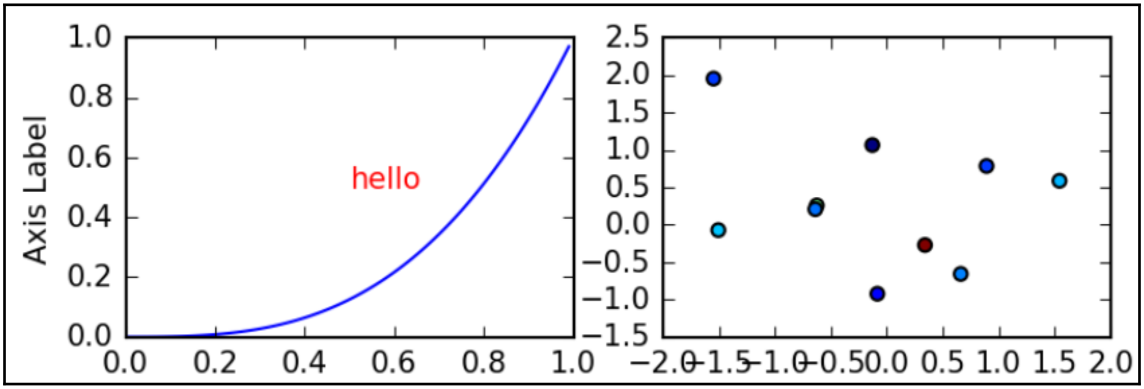
```
# tk backend params
#tk.window_focus   : False    # Maintain shell focus for TkAgg

# ps backend params
#ps.papersize      : letter   # auto, letter, legal, ledger, A0-A10, B0-B10
#ps.useafm         : False    # use of afm fonts, results in small files
#ps.usedistiller   : False    # can be: None, ghostscript or xpdf
                                          # Experimental: may produce smaller files.
                                          # xpdf intended for production of publication quality files,
                                          # but requires ghostscript, xpdf and ps2eps
#ps.distiller.res  : 6000      # dpi
#ps.fonttype       : 3         # Output Type 3 (Type3) or Type 42 (TrueType)

# pdf backend params
#pdf.compression   : 6 # integer from 0 to 9
                       # 0 disables compression (good for debugging)
#pdf.fonttype       : 3         # Output Type 3 (Type3) or Type 42 (TrueType)

# svg backend params
#svg.image_inline : True       # write raster image data directly into the svg file
```

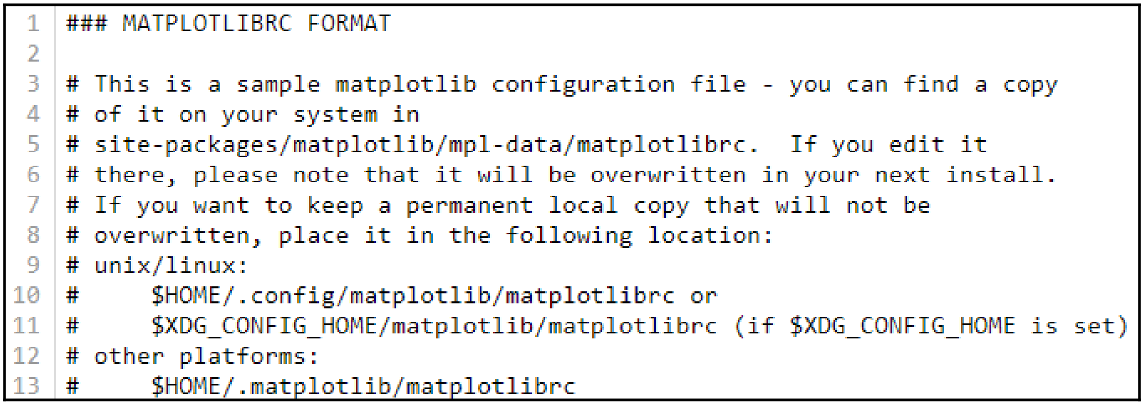


```
# svg backend params
#svg.image_inline : True       # write raster image data directly into the svg file
#svg.image_noscale : False     # suppress scaling of raster data embedded in SVG
#svg.fonttype : 'path'         # How to handle SVG fonts:
#    'none': Assume fonts are installed on the machine where the SVG will be viewed.
#    'path': Embed characters as paths -- supported by most SVG renderers
#    'svgfont': Embed characters as SVG fonts -- supported only by Chrome,
#               Opera and Safari
```



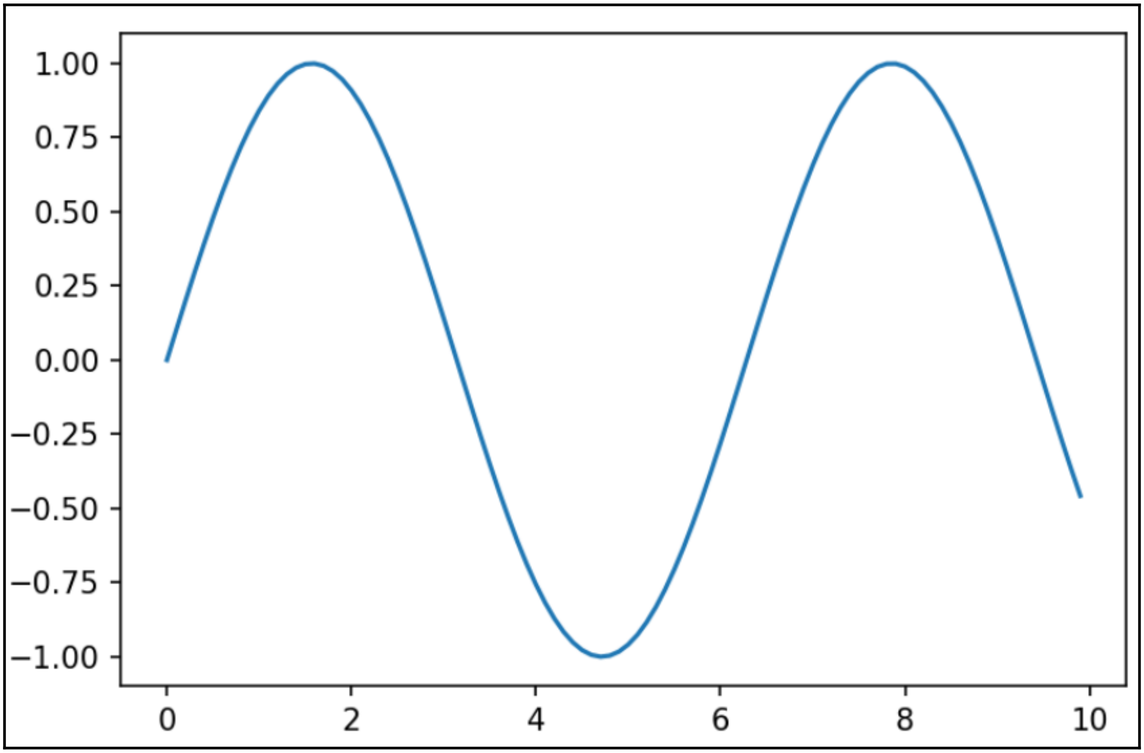
```
# The default backend; one of GTK GTKAgg GTKCairo GTK3Agg GTK3Cairo
# CocoaAgg MacOSX Qt4Agg Qt5Agg TkAgg WX WXAgg Agg Cairo GDK PS PDF SVG
# Template.
# You can also deploy your own backend outside of matplotlib by
# referring to the module name (which must be in the PYTHONPATH) as
# 'module://my_backend'.
backend      : TkAgg
```

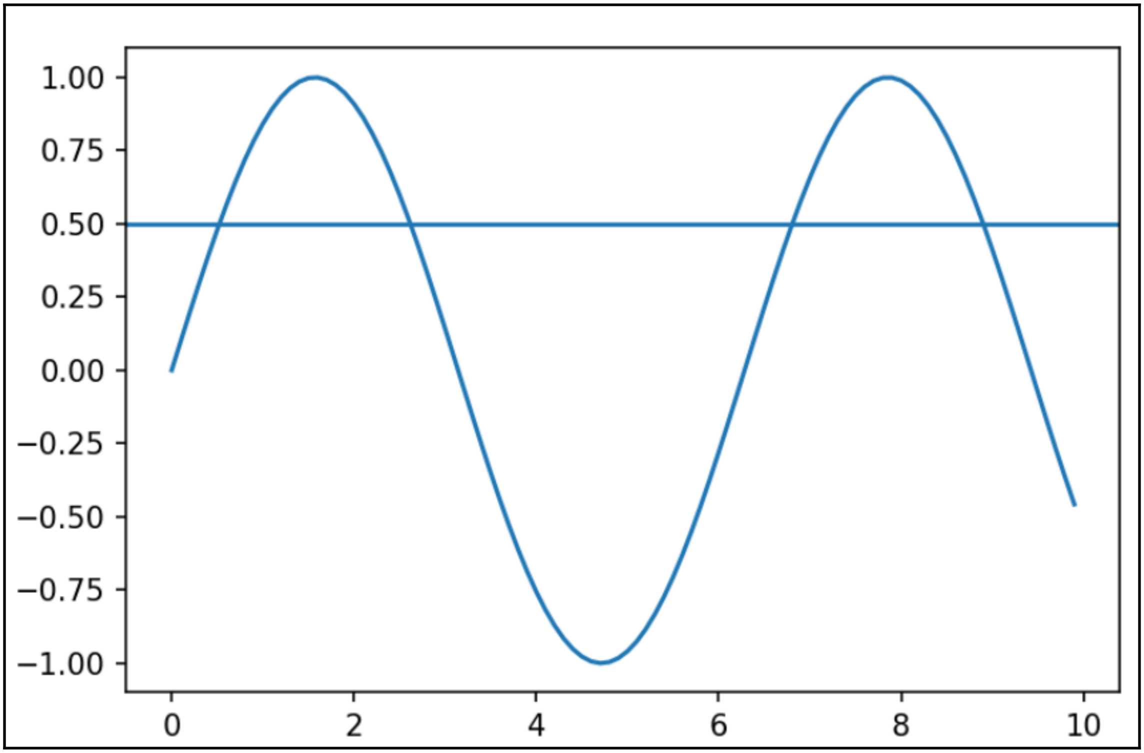


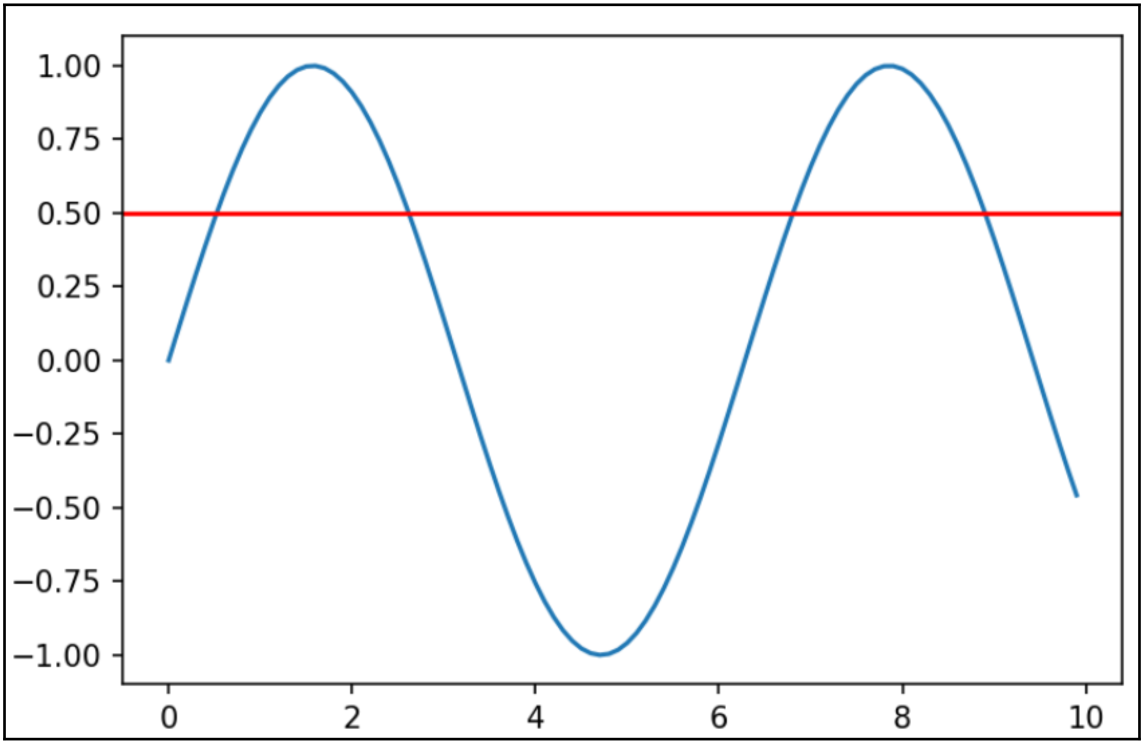


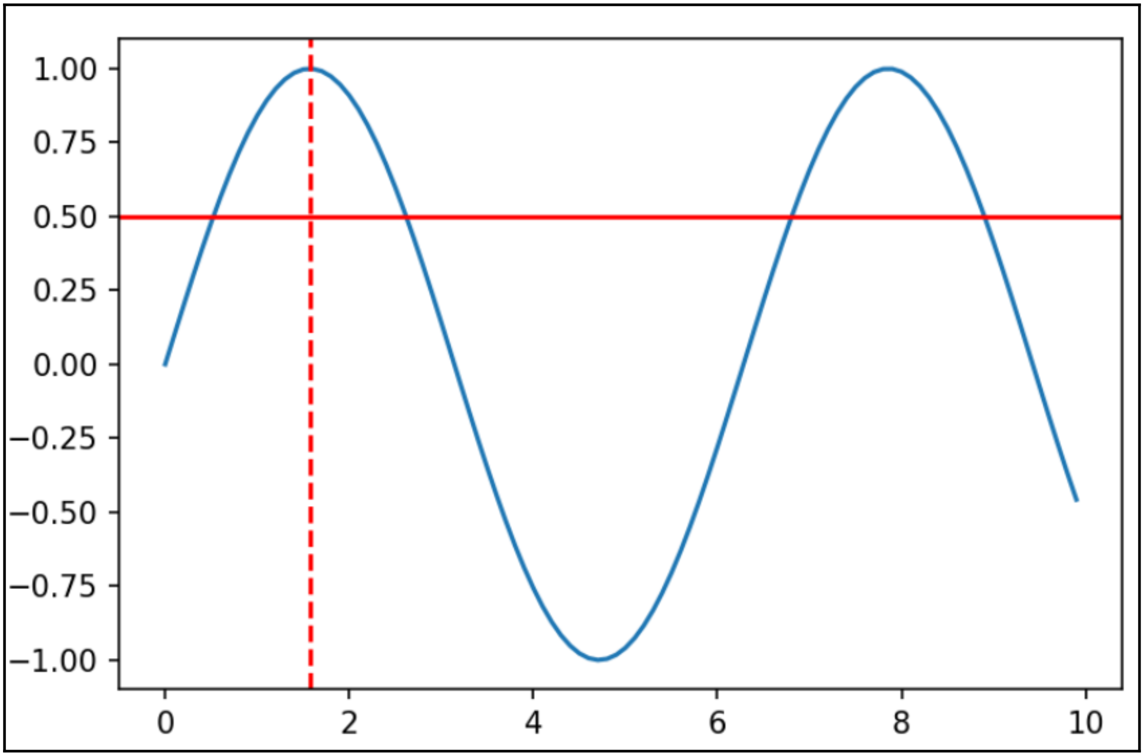
```
### MATPLOTLIBRC FORMAT

# This is a sample matplotlib configuration file - you can find a copy
# of it on your system in
# site-packages/matplotlib/mpl-data/matplotlibrc.  If you edit it
# there, please note that it will be overwritten in your next install.
# If you want to keep a permanent local copy that will not be
# overwritten, place it in the following location:
# unix/linux:
#     $HOME/.config/matplotlib/matplotlibrc or
#     $XDG_CONFIG_HOME/matplotlib/matplotlibrc (if $XDG_CONFIG_HOME is set)
# other platforms:
#     $HOME/.matplotlib/matplotlibrc
```

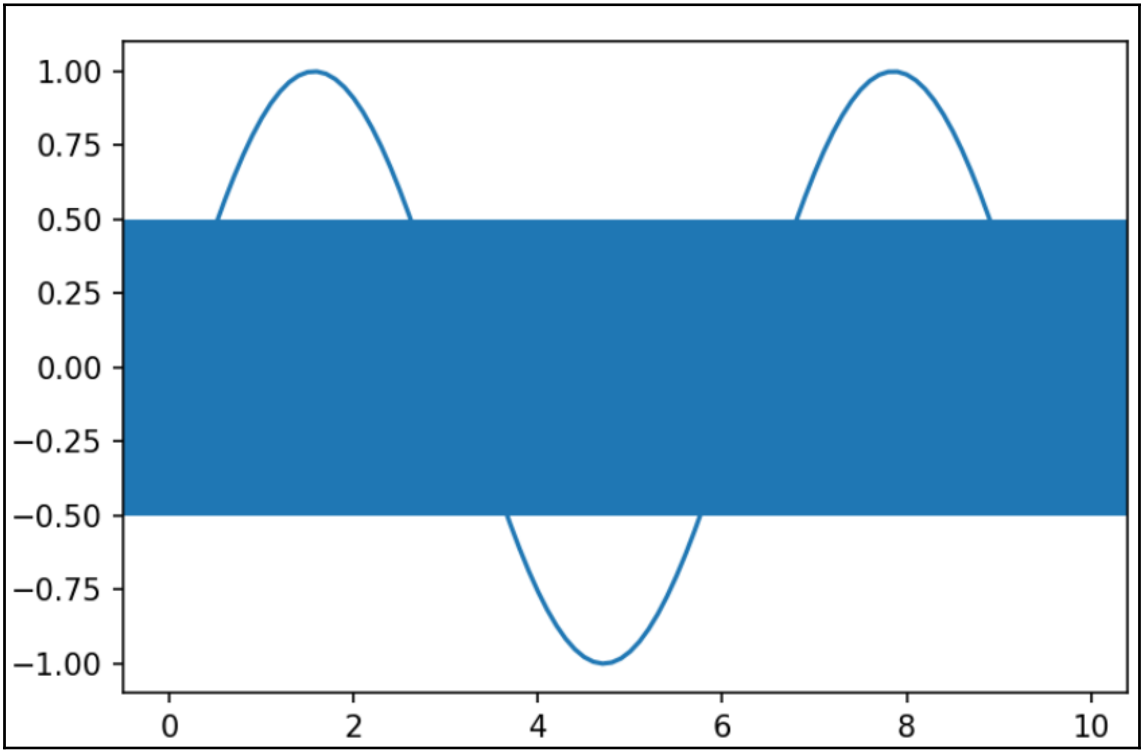
Chapter 2: Drawing on Plots

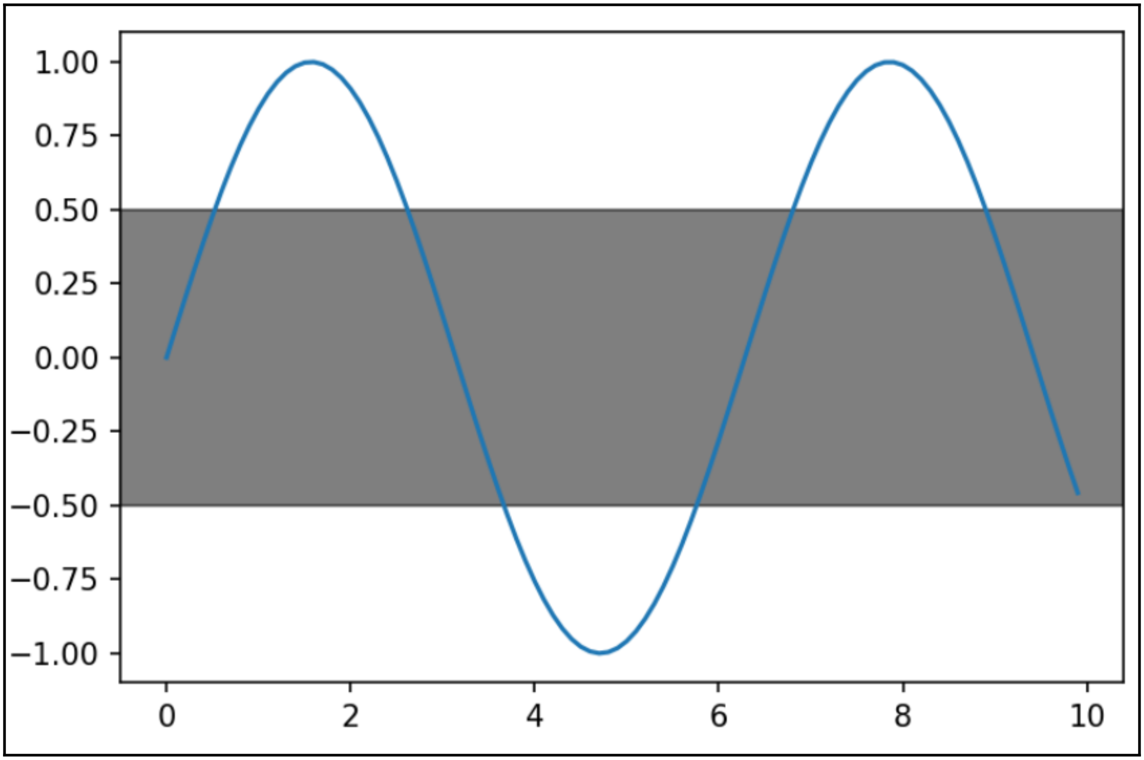


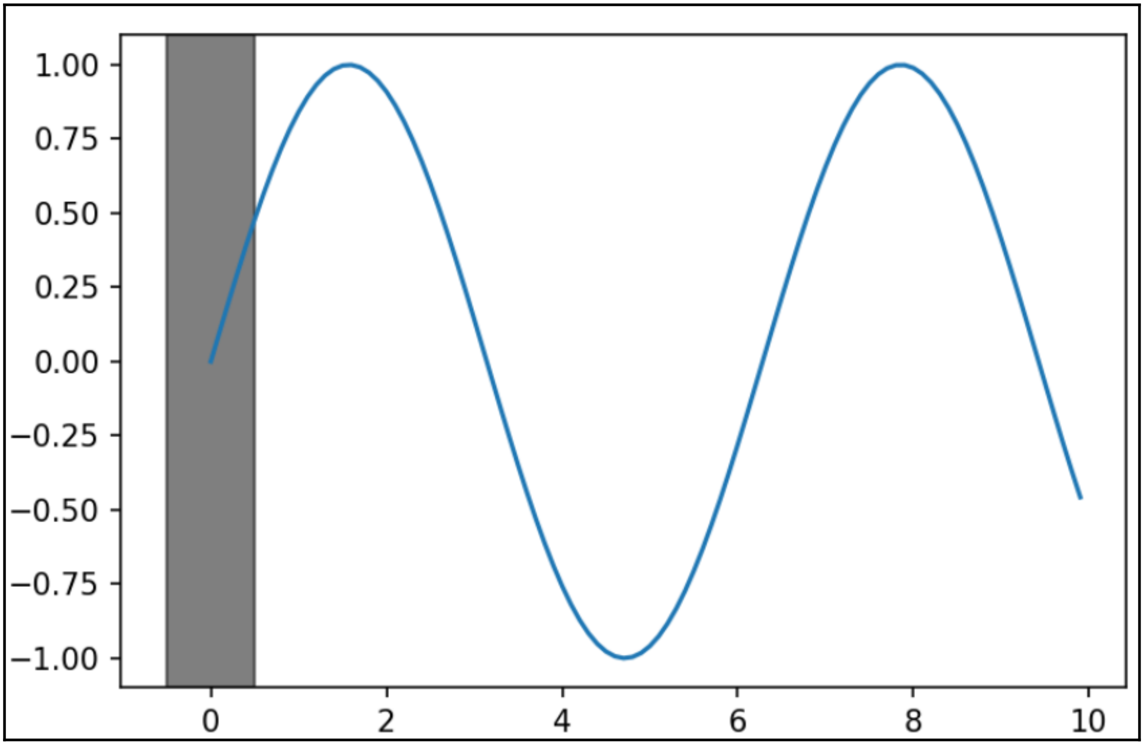

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

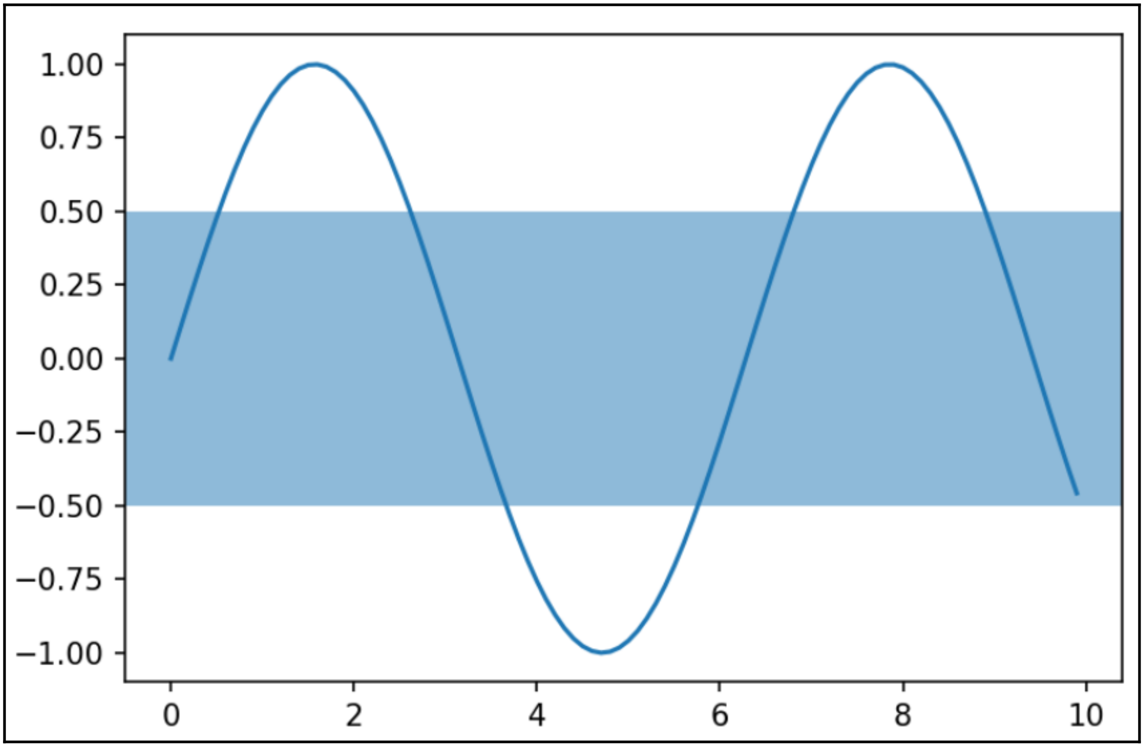

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

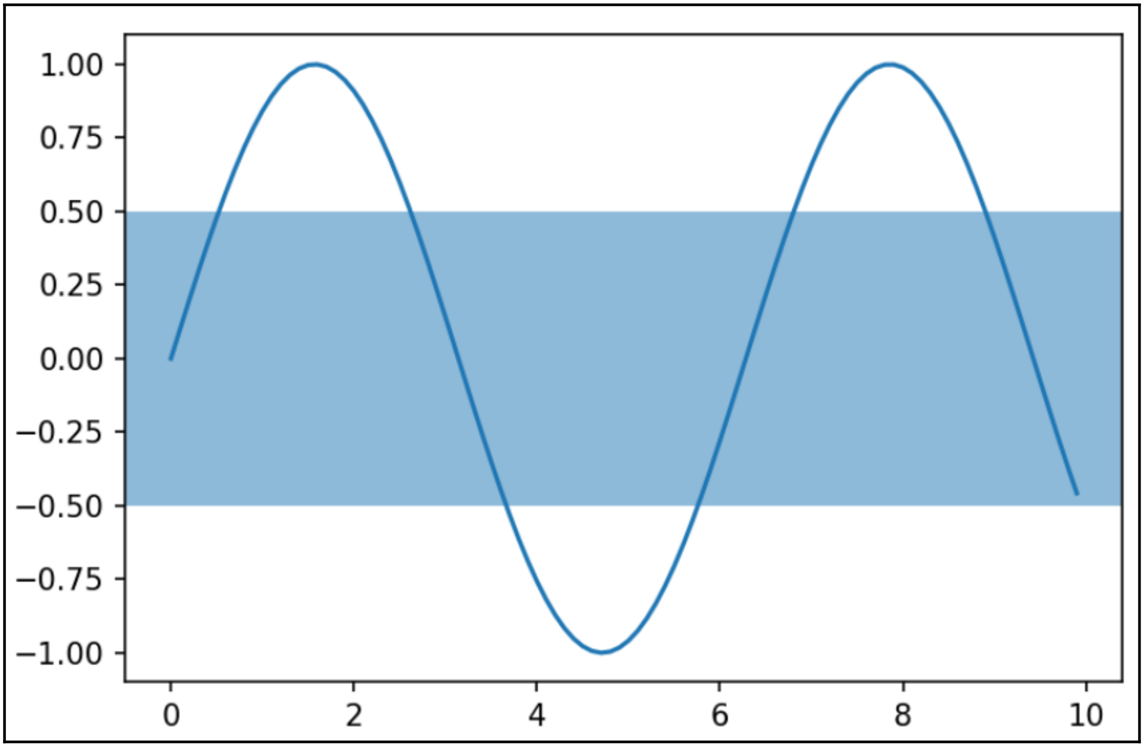

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

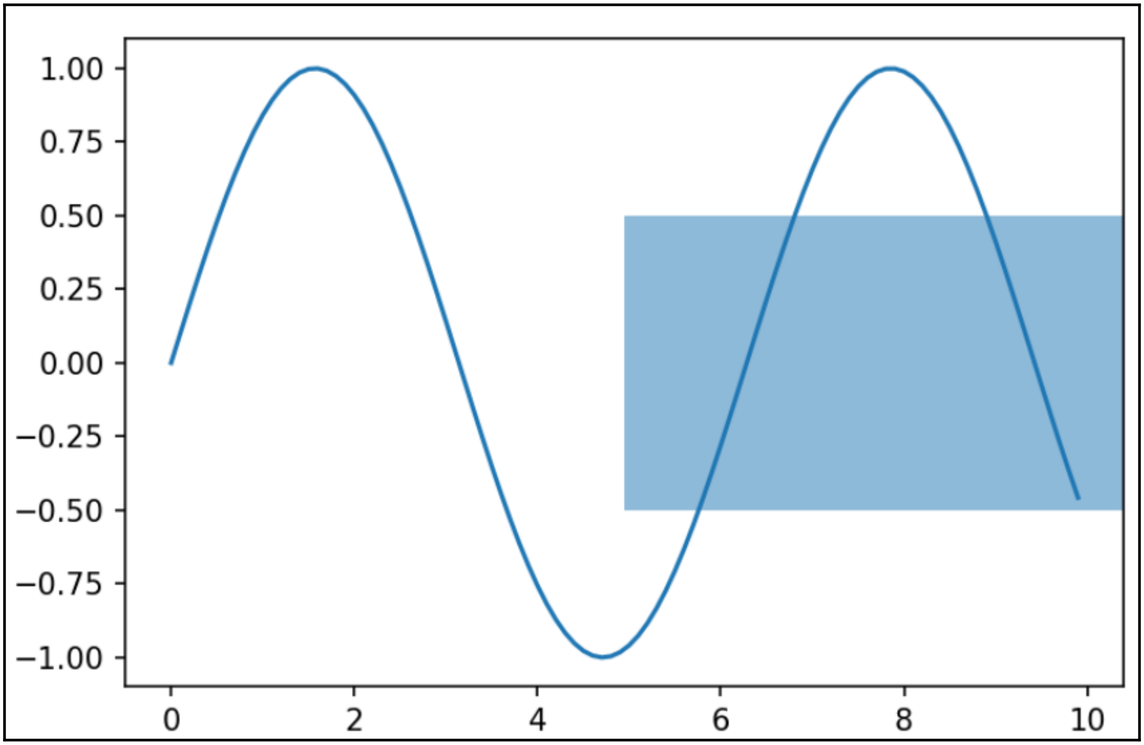

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

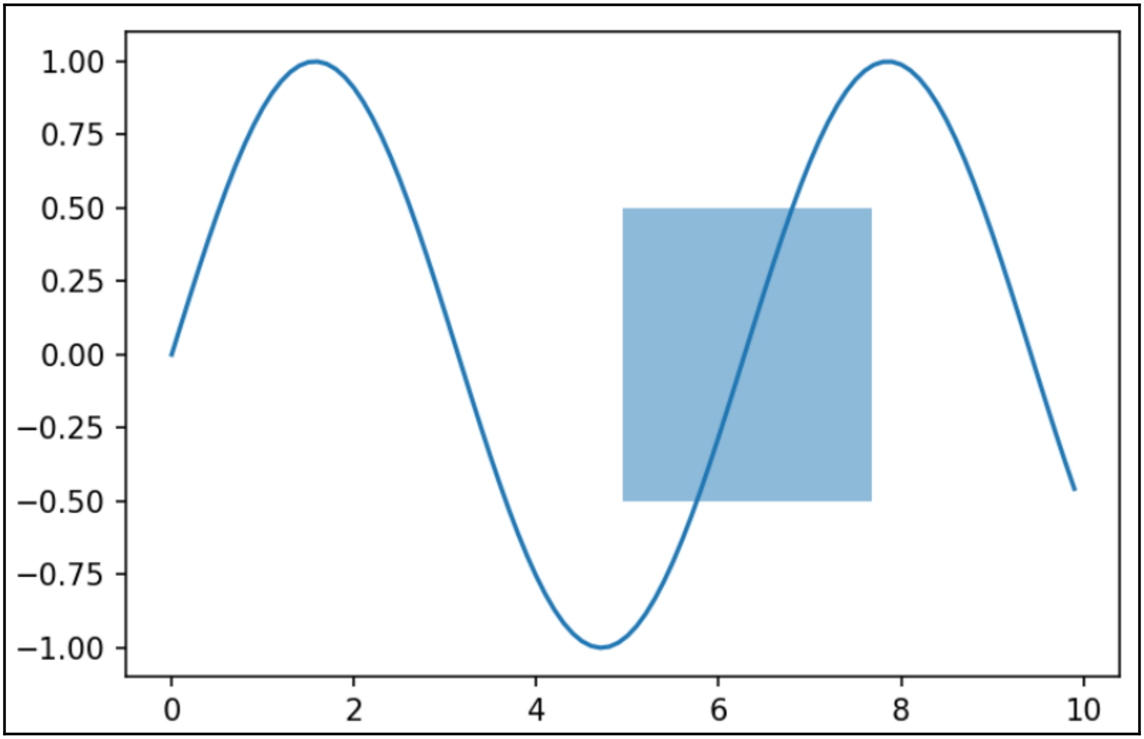

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

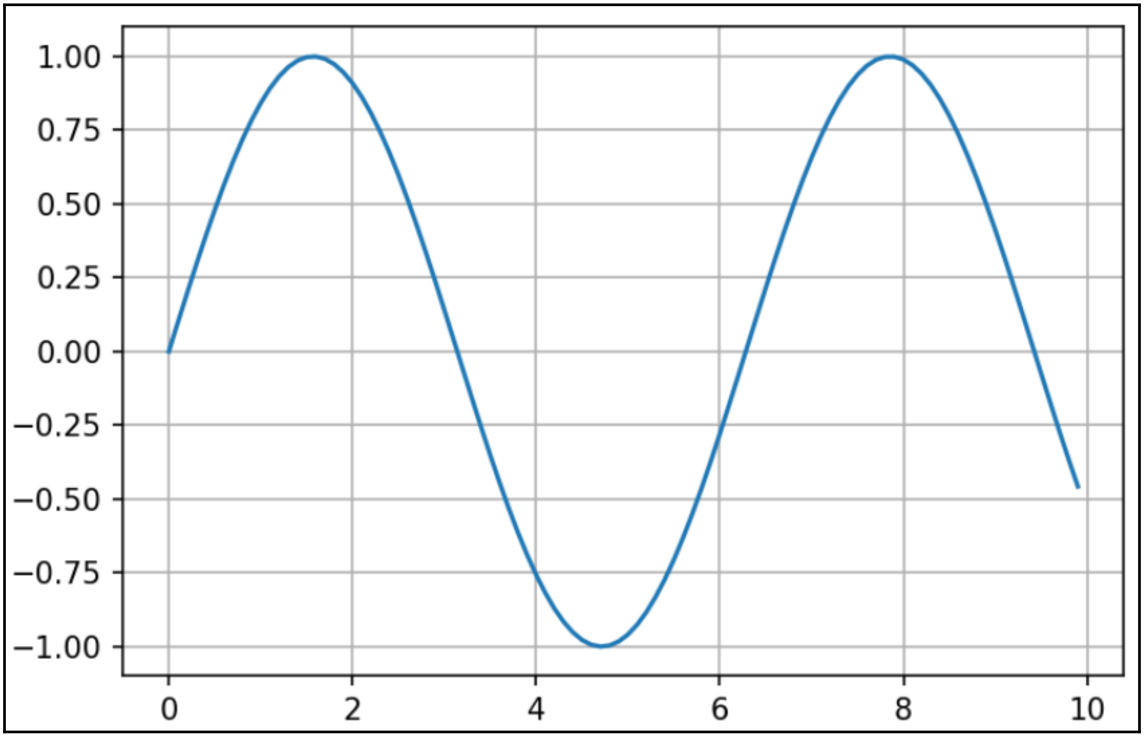

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

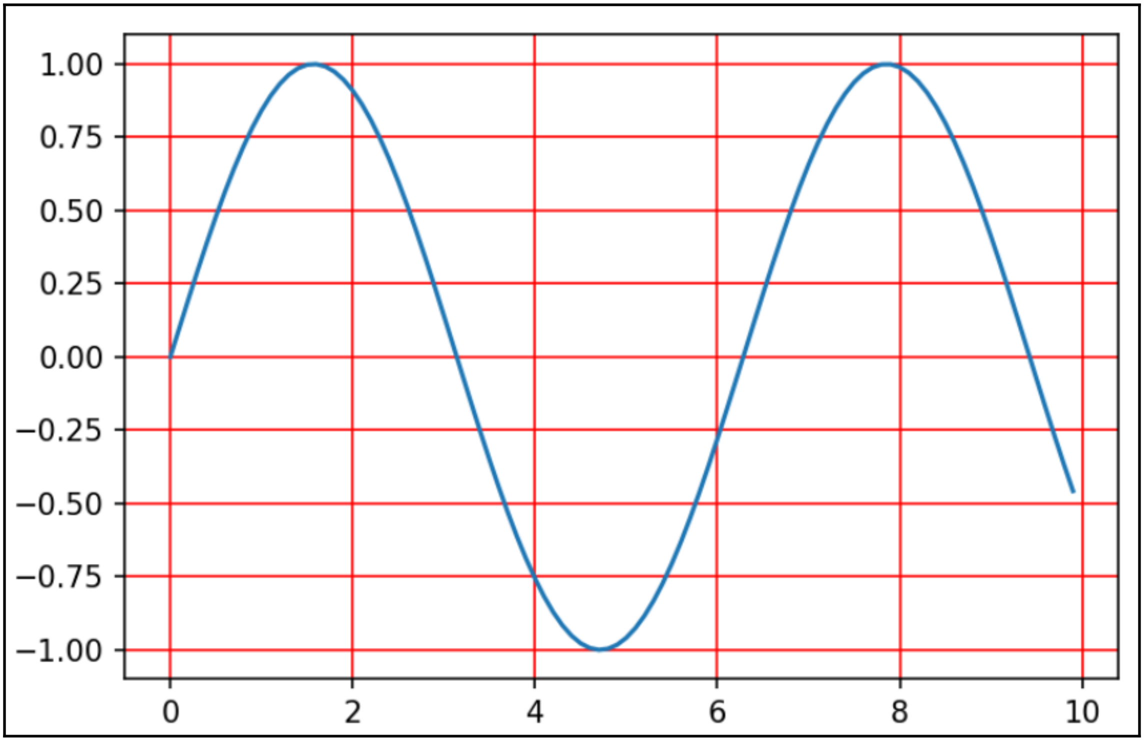

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

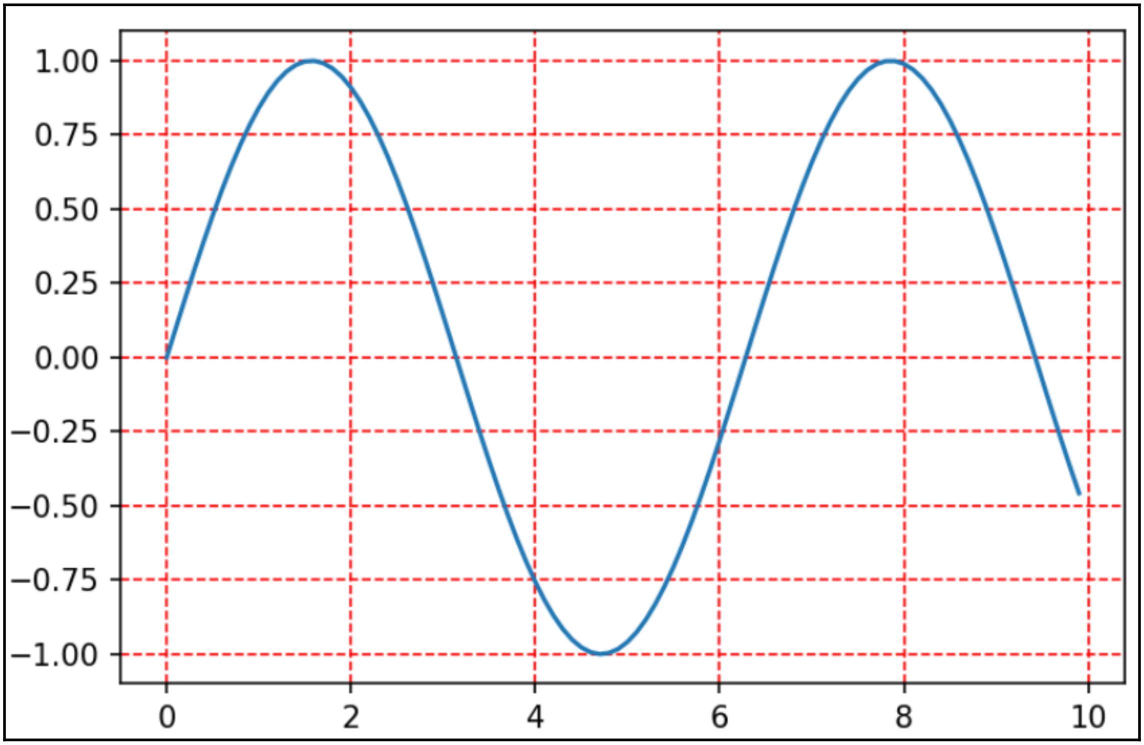

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

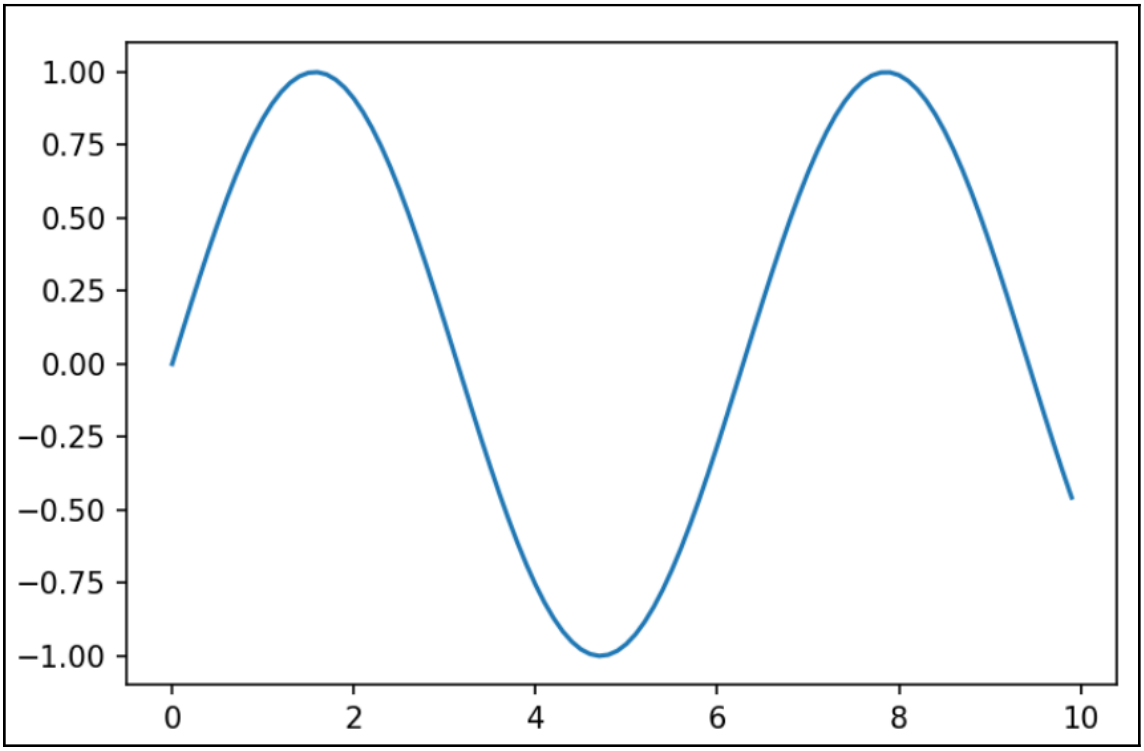

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

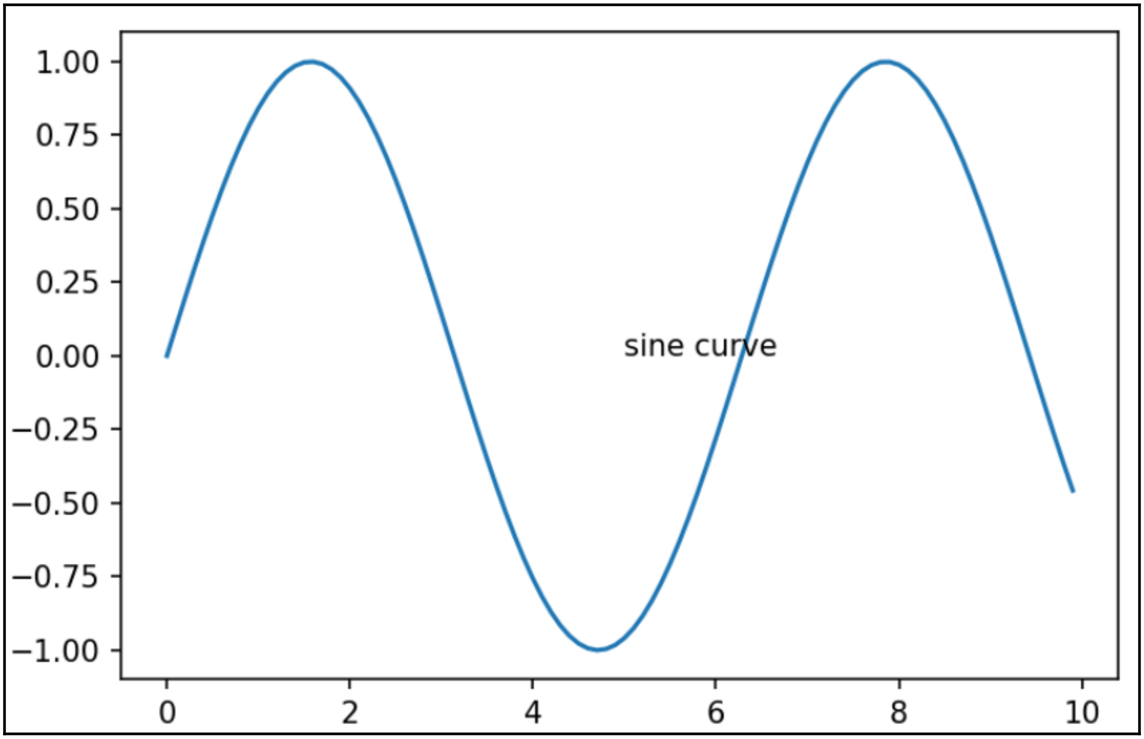

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

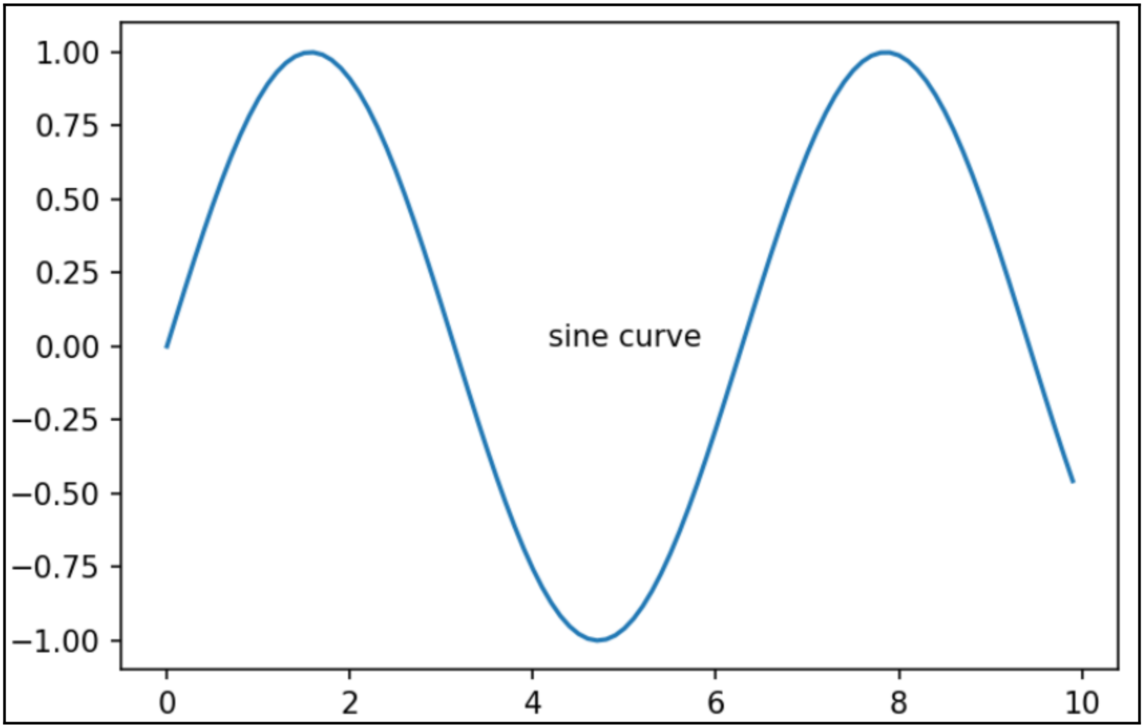

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

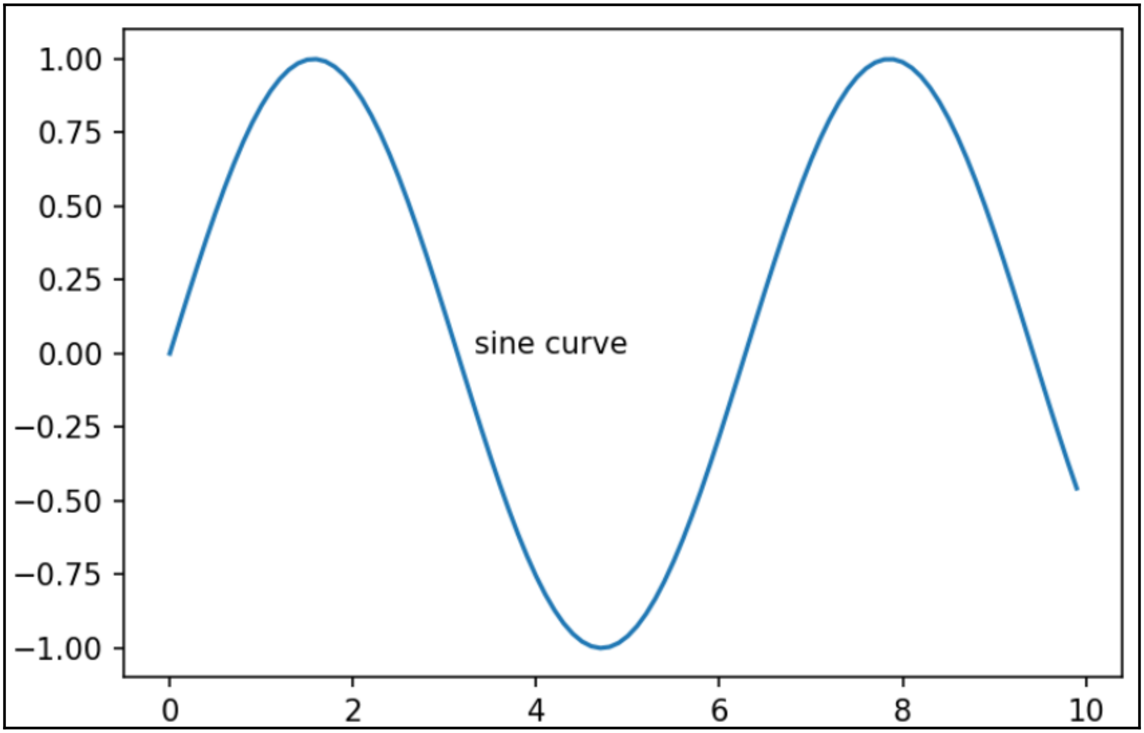

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

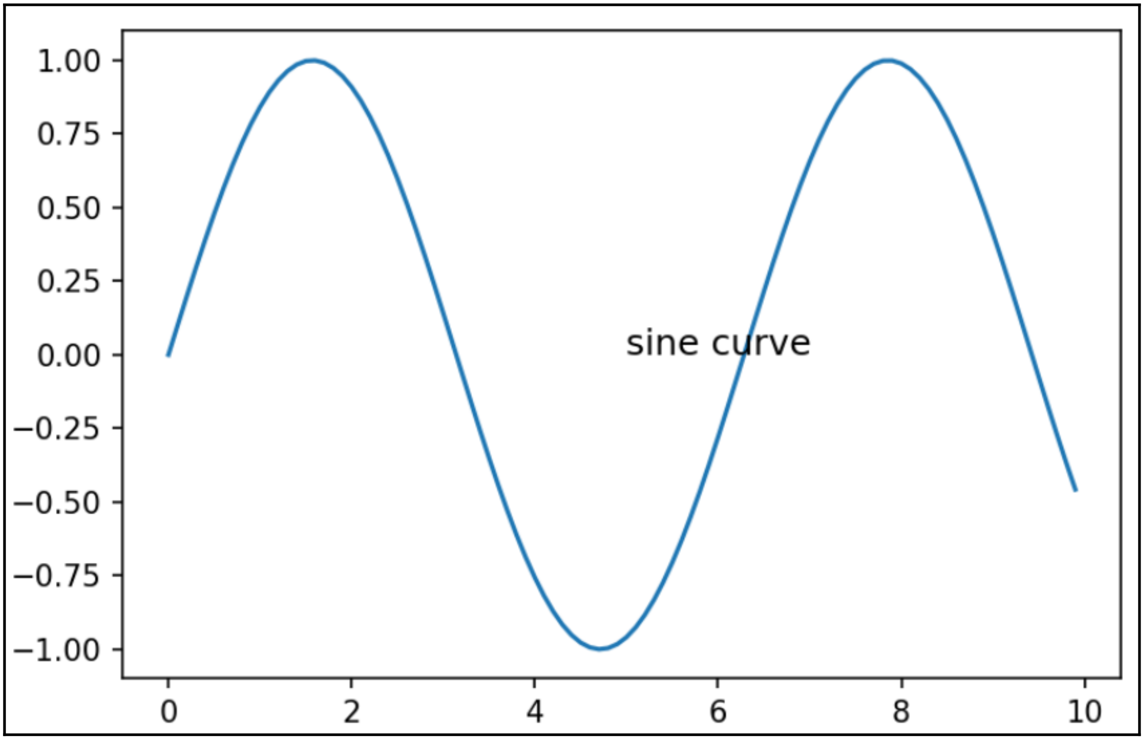

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

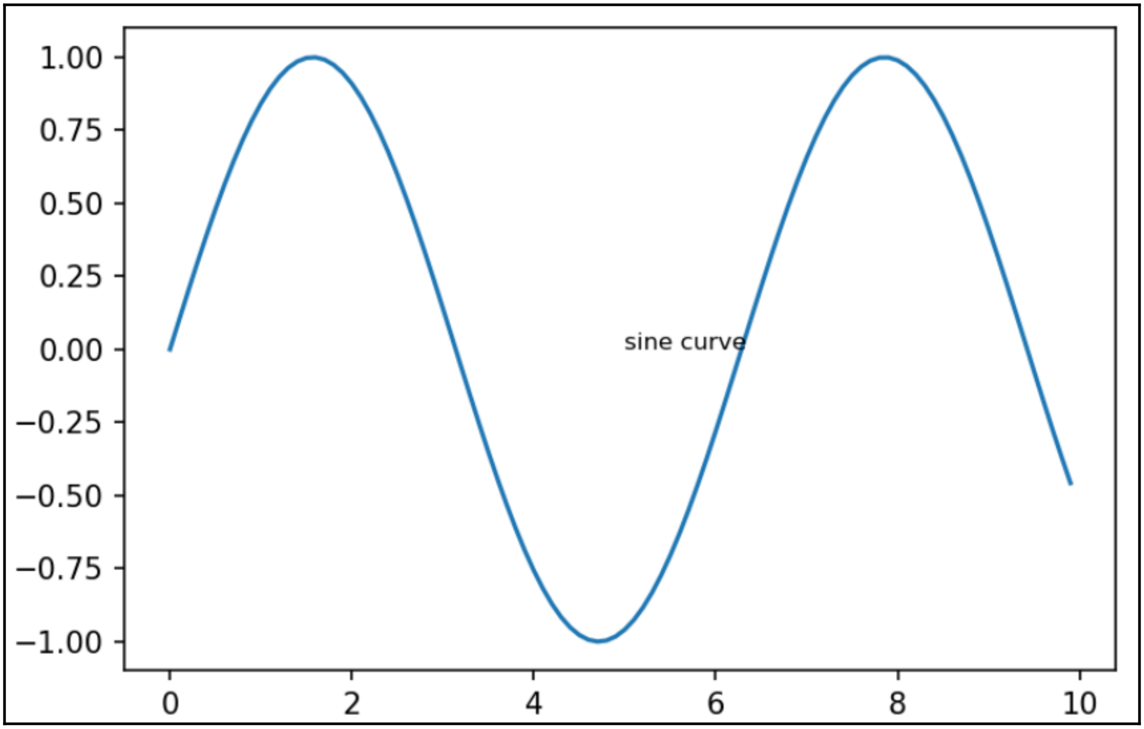

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
sine curve
0
2
4
6
8
10

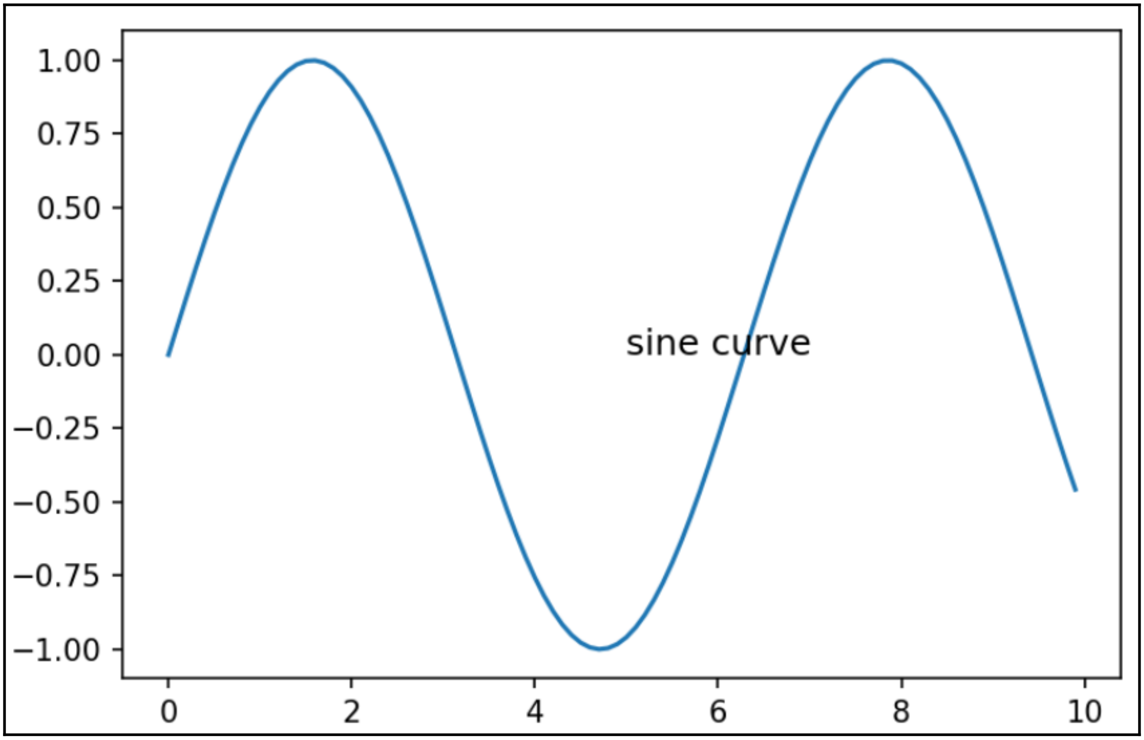

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
sine curve
0
2
4
6
8
10

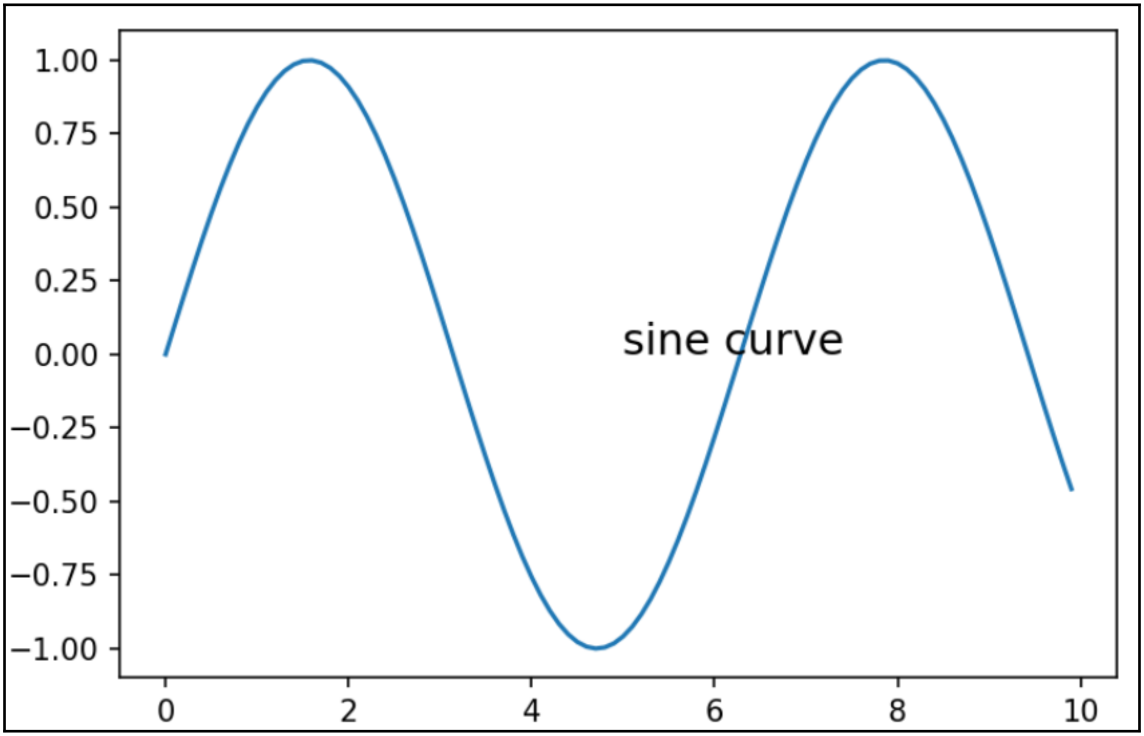


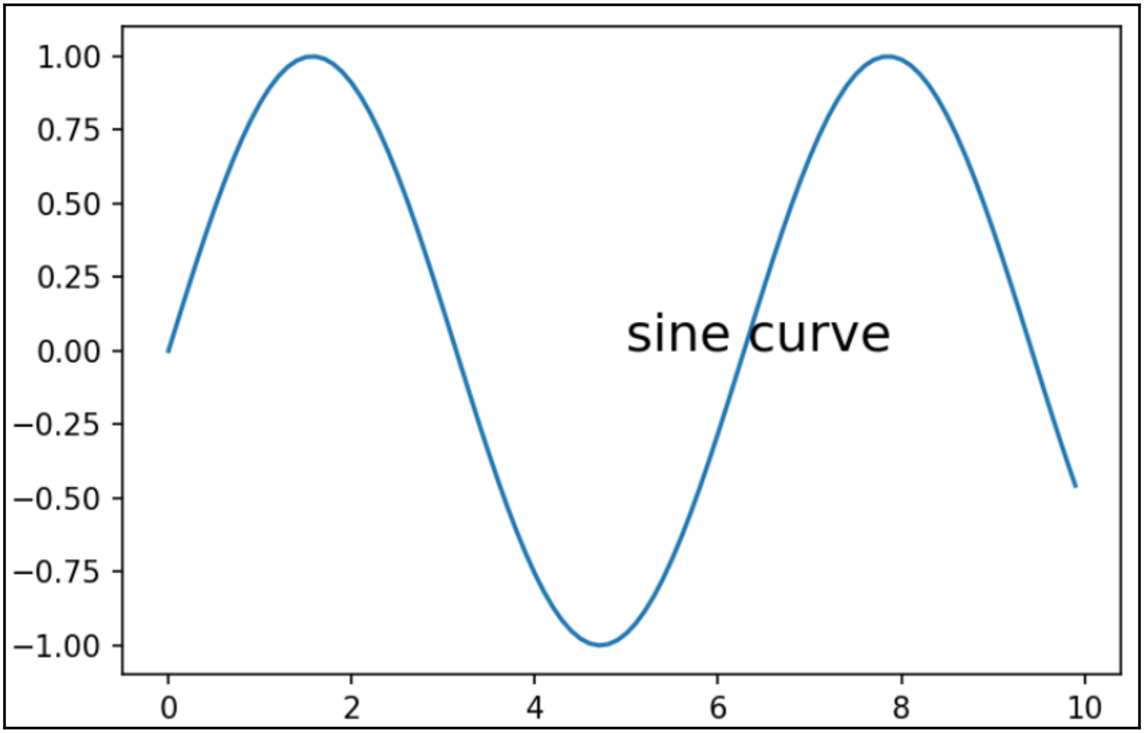
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
sine curve
0
2
4
6
8
10

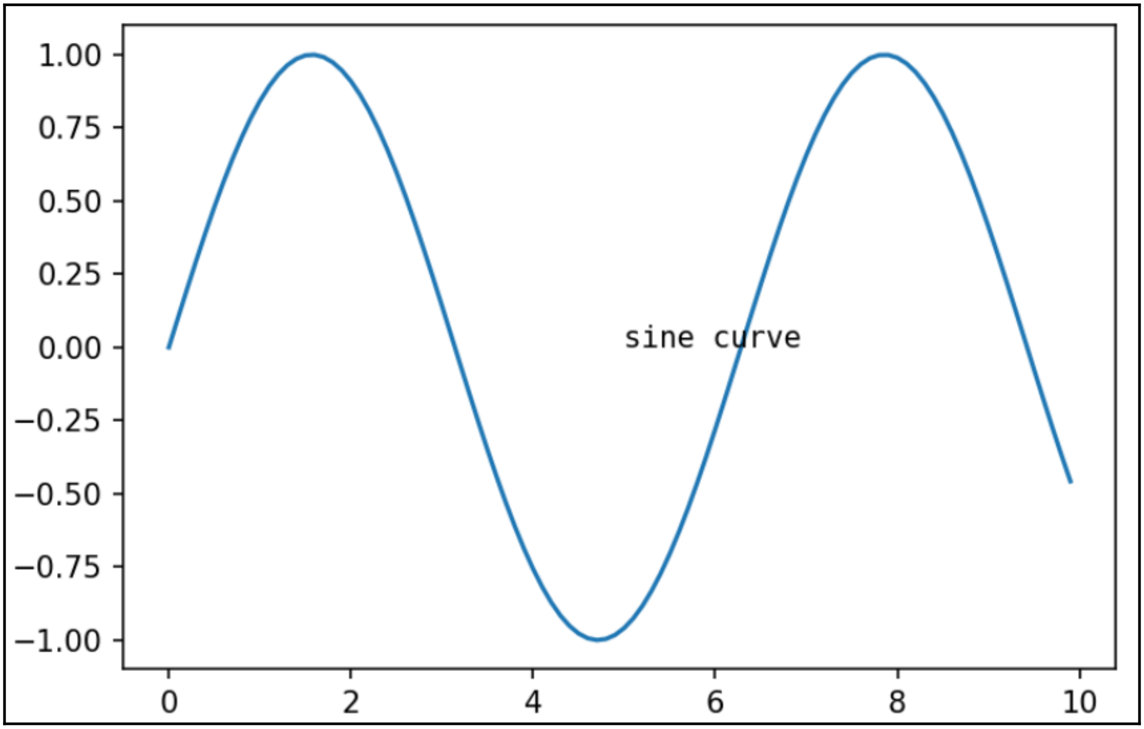

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

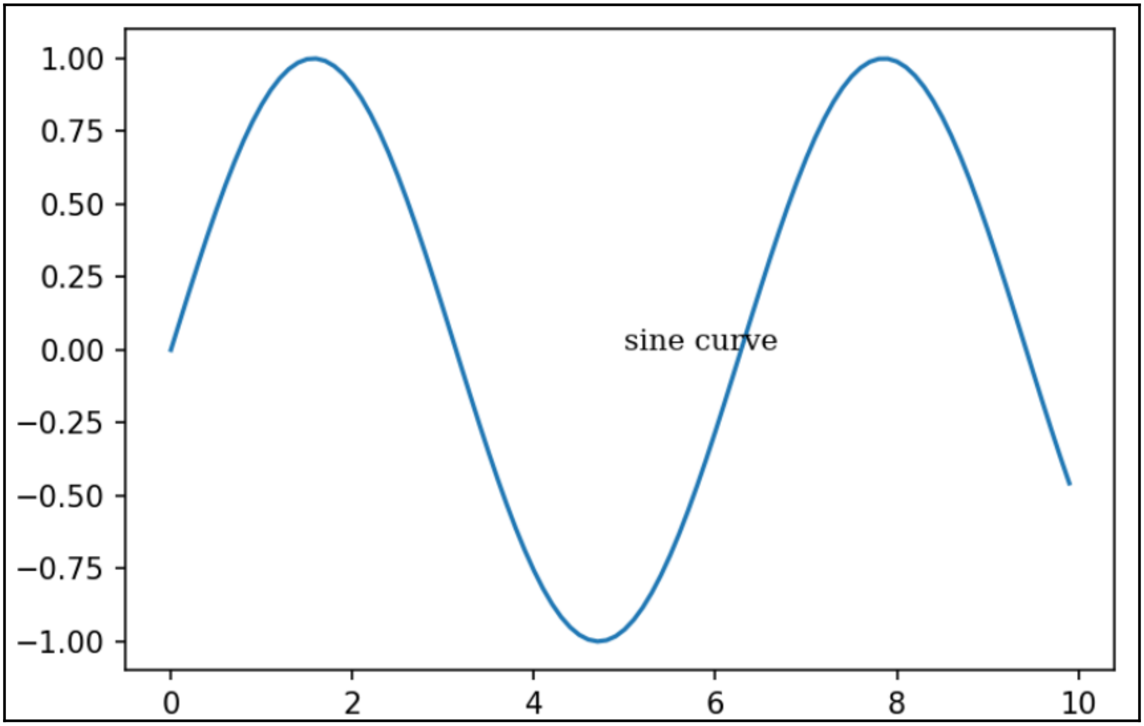

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

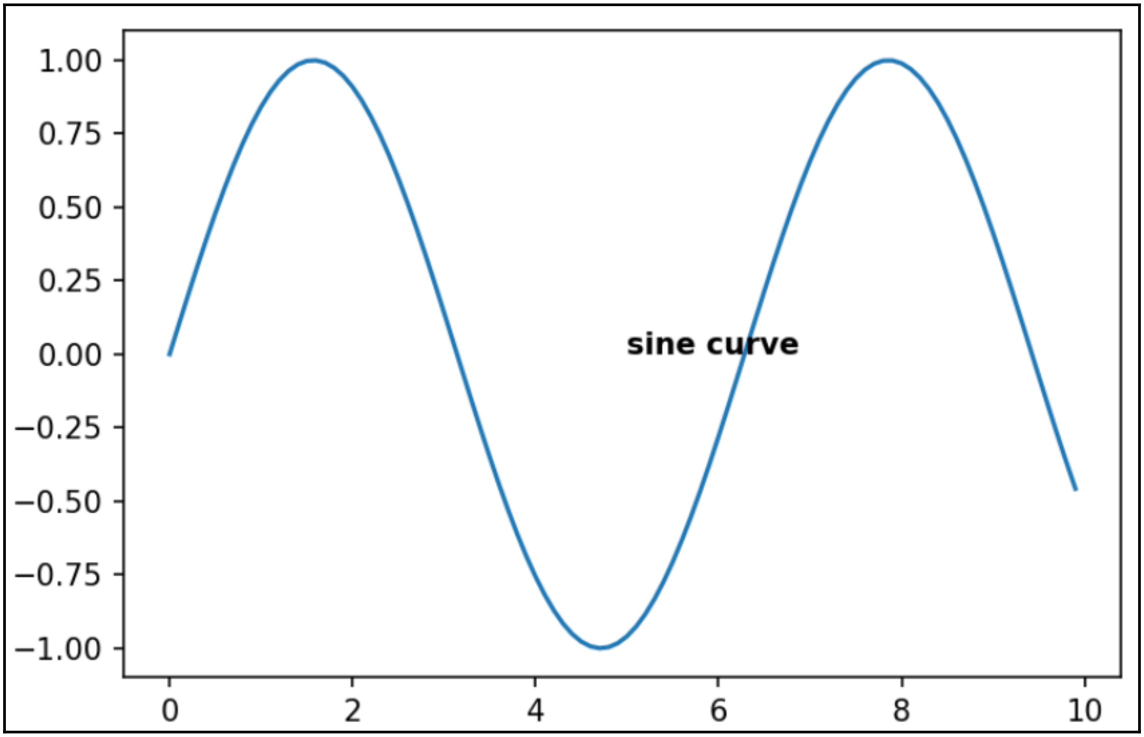

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

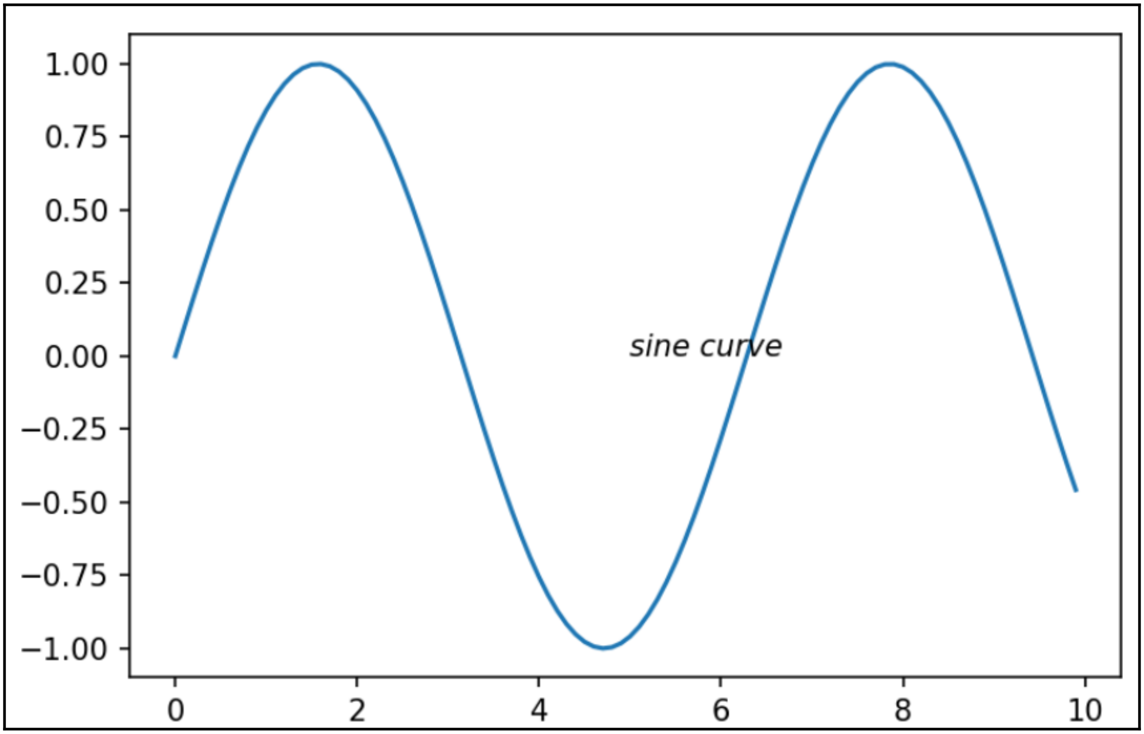

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve


sine curve
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

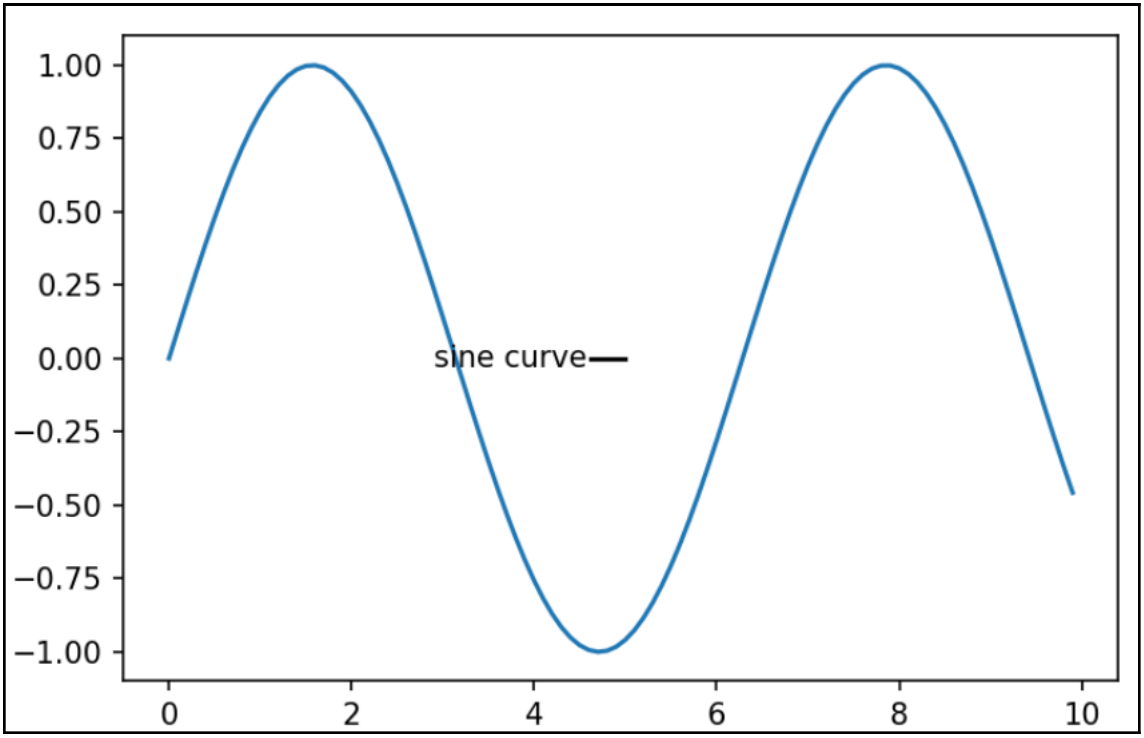

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

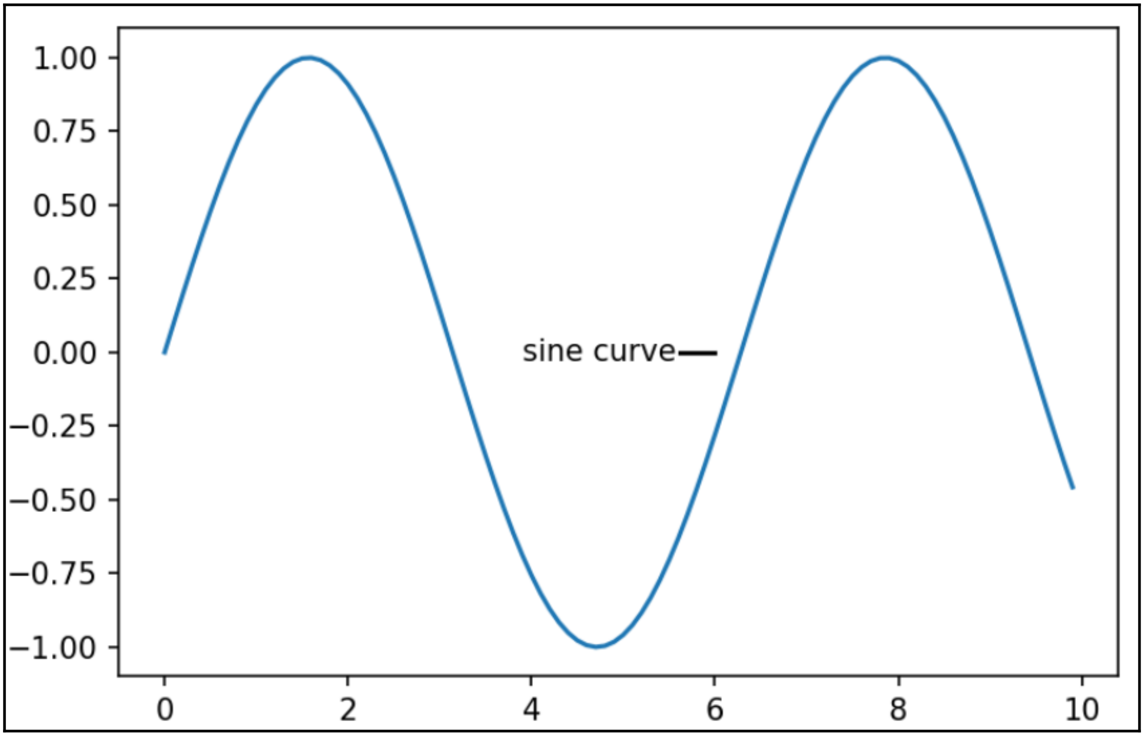

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

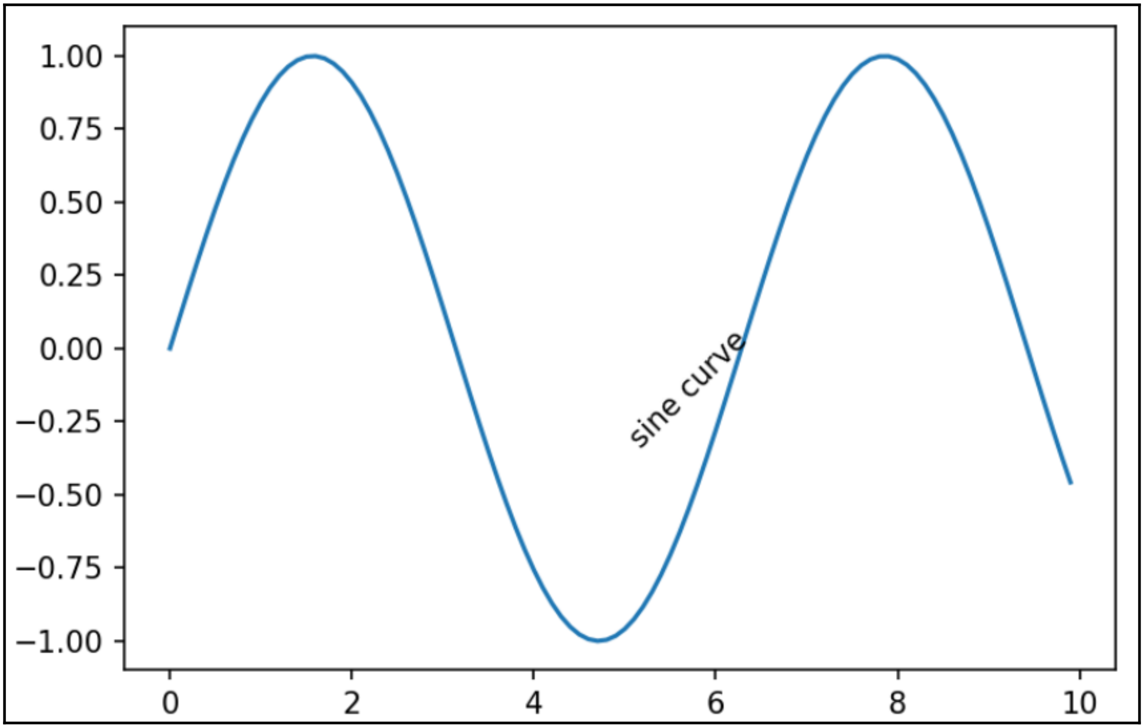

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

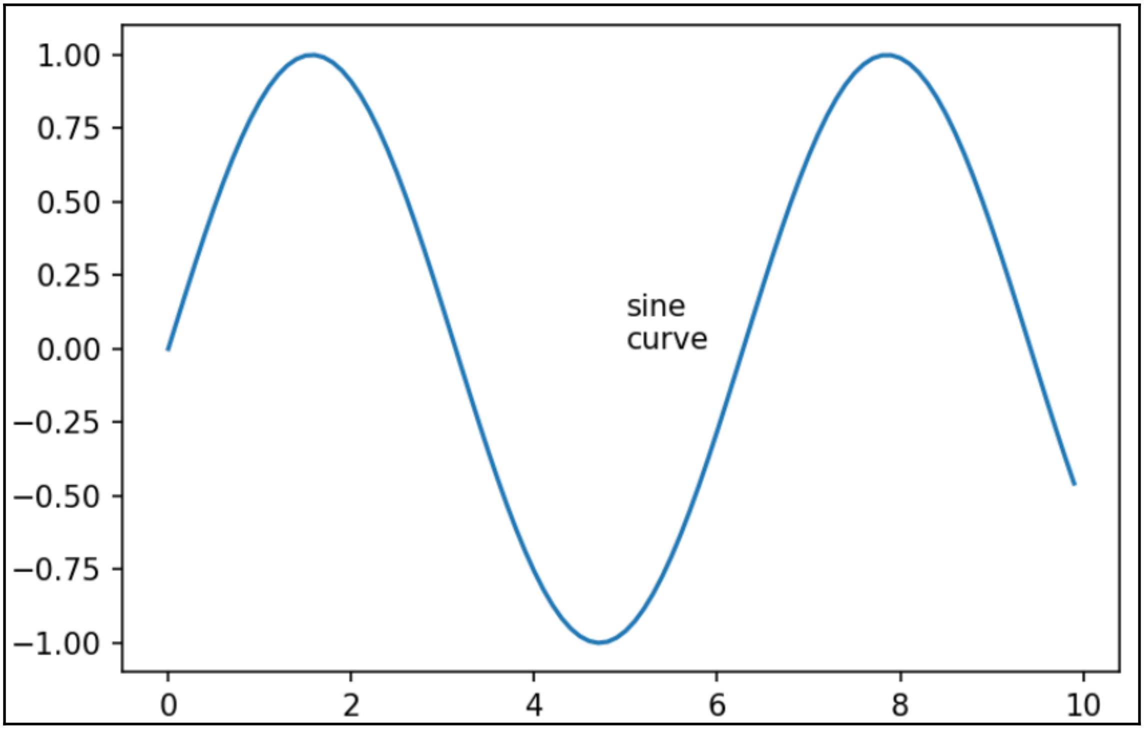


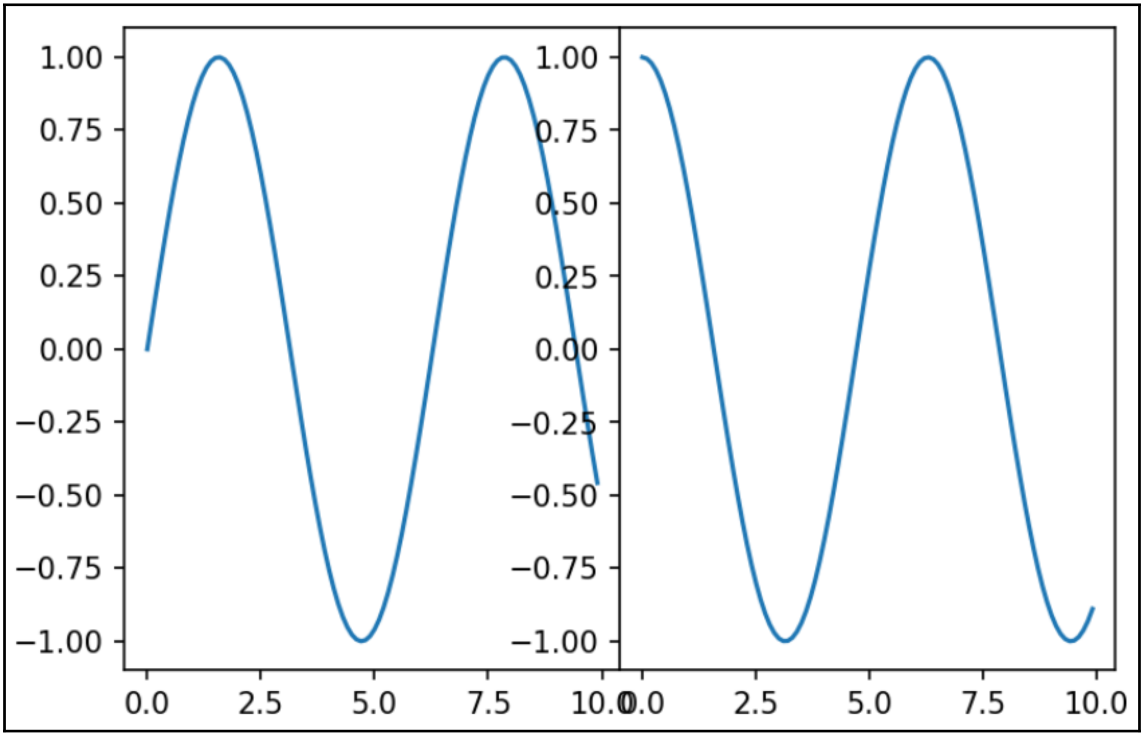
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

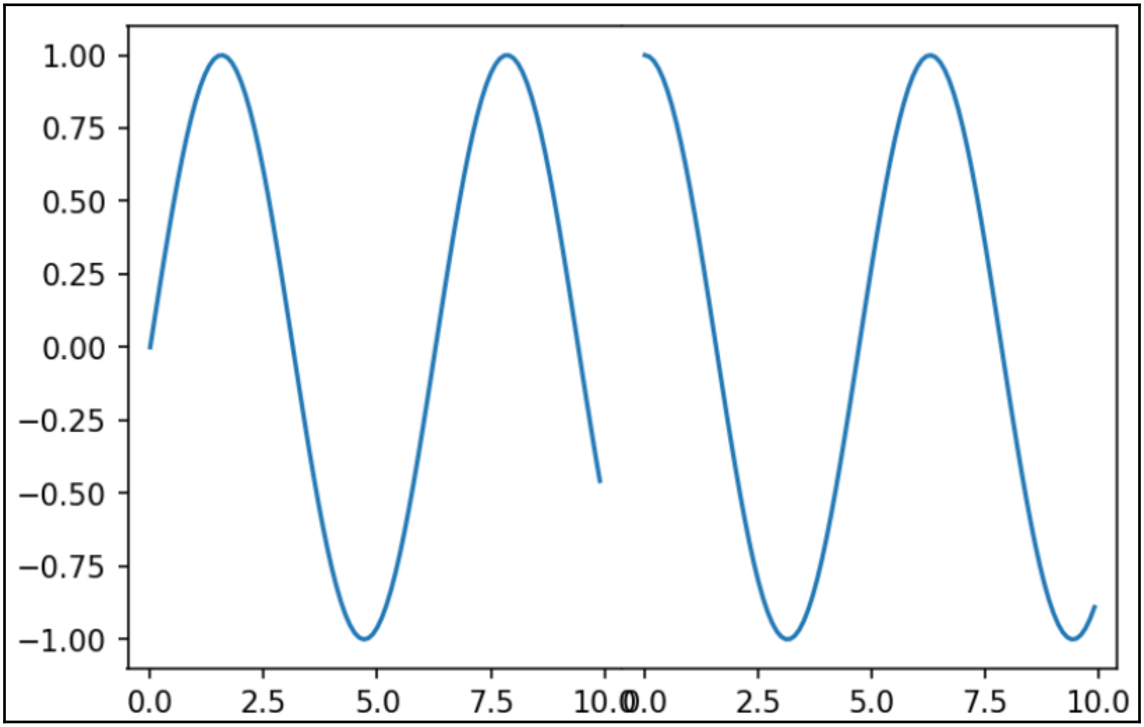

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

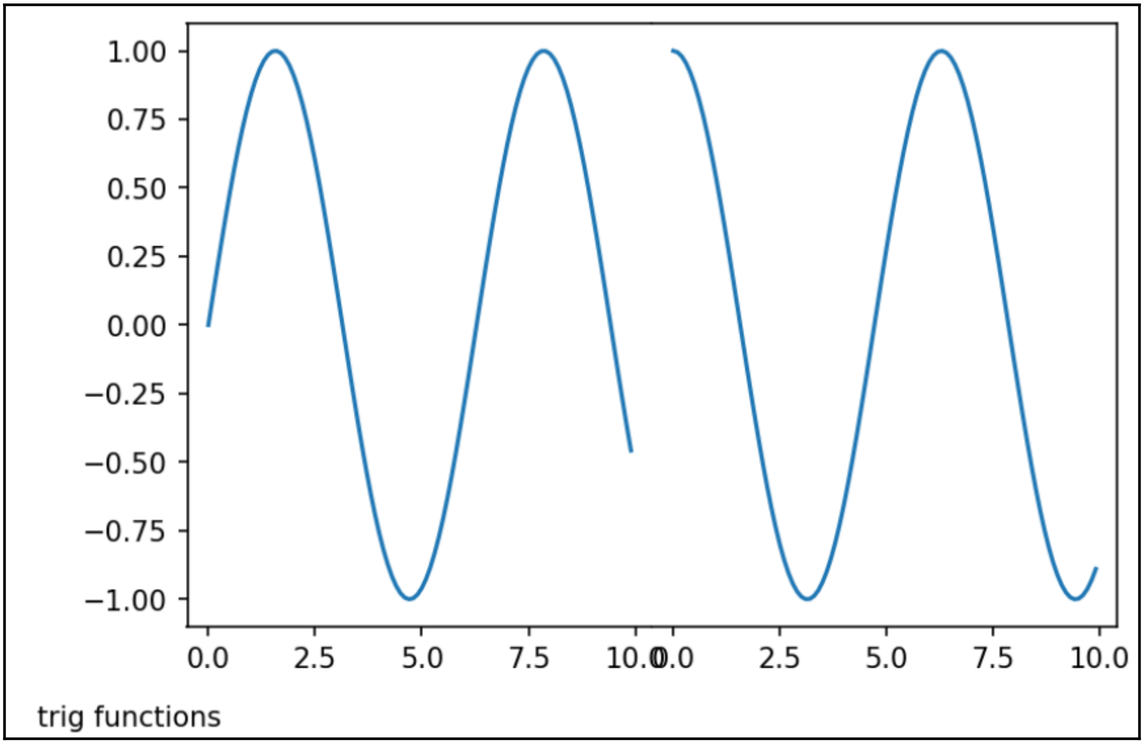

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

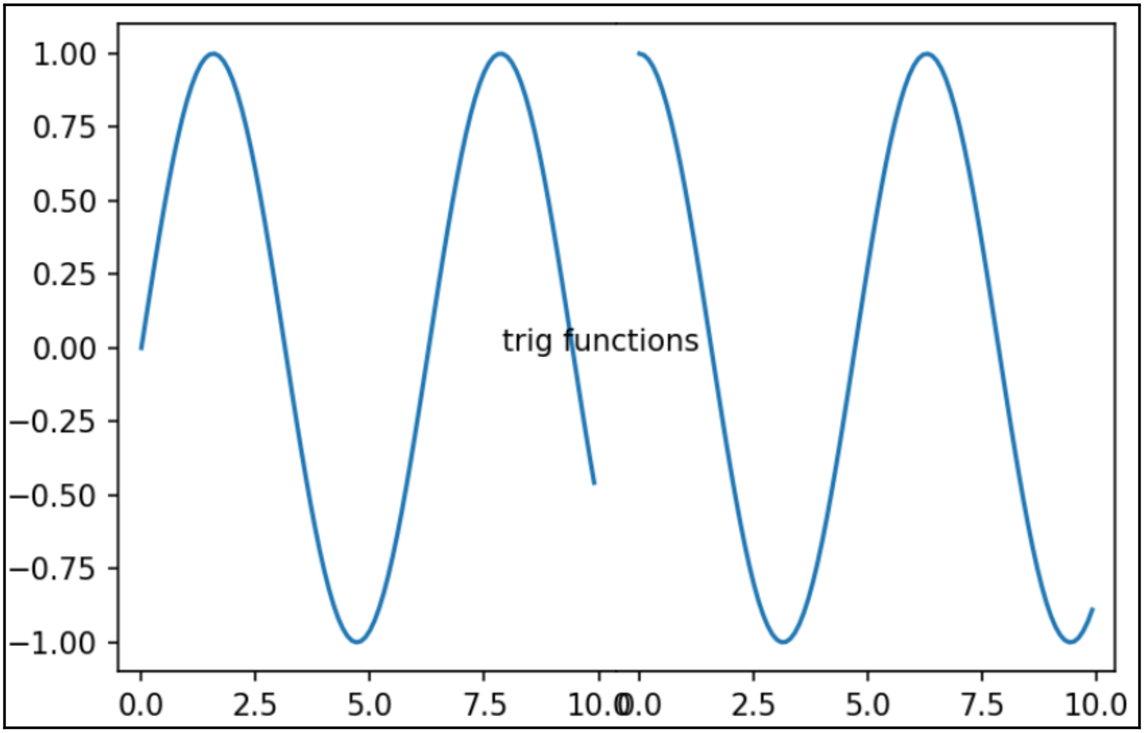

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine curve

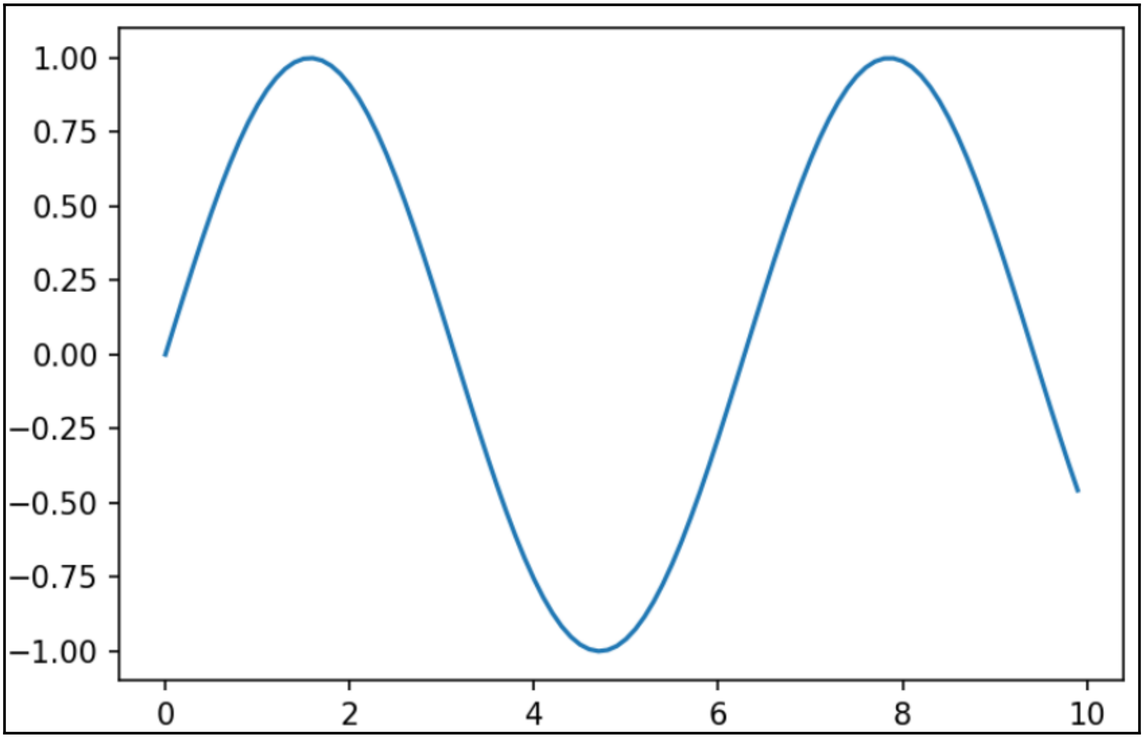

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
sine
curve

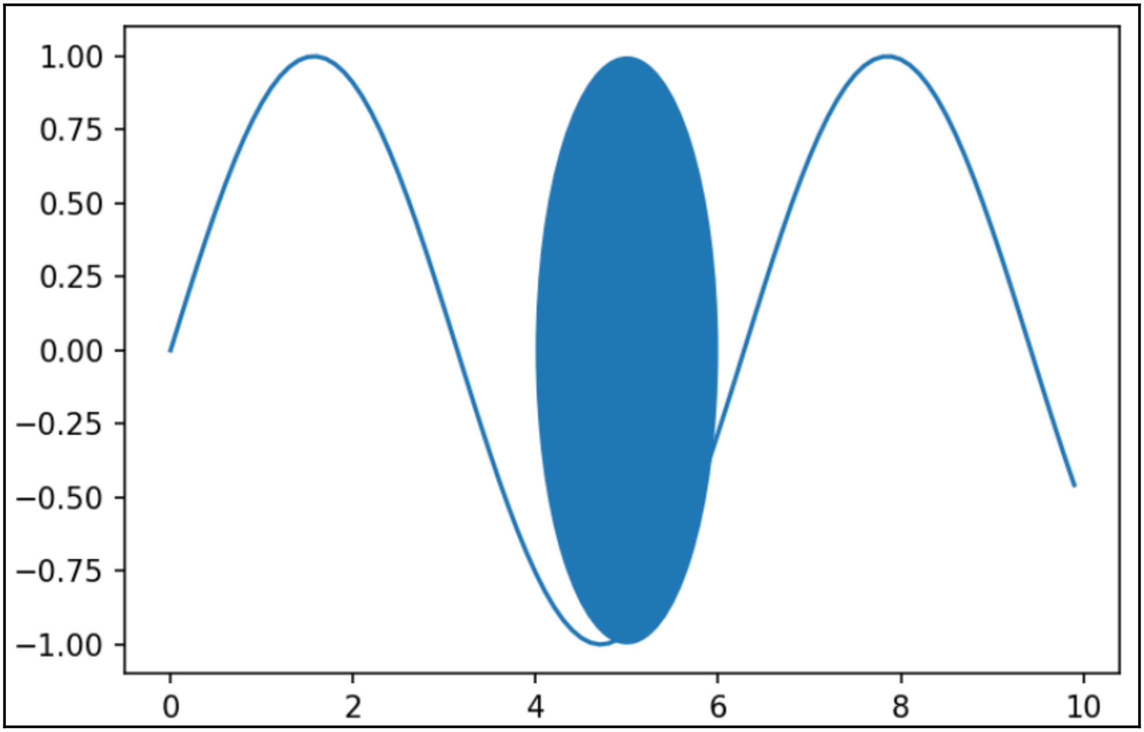

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0.0
2.5
5.0
7.5
10.0
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0.0
2.5
5.0
7.5
10.0

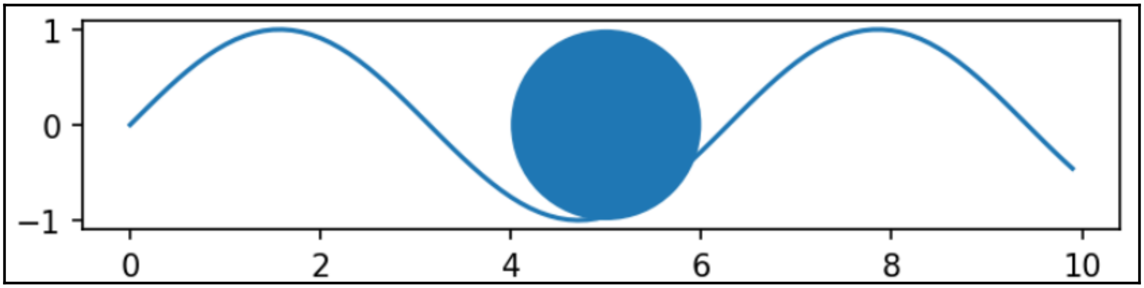

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0.0
2.5
5.0
7.5
10.0
0.0
2.5
5.0
7.5
10.0

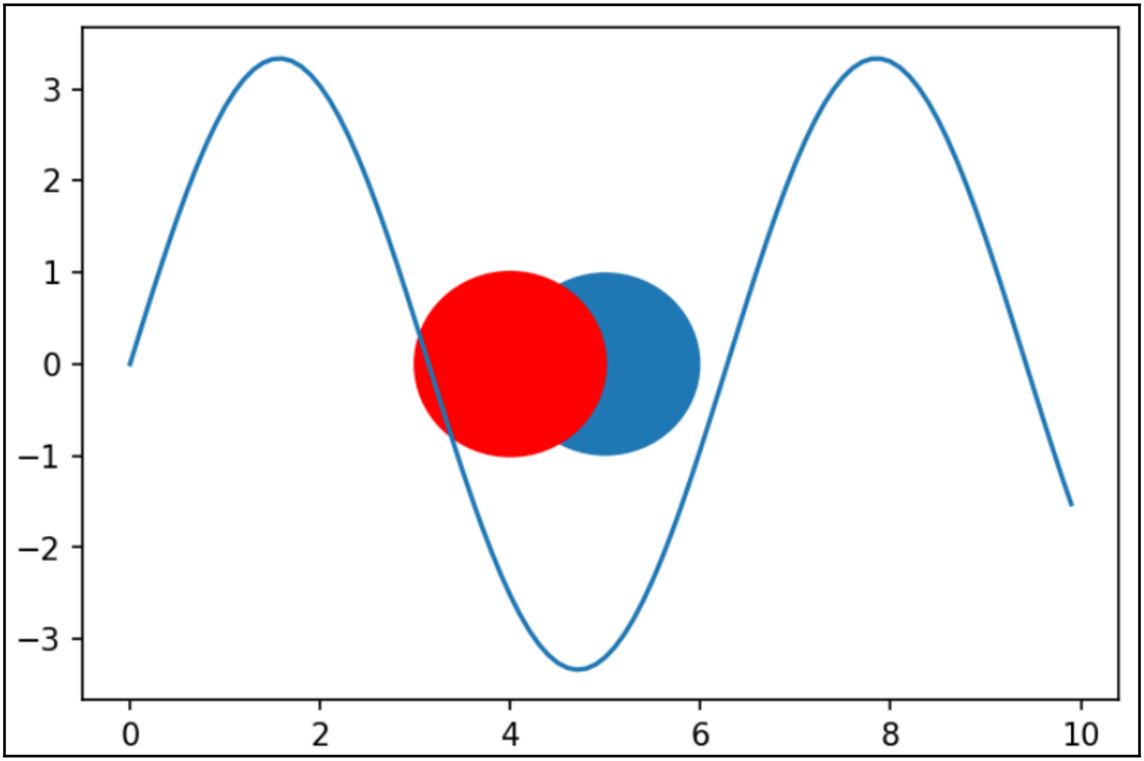

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0.0
2.5
5.0
7.5
10.0
0.0
2.5
5.0
7.5
10.0
trig functions

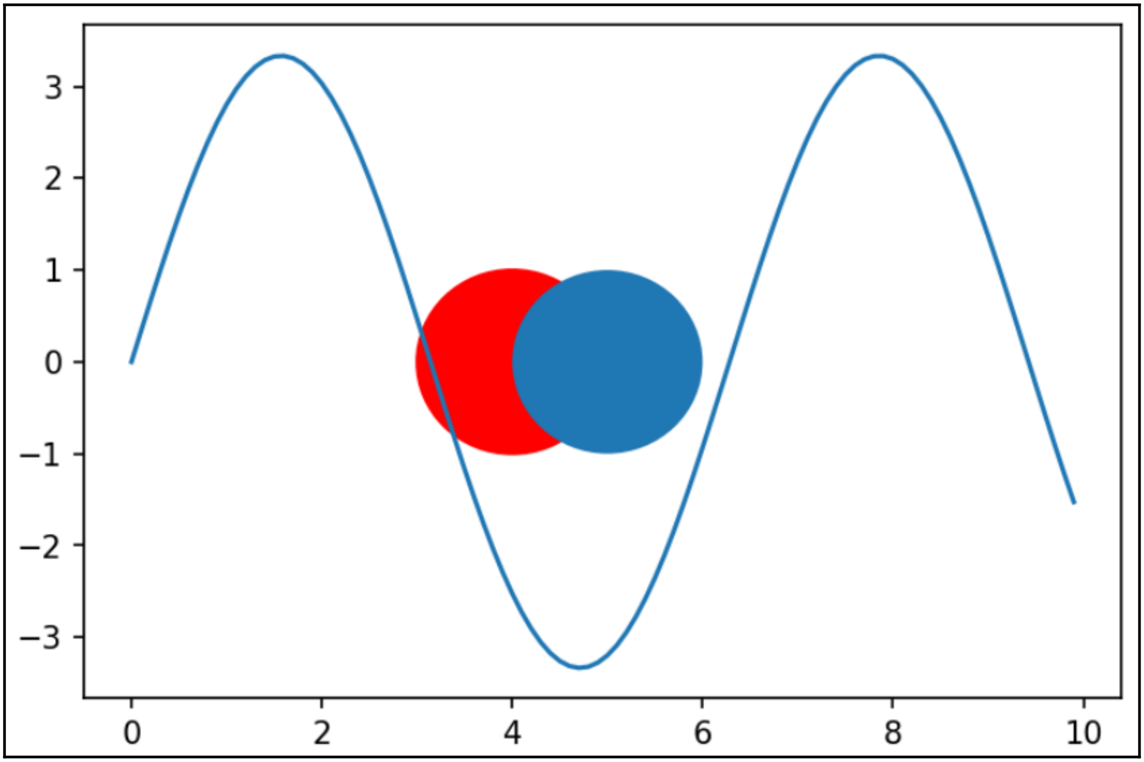

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0.0
2.5
5.0
7.5
10.0
0.0
2.5
5.0
7.5
10.0
trig functions

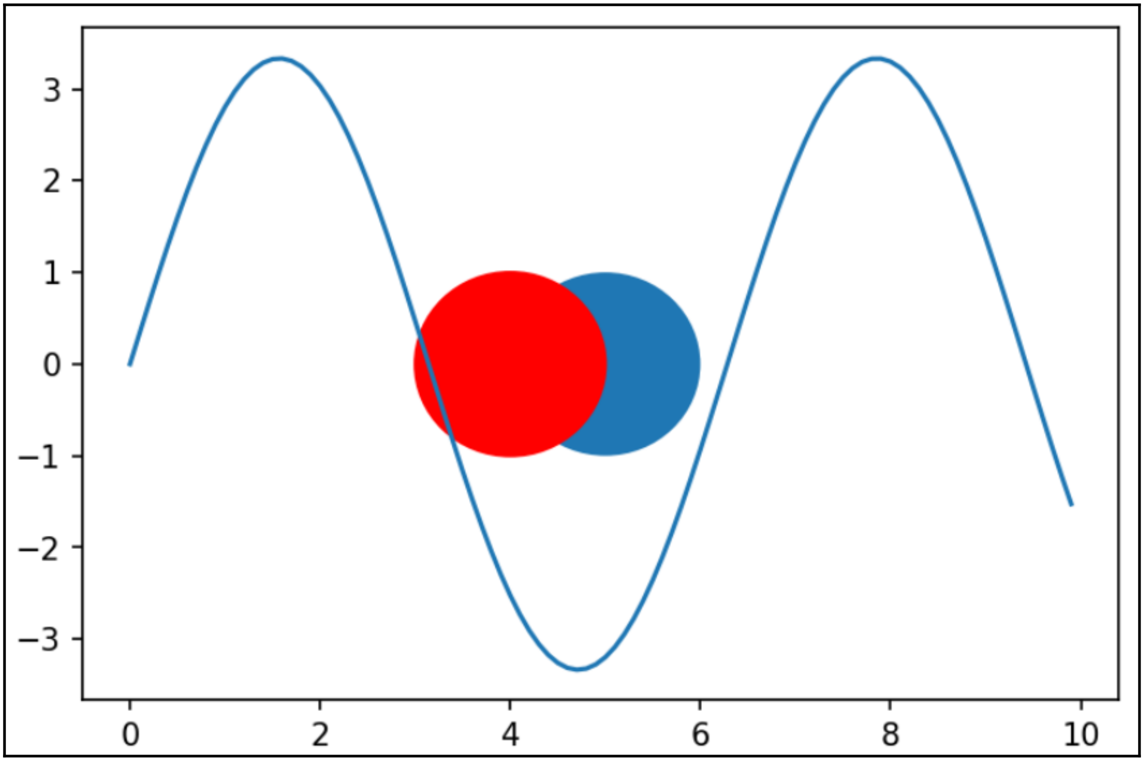

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

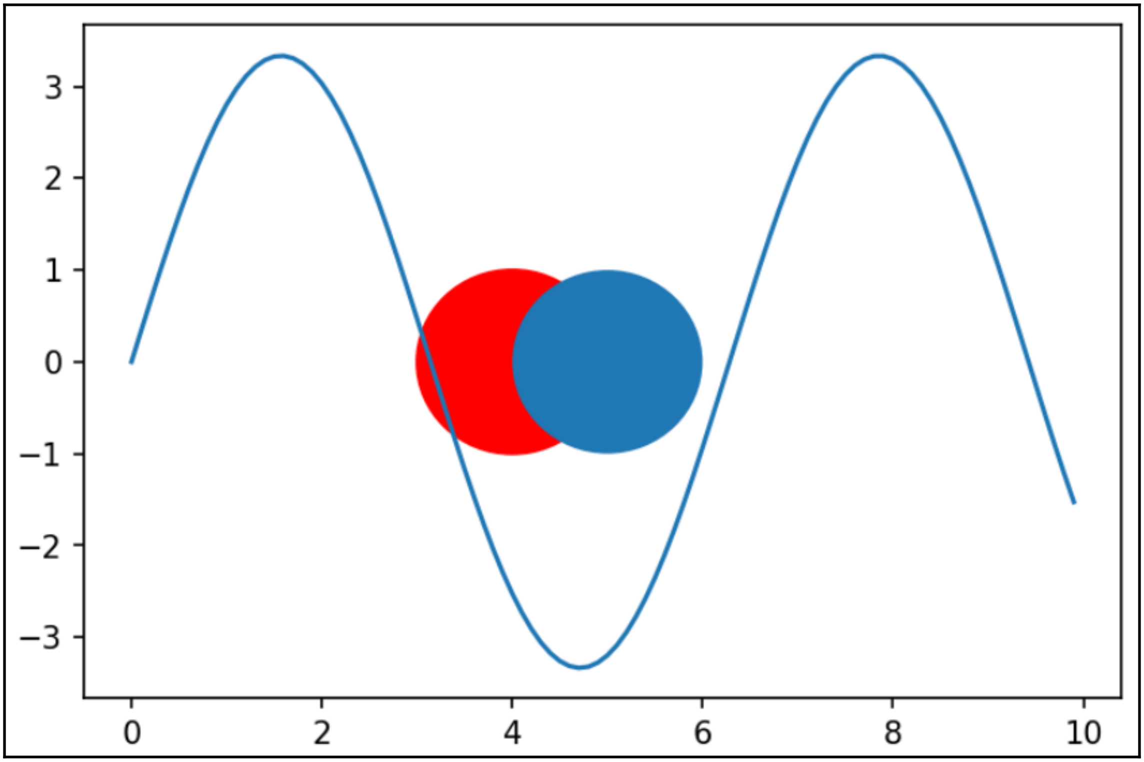

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

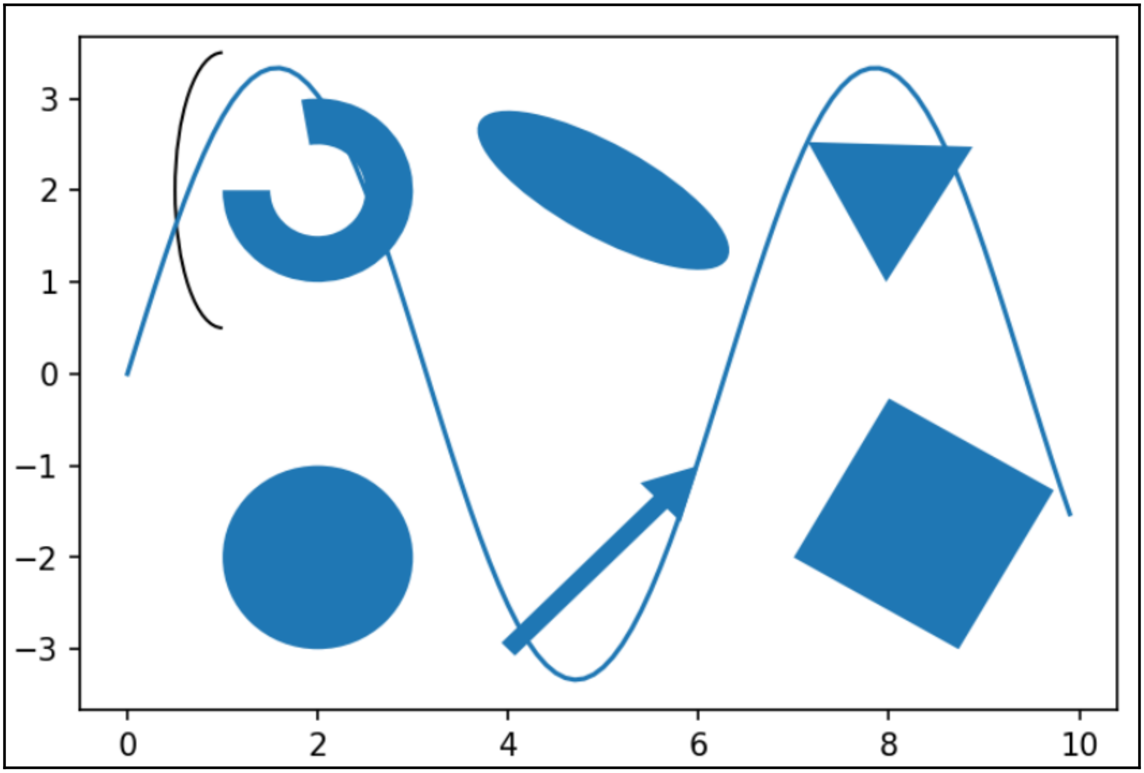

1
0
−1
0
2
4
6
8
10

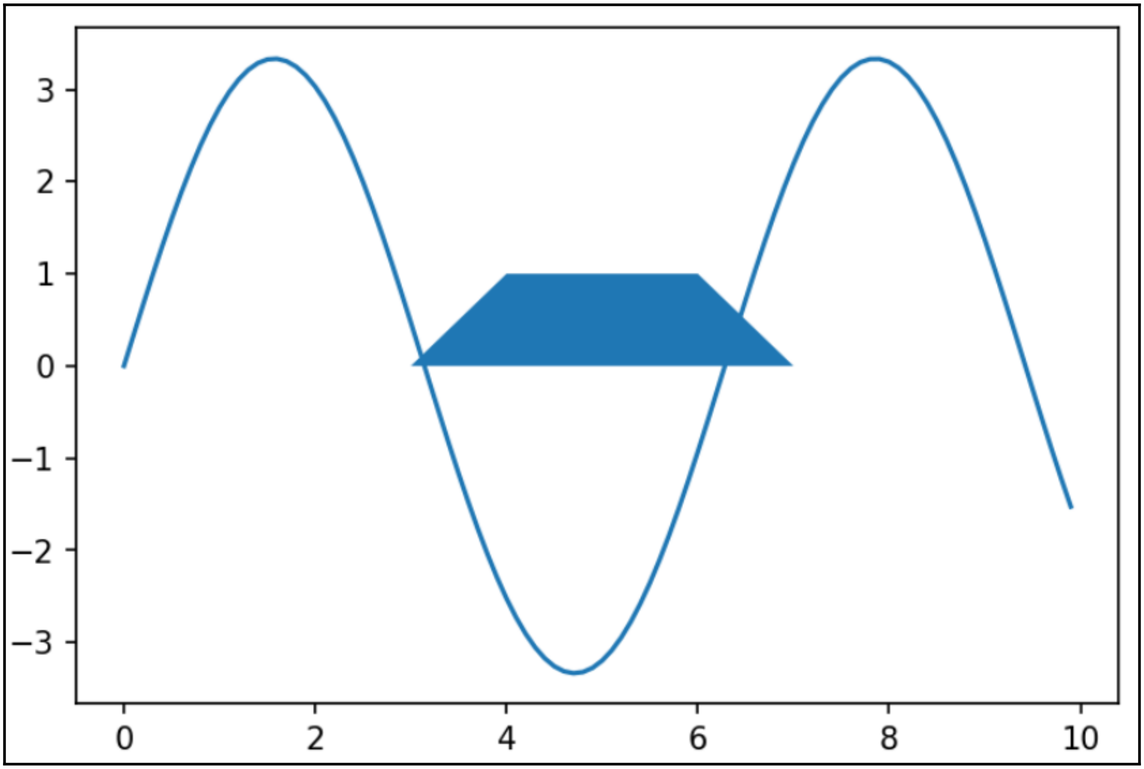

3
2
1
0
−1
−2
−3
0
2
4
6
8
10

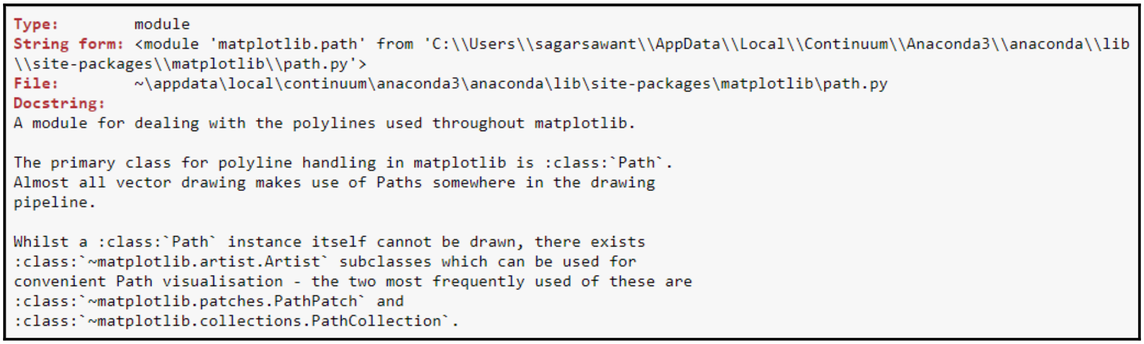

3
2
1
0
−1
−2
−3
0
2
4
6
8
10


3
2
1
0
−1
−2
−3
0
2
4
6
8
10

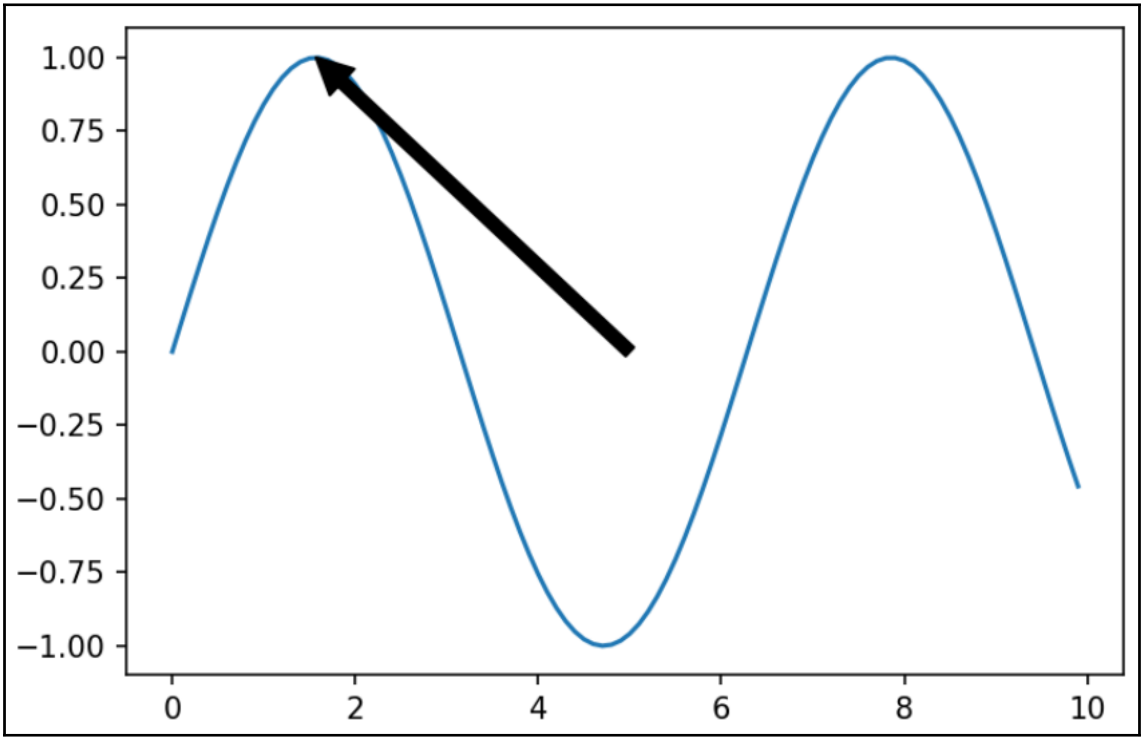

3
2
1
0
−1
−2
−3
0
2
4
6
8
10

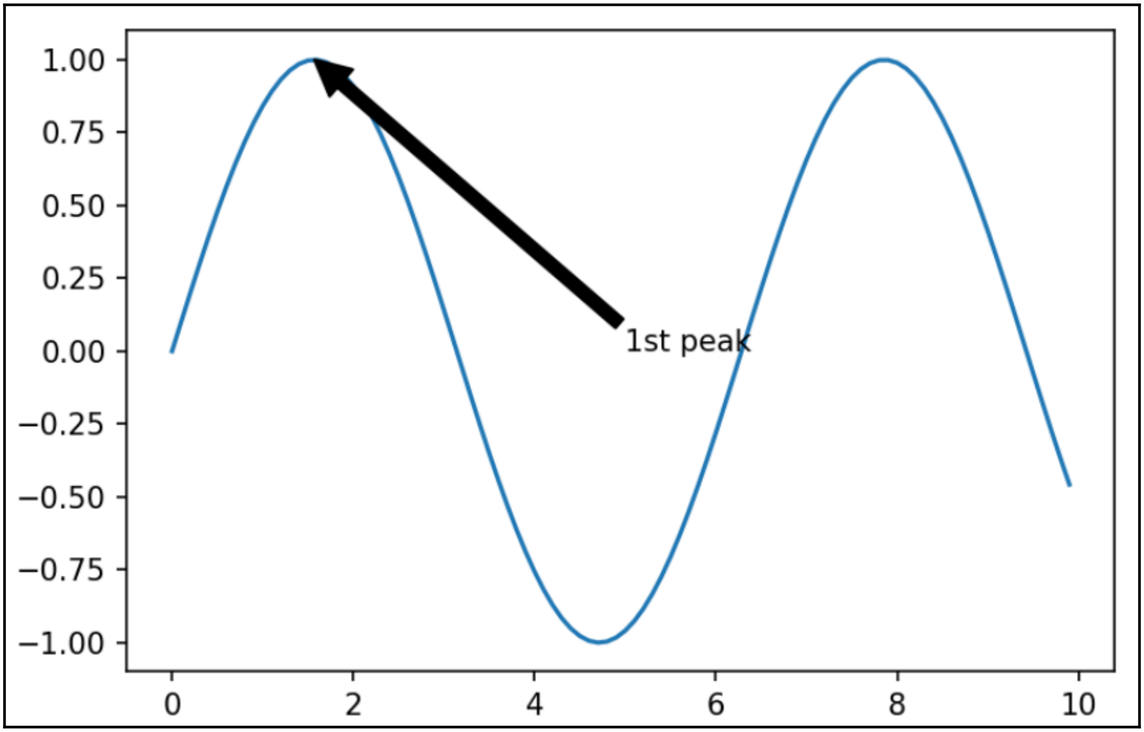

3
2
1
0
−1
−2
−3
0
2
4
6
8
10

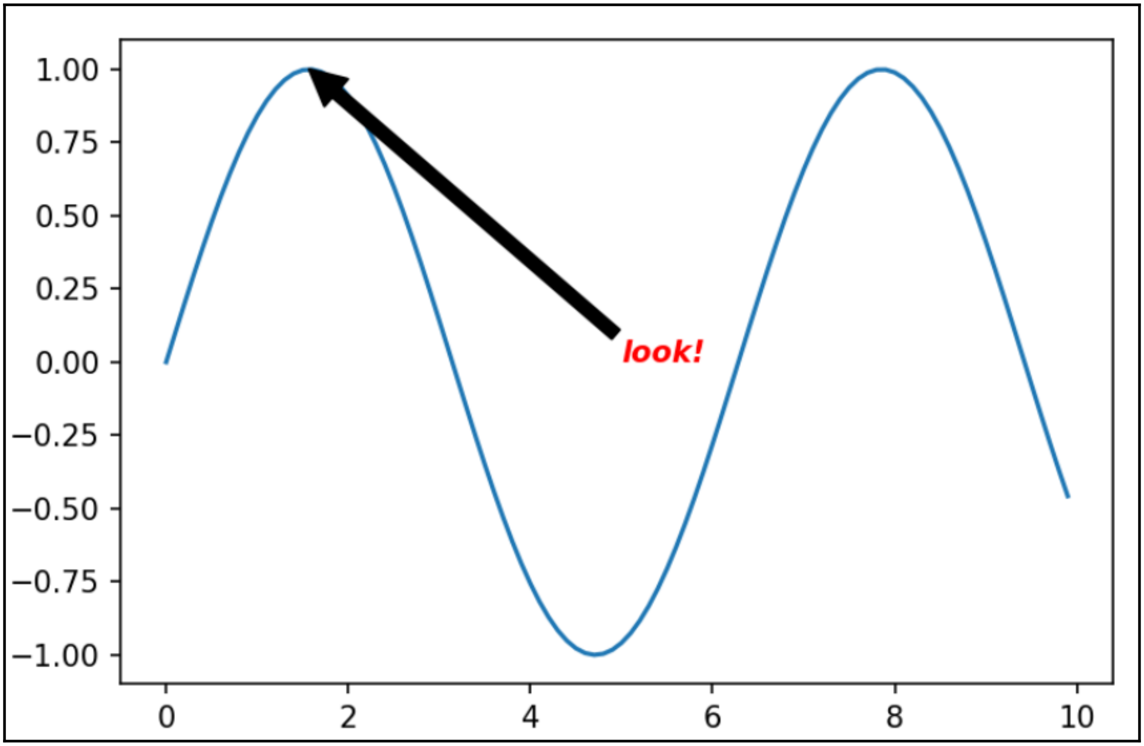


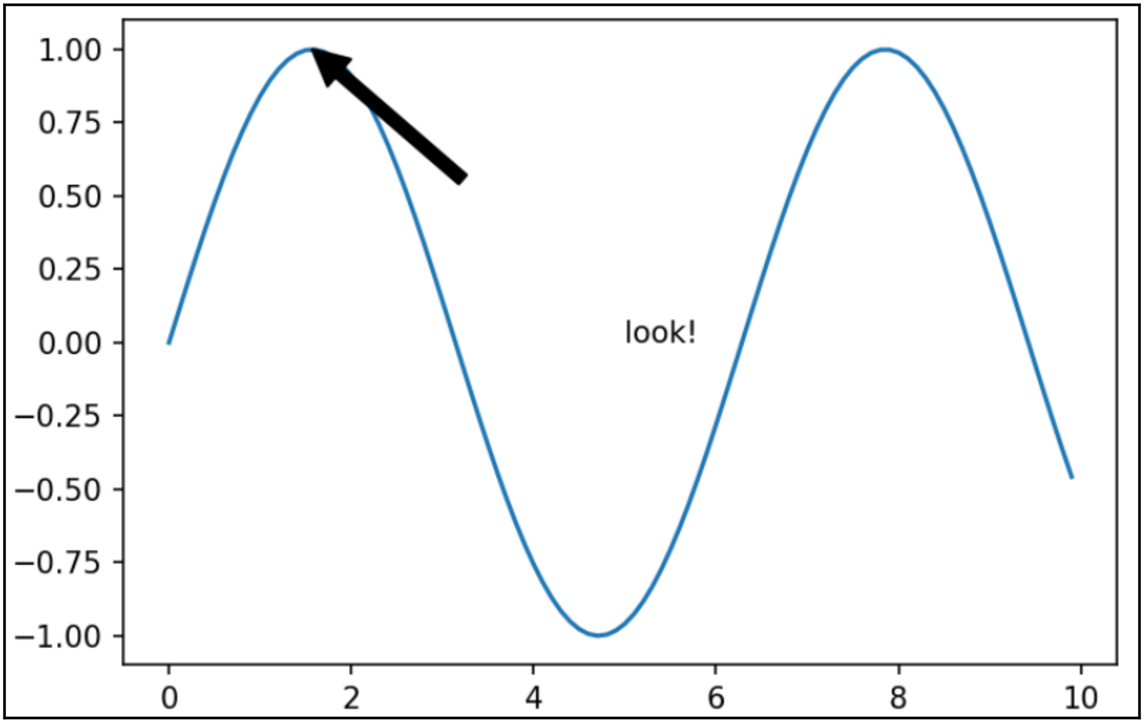


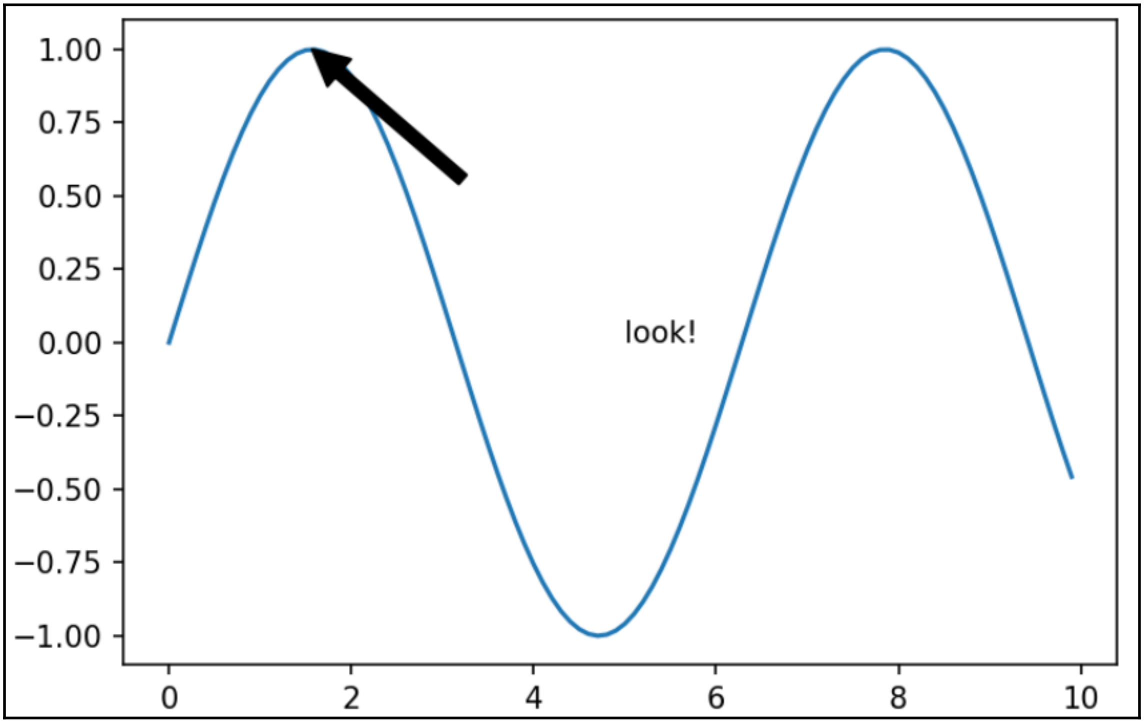
```
Type:        module
String form: <module 'matplotlib.path' from 'C:\\Users\\sagarsawant\\AppData\\Local\\Continuum\\Anaconda3\\anaconda\\lib
\\site-packages\\matplotlib\\path.py'>
File:        ~\appdata\local\continuum\anaconda3\anaconda\lib\site-packages\matplotlib\path.py
Docstring:
A module for dealing with the polylines used throughout matplotlib.

The primary class for polyline handling in matplotlib is :class:`Path`.
Almost all vector drawing makes use of Paths somewhere in the drawing
pipeline.

Whilst a :class:`Path` instance itself cannot be drawn, there exists
:class:`~matplotlib.artist.Artist` subclasses which can be used for
convenient Path visualisation - the two most frequently used of these are
:class:`~matplotlib.patches.PathPatch` and
:class:`~matplotlib.collections.PathCollection`.
```

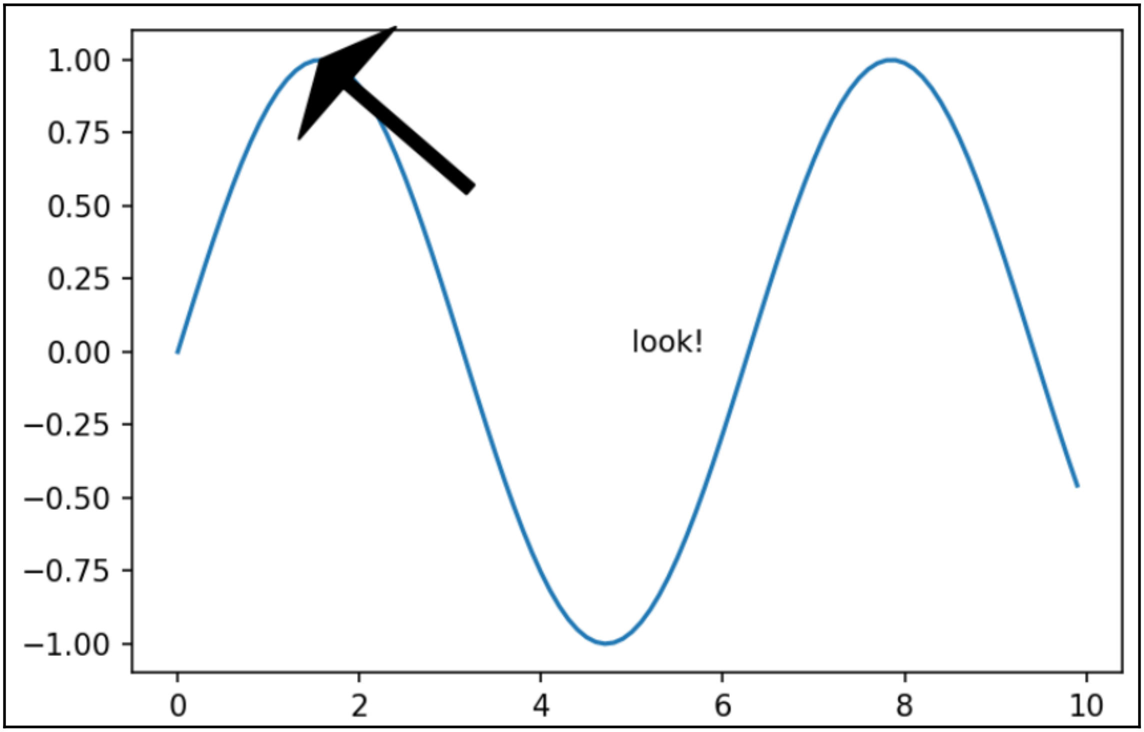

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

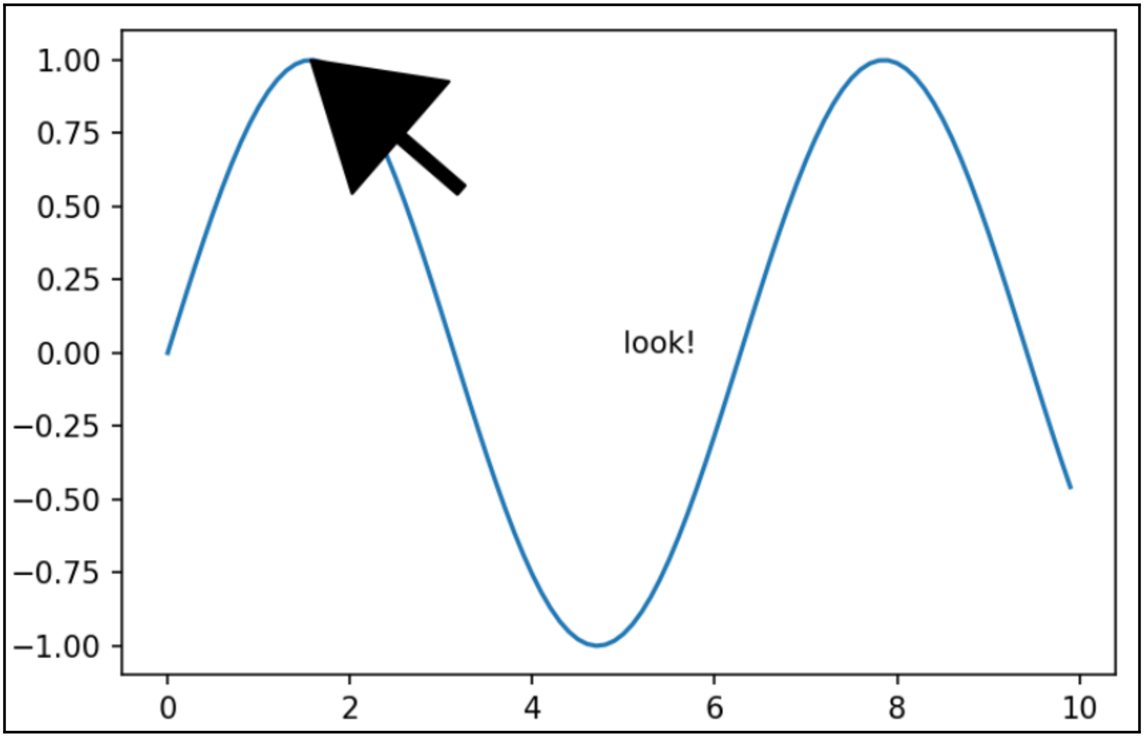

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
1st peak

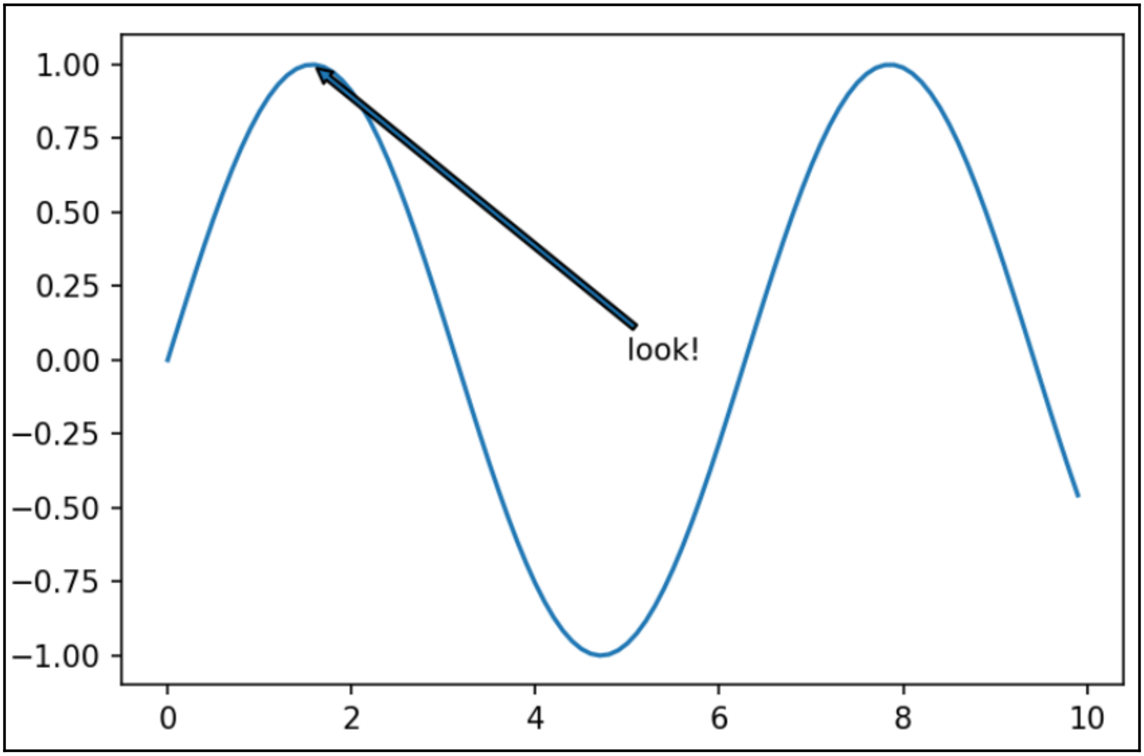

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

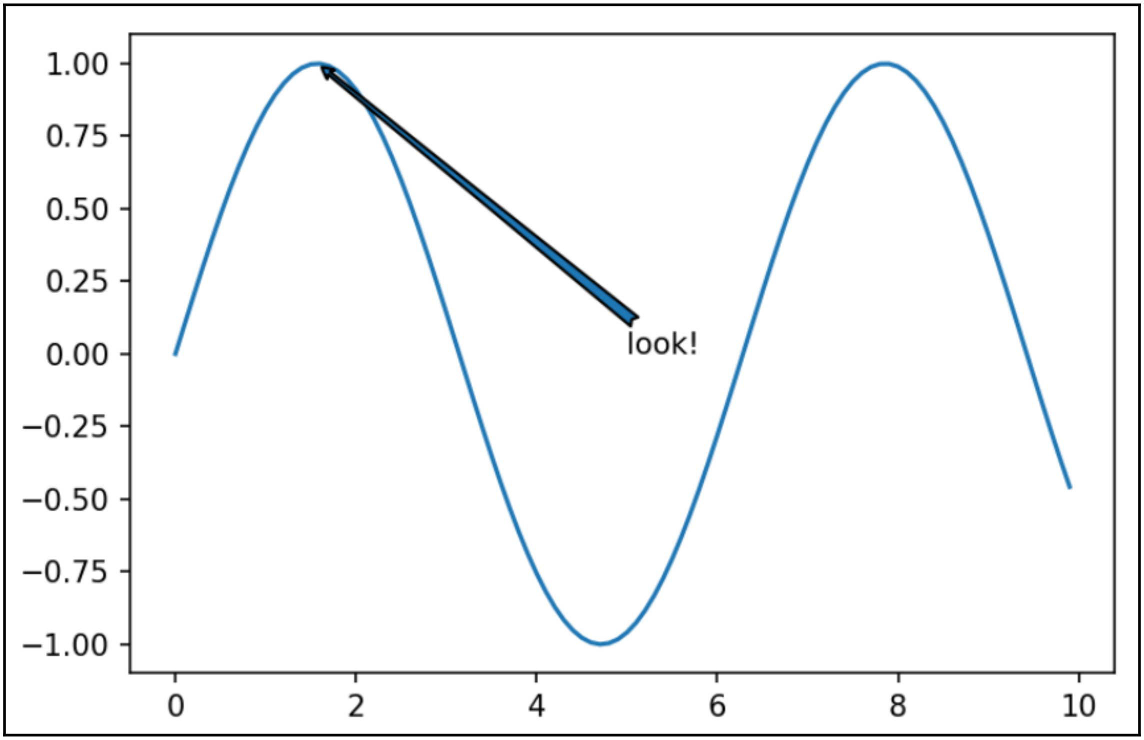

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

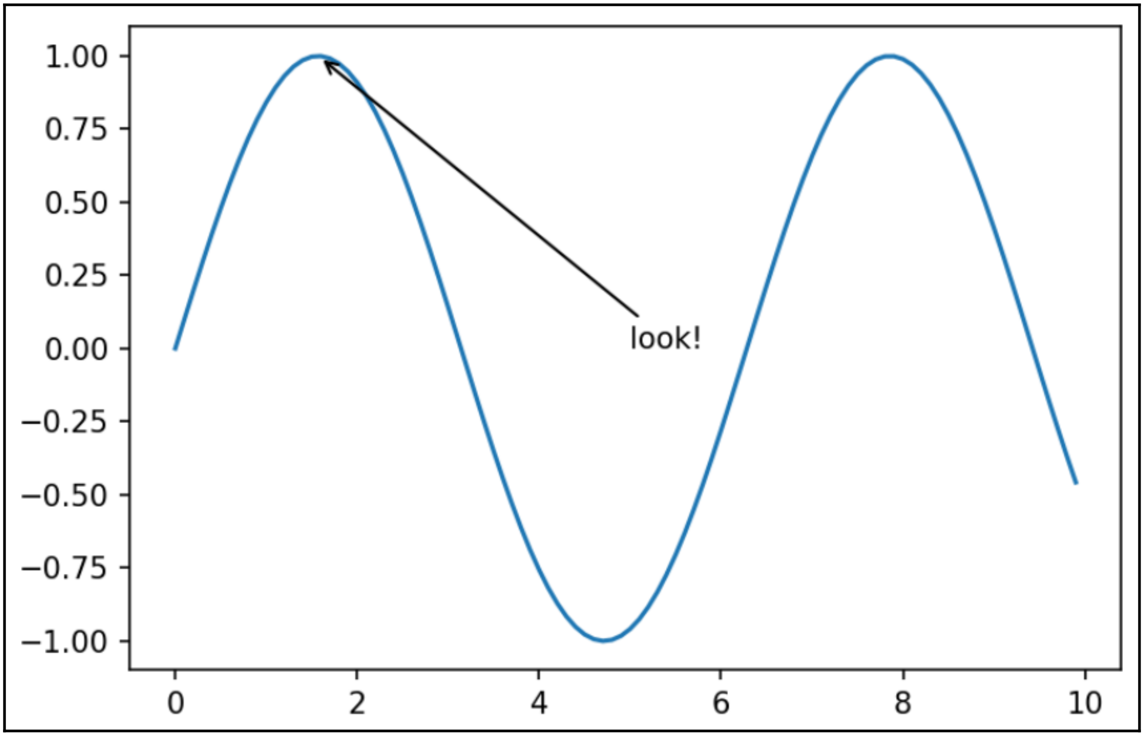

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

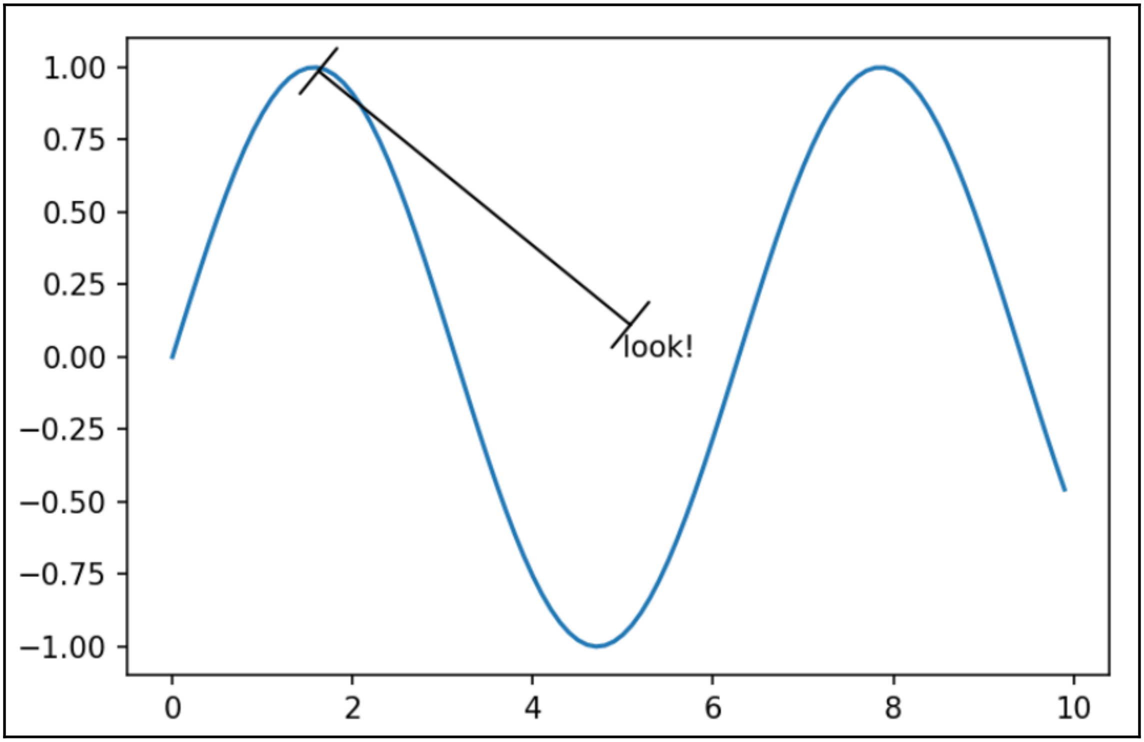

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

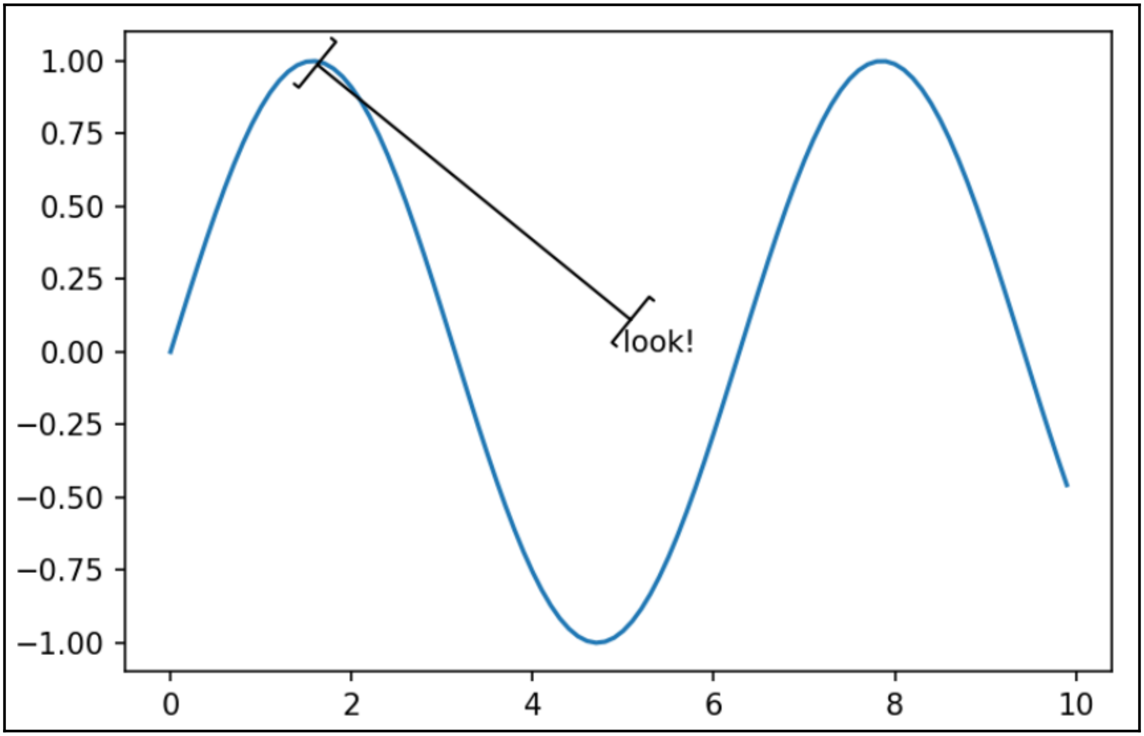

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

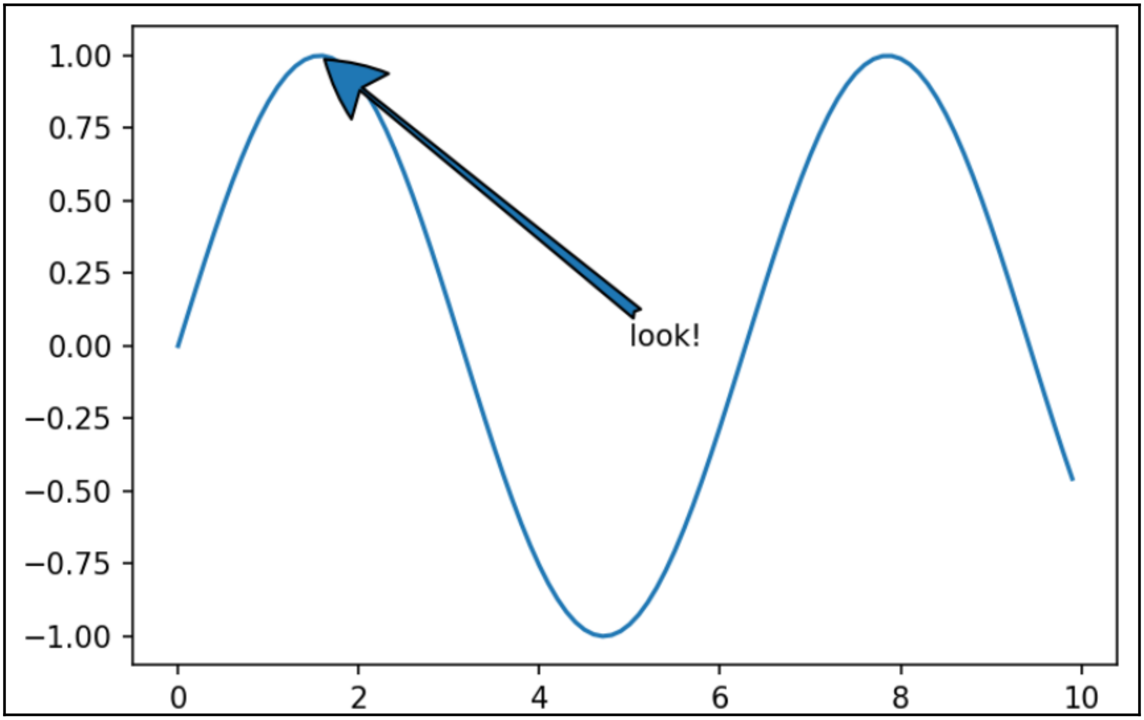

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
look!
0
2
4
6
8
10

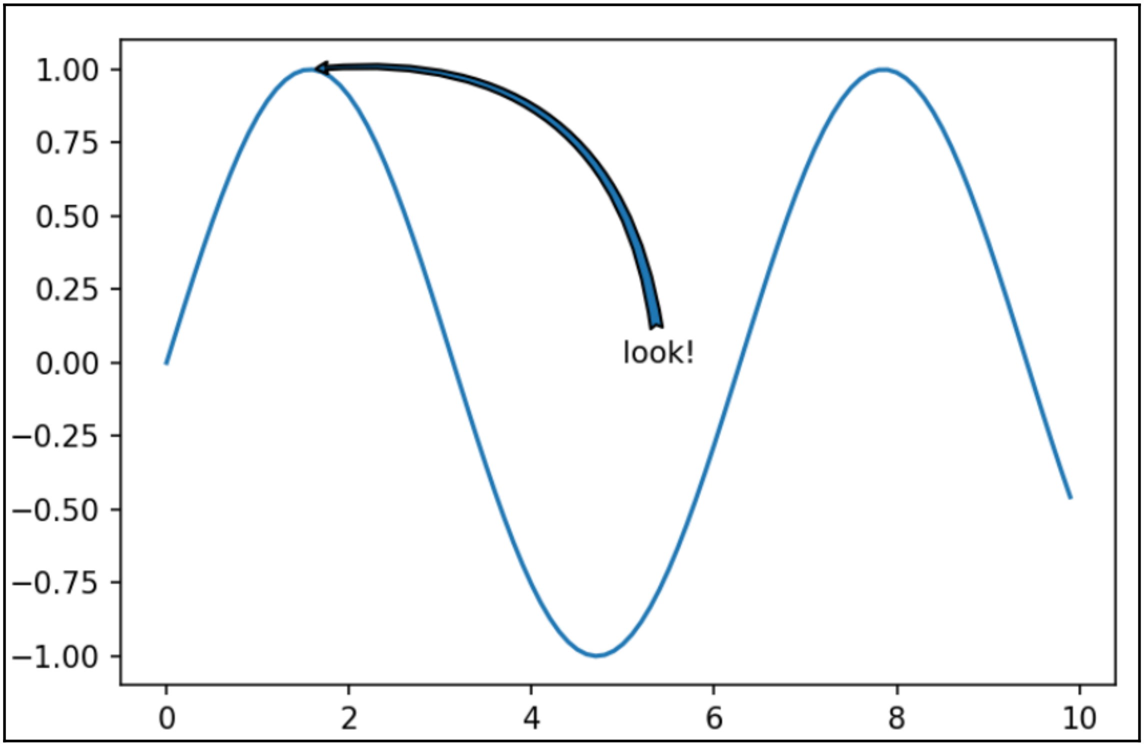

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

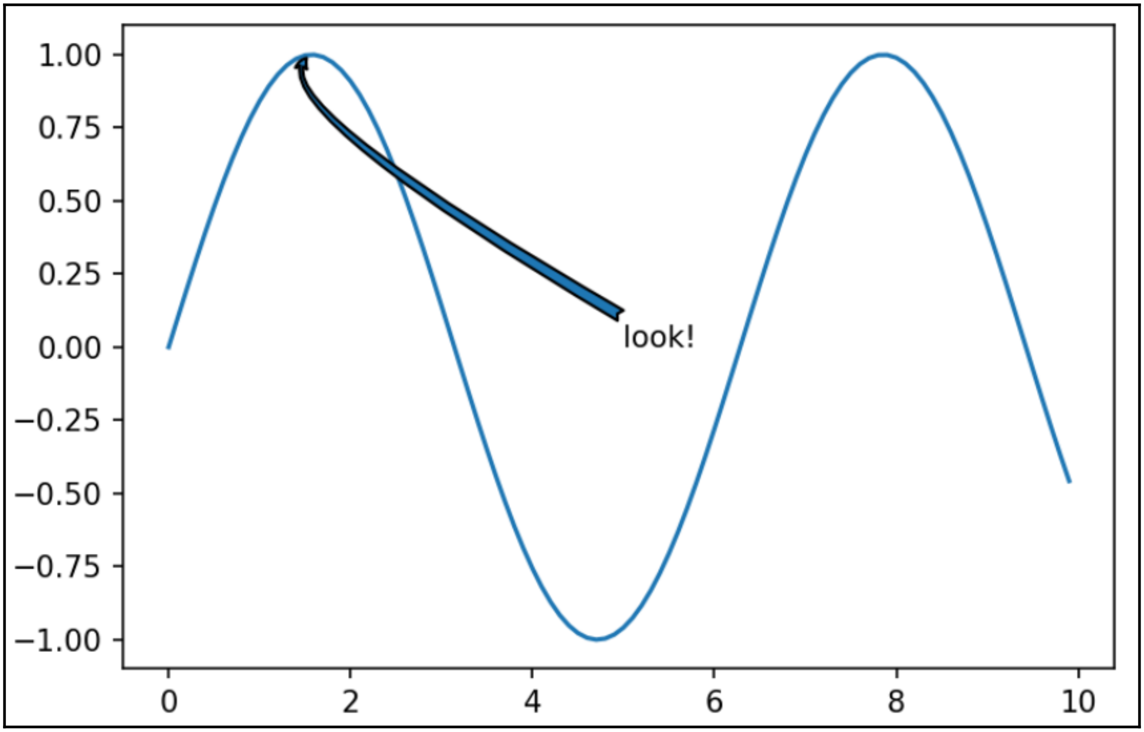

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

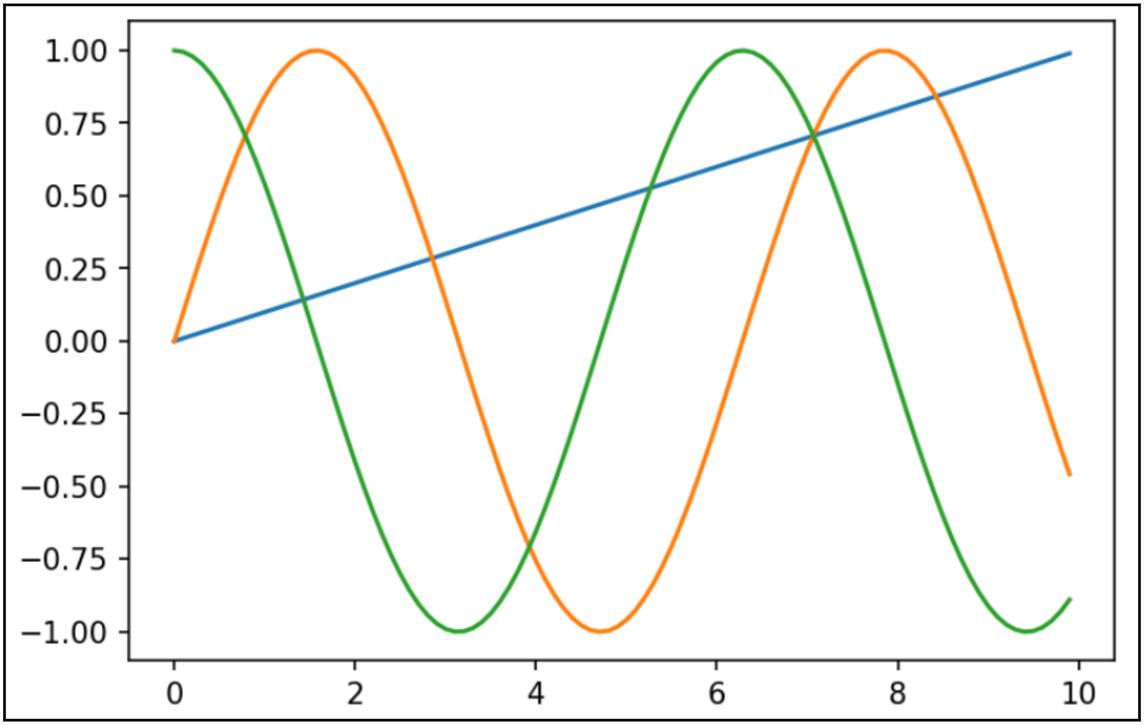

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

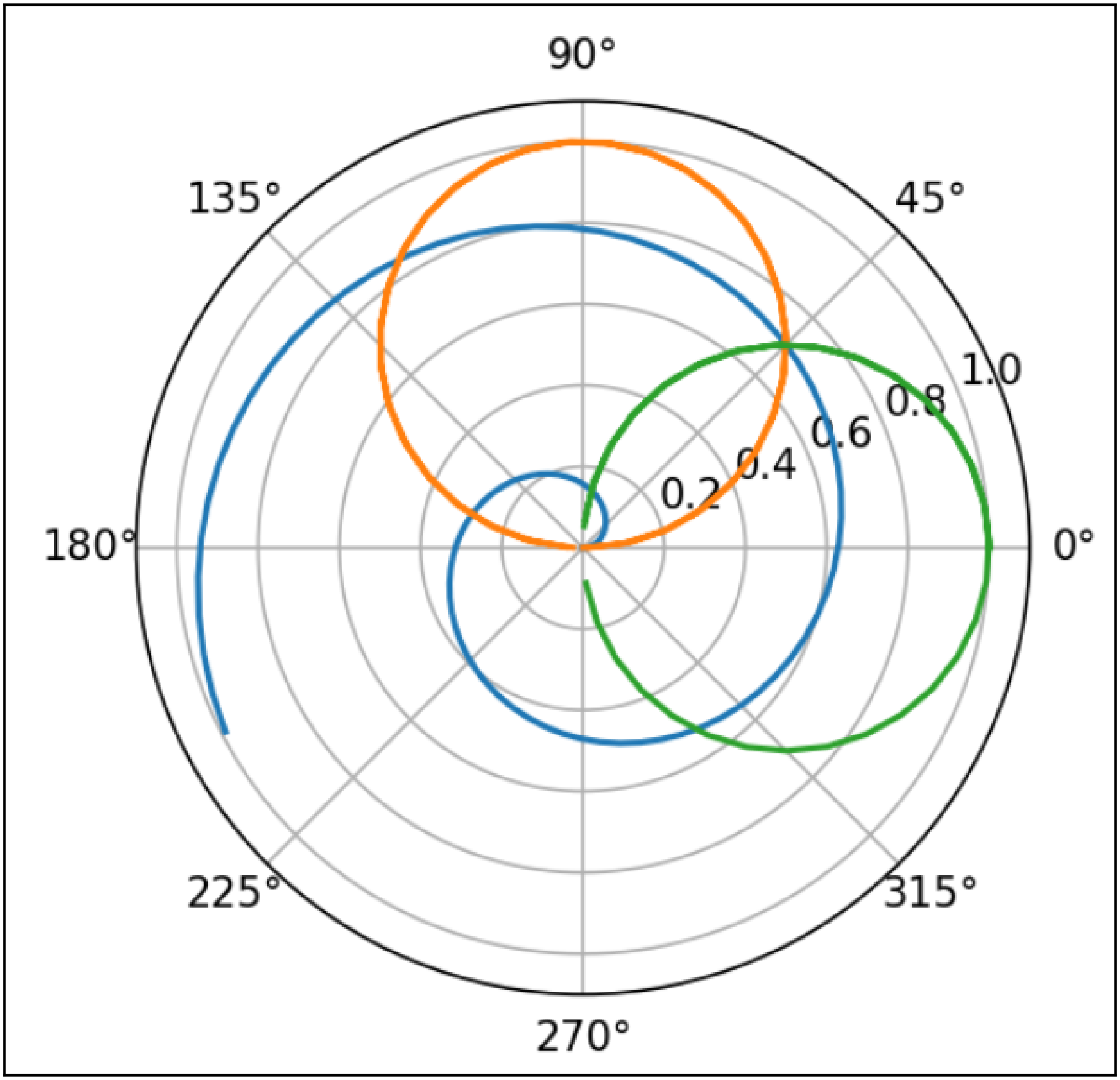

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

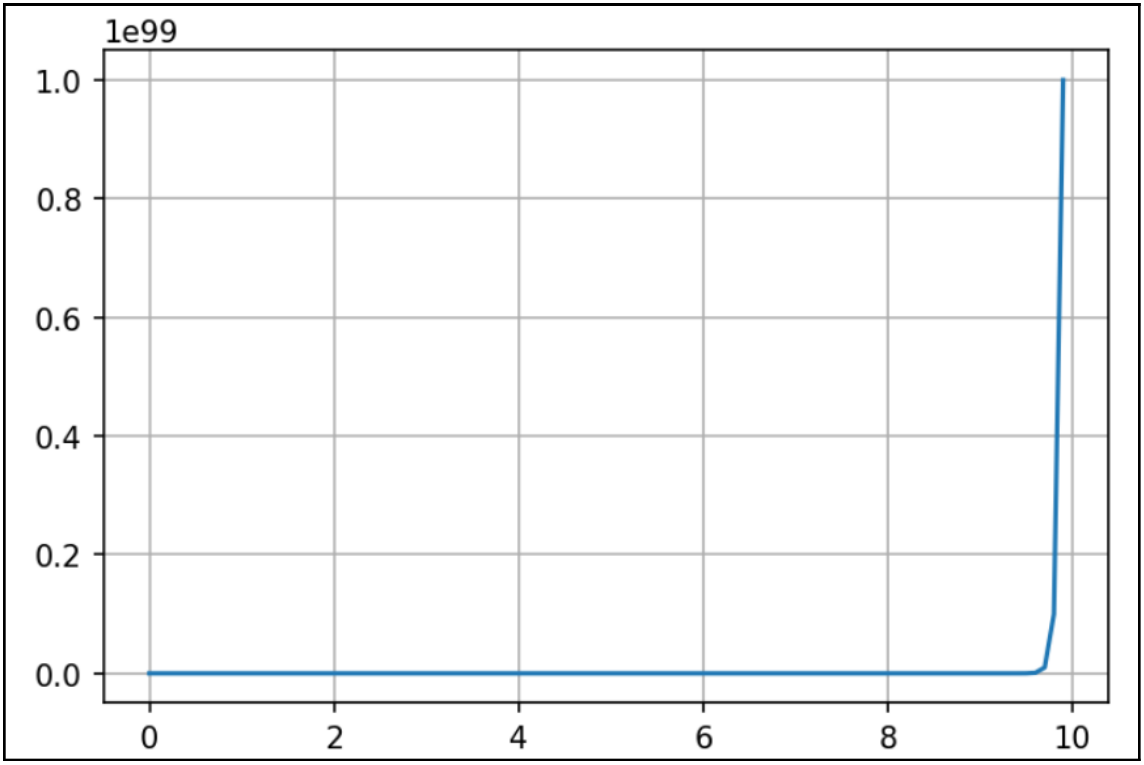

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

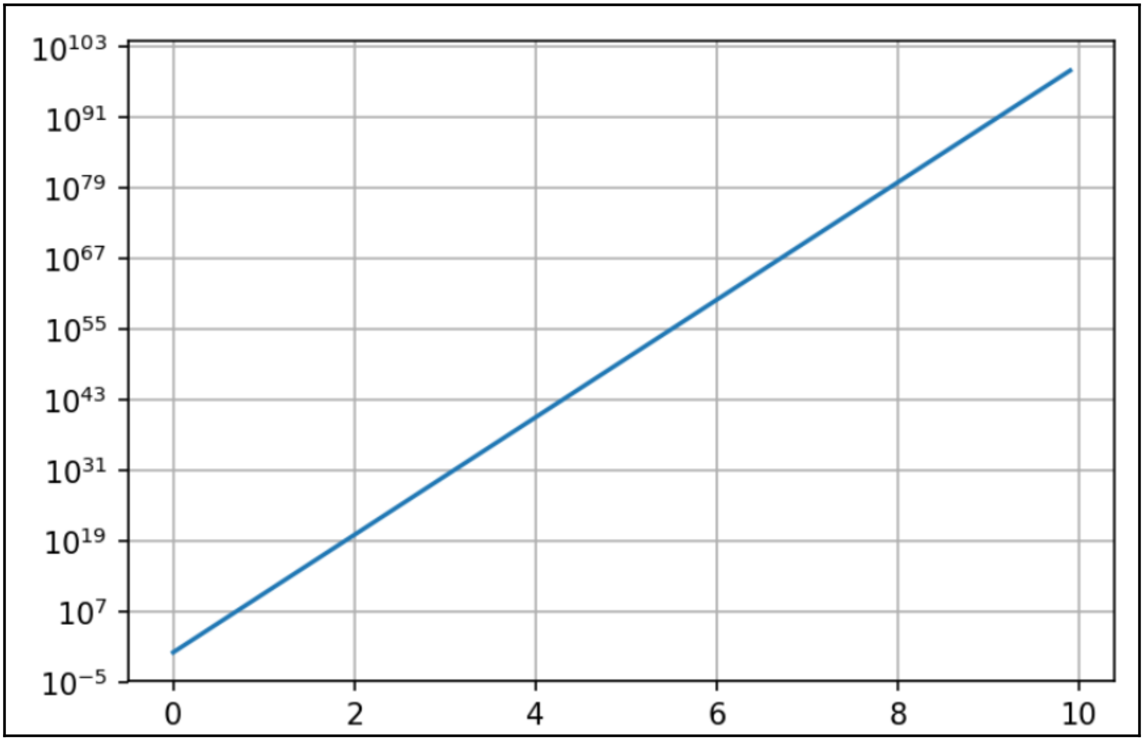

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10
look!

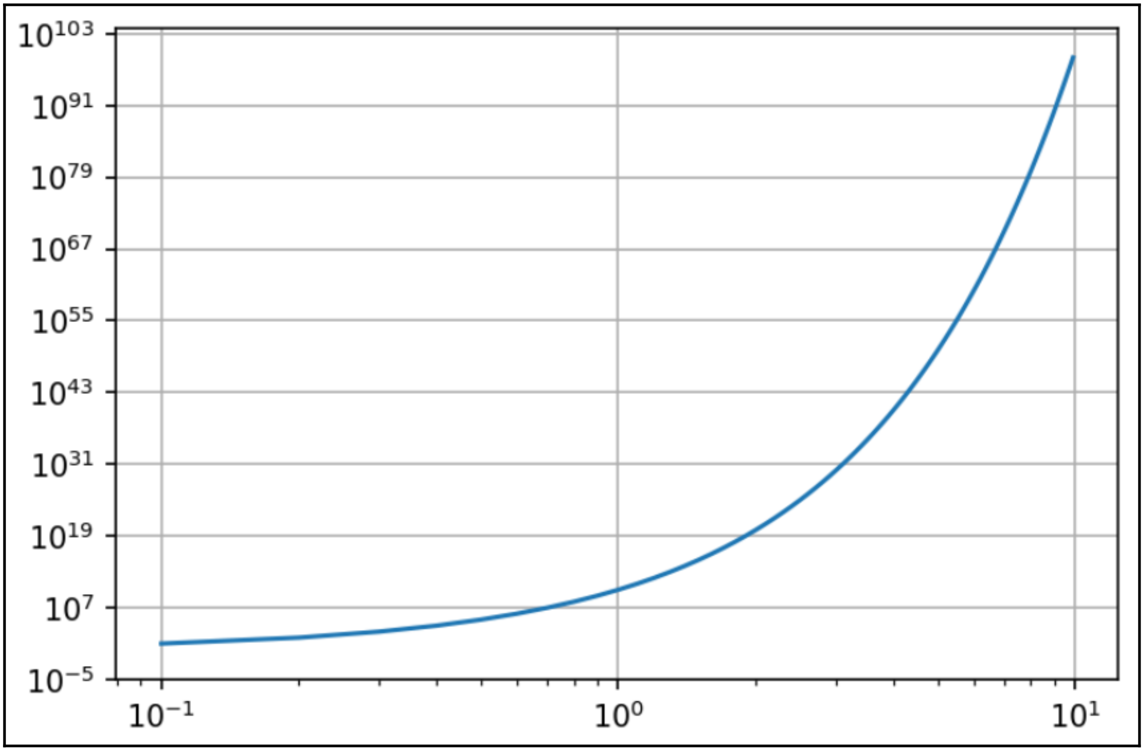

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10


90°
135°
45°
180°
0°
225°
315°
270°
0.2
0.4
0.6
0.8
1.0

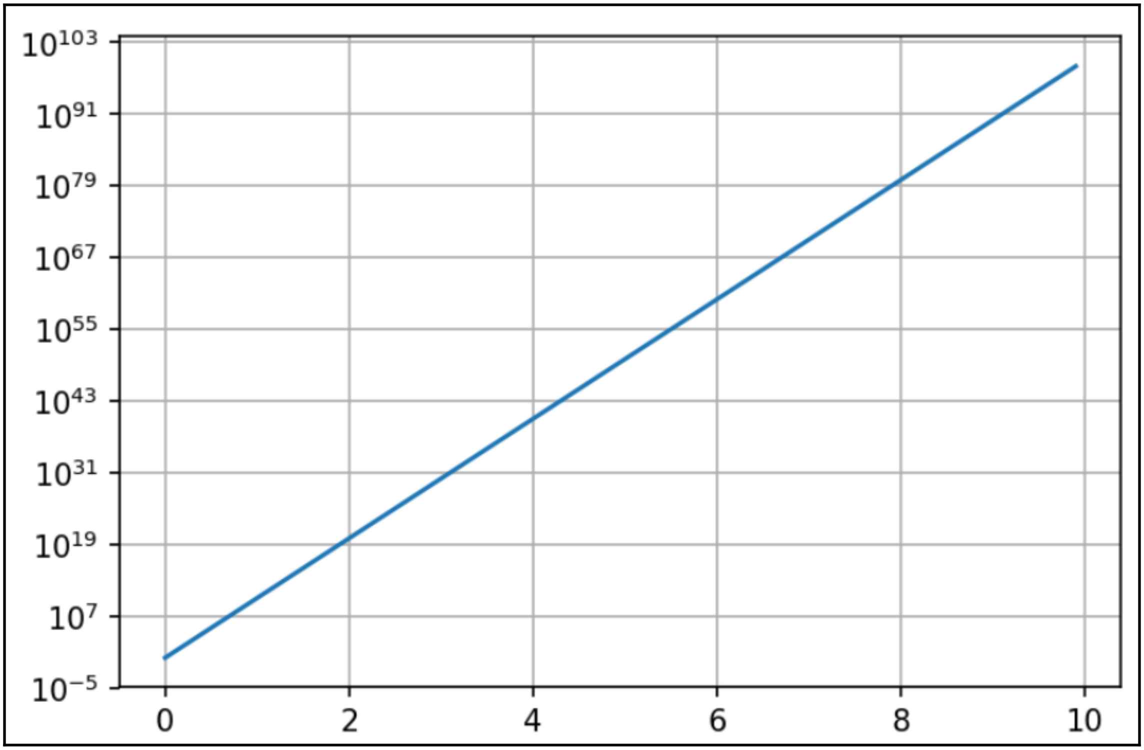

1e99
1.0
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
10

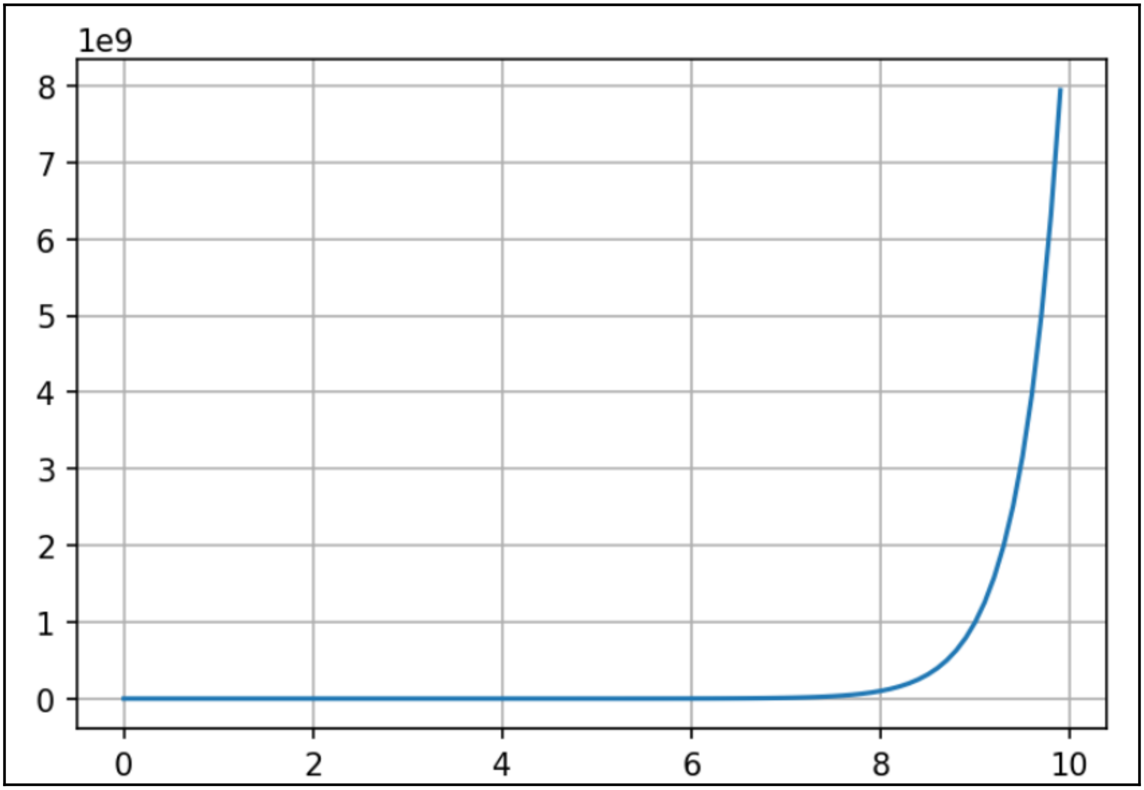


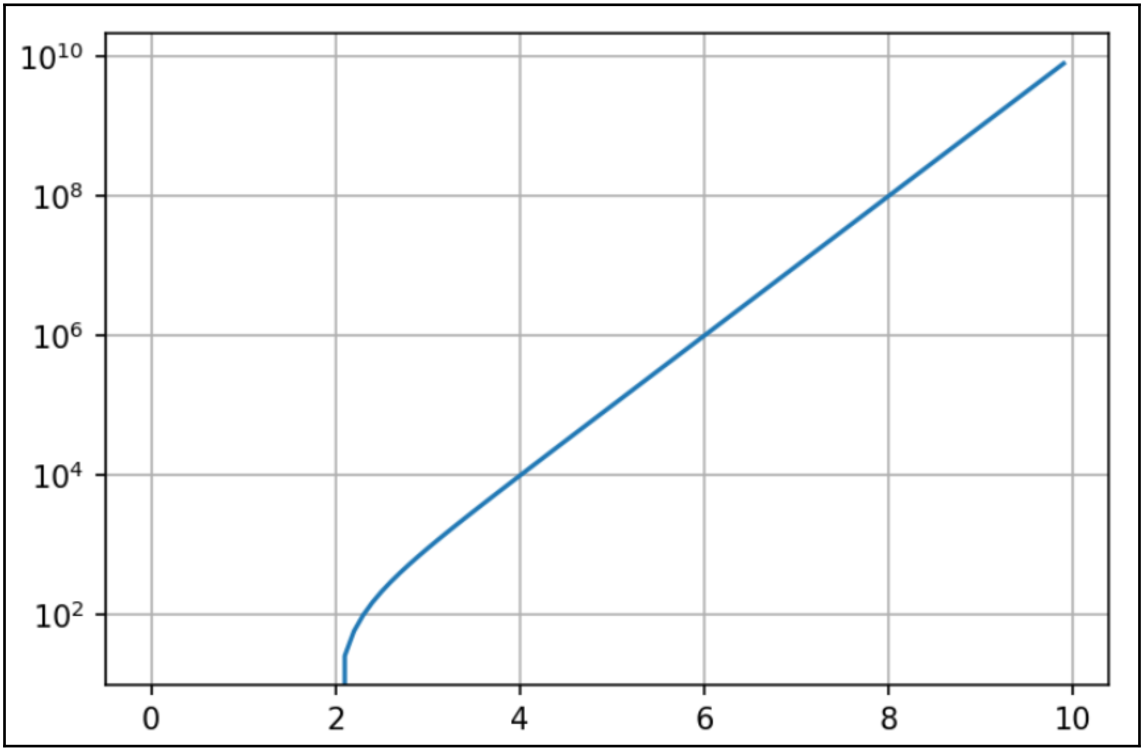
10^{103}
10^{91}
10^{79}
10^{67}
10^{55}
10^{43}
10^{31}
10^{19}
10^{7}
10^{-5}
0
2
4
6
8
10



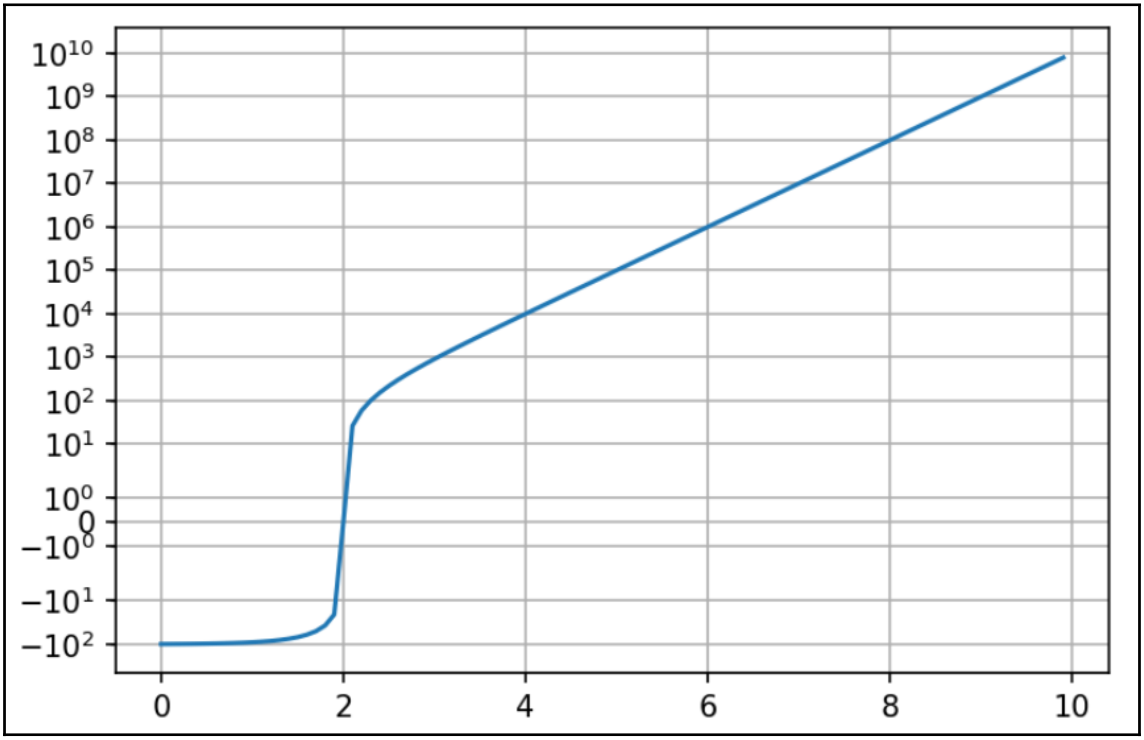
10^{103}
10^{91}
10^{79}
10^{67}
10^{55}
10^{43}
10^{31}
10^{19}
10^{7}
10^{-5}
10^{-1}
10^{0}
10^{1}

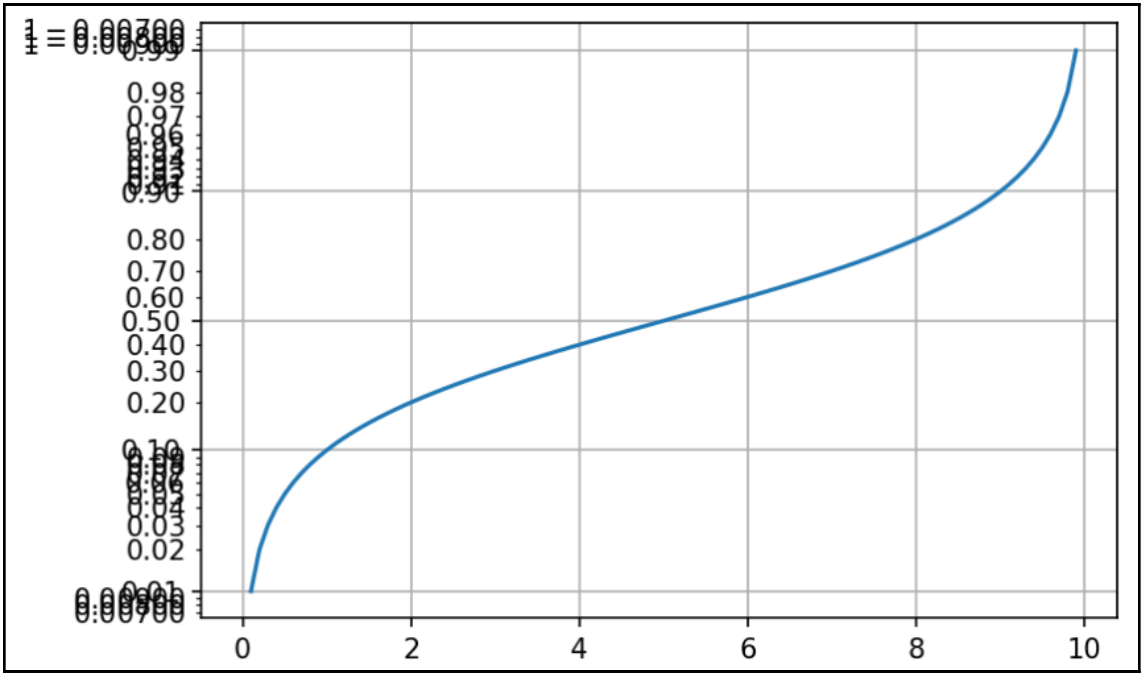

10^103
10^91
10^79
10^67
10^55
10^43
10^31
10^19
10^7
10^−5
0
2
4
6
8
10

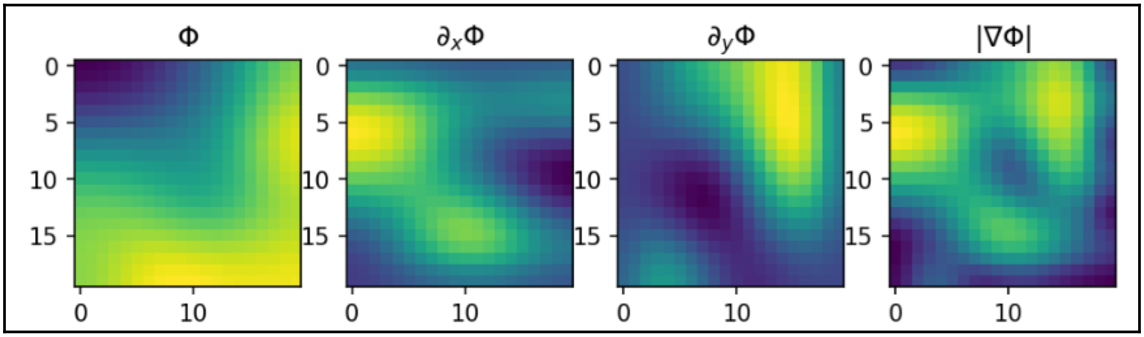

1e9
8
7
6
5
4
3
2
1
0
0
2
4
6
8
10

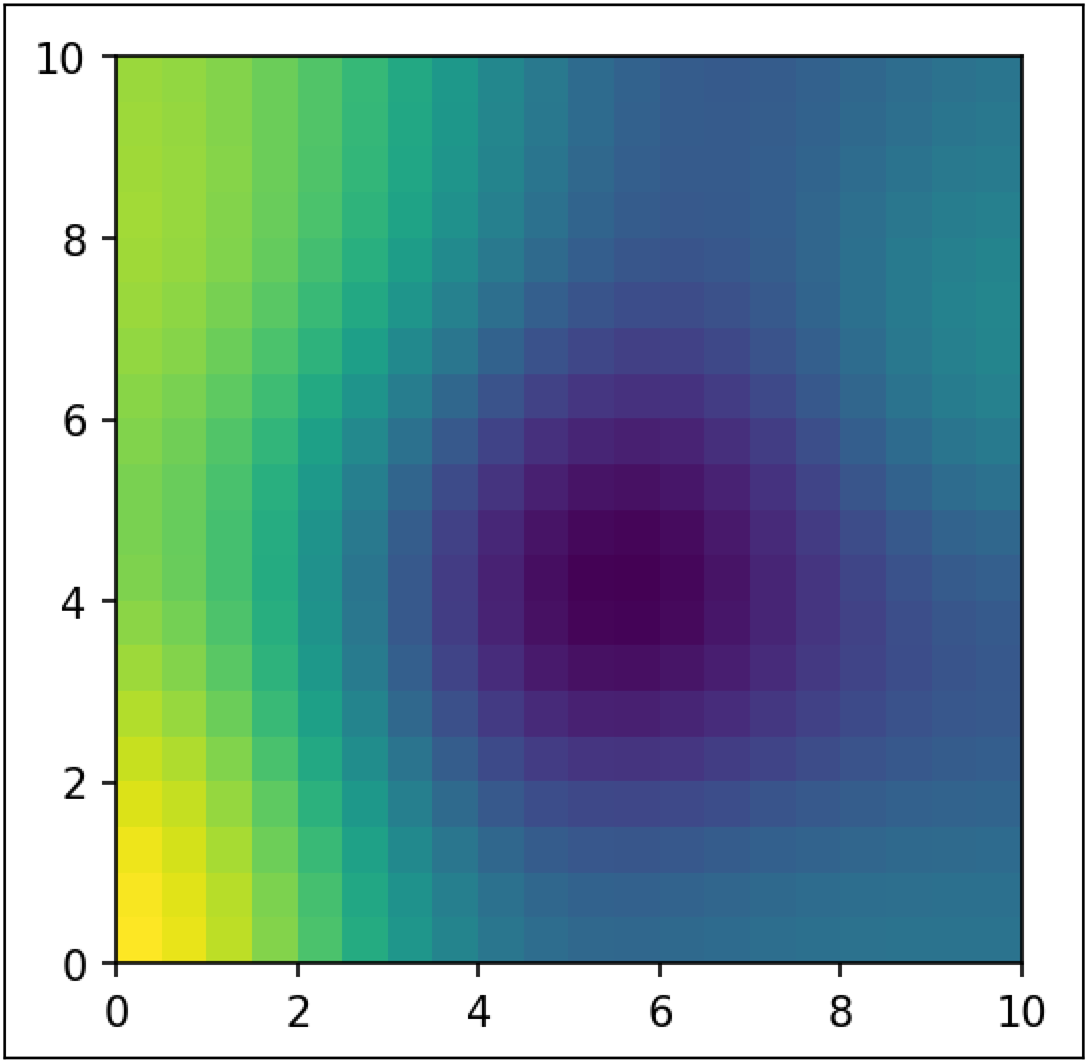


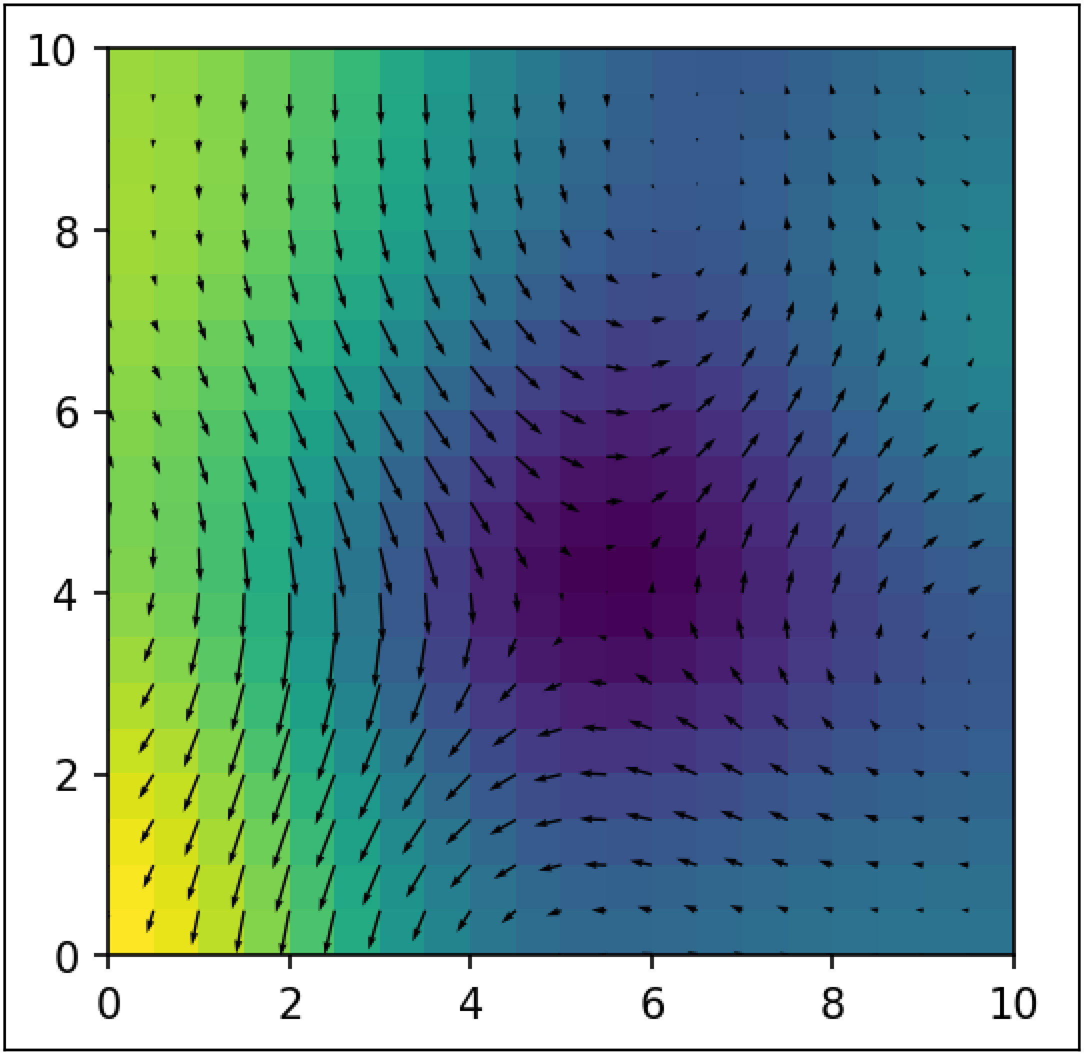
10^{10}
10^{8}
10^{6}
10^{4}
10^{2}
0
2
4
6
8
10

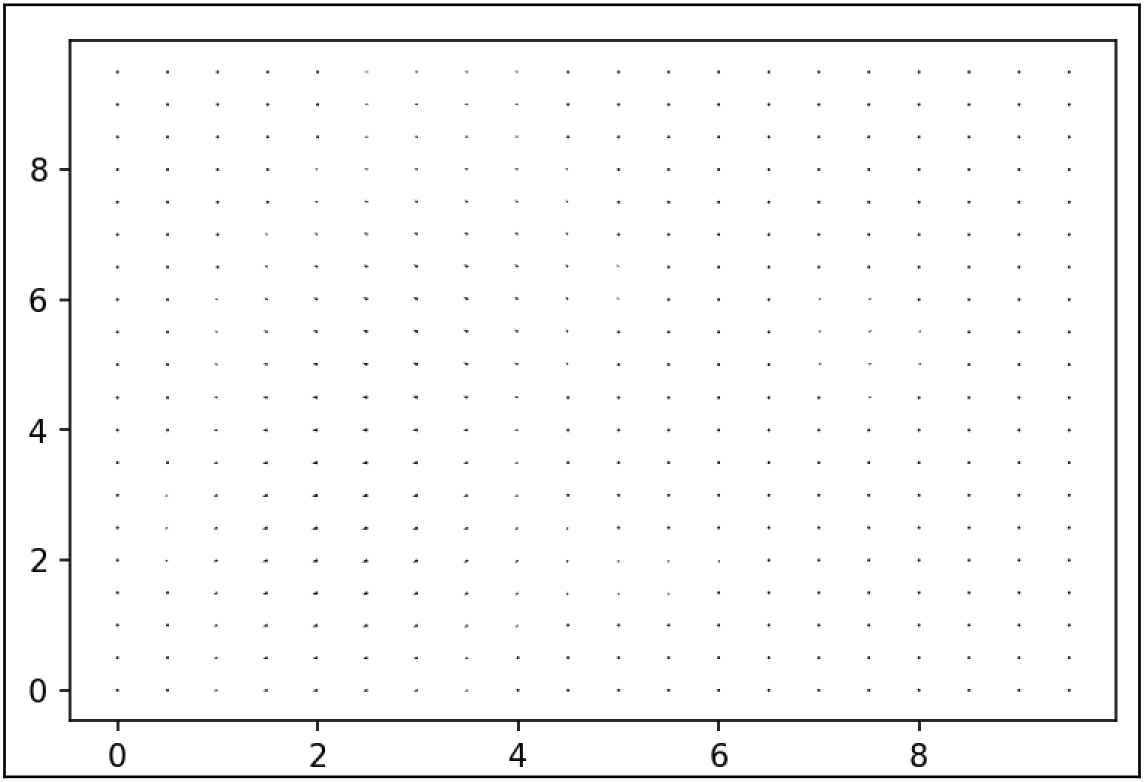

10^{10}
10^{9}
10^{8}
10^{7}
10^{6}
10^{5}
10^{4}
10^{3}
10^{2}
10^{1}
10^{0}
0
-10^{0}
-10^{1}
-10^{2}
0
2
4
6
8
10

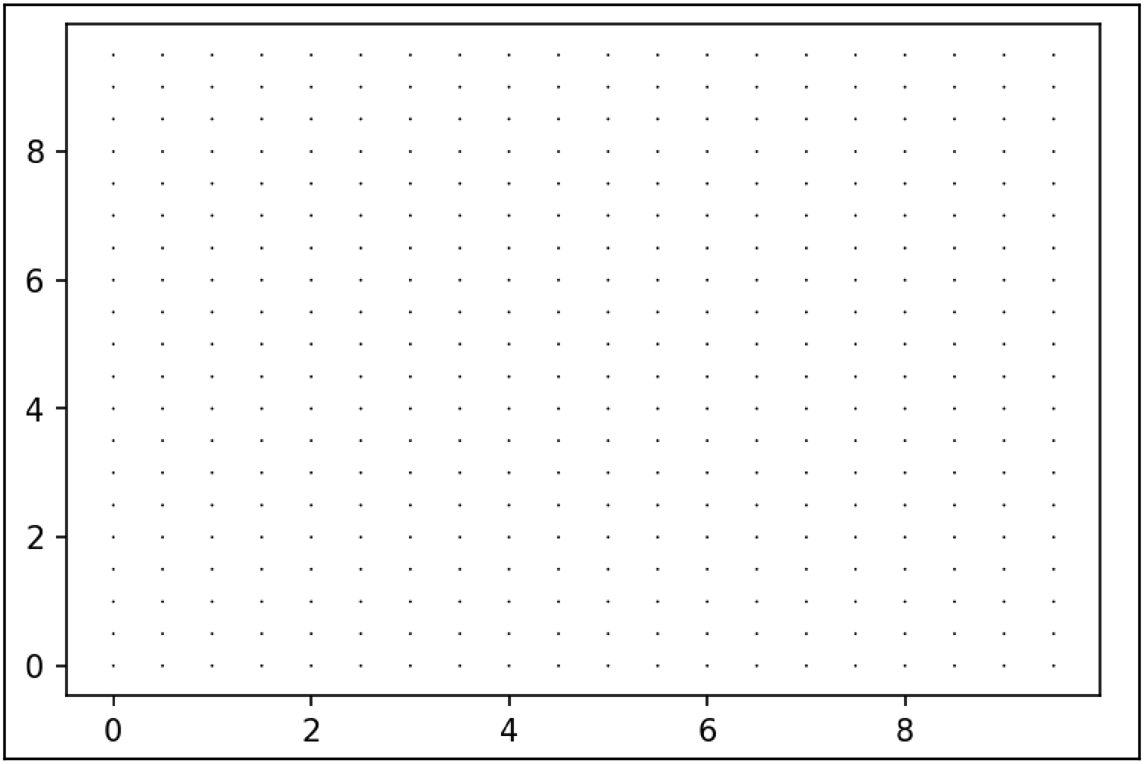

0.99
0.98
0.97
0.96
0.95
0.94
0.93
0.92
0.91
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2
4
6
8
10

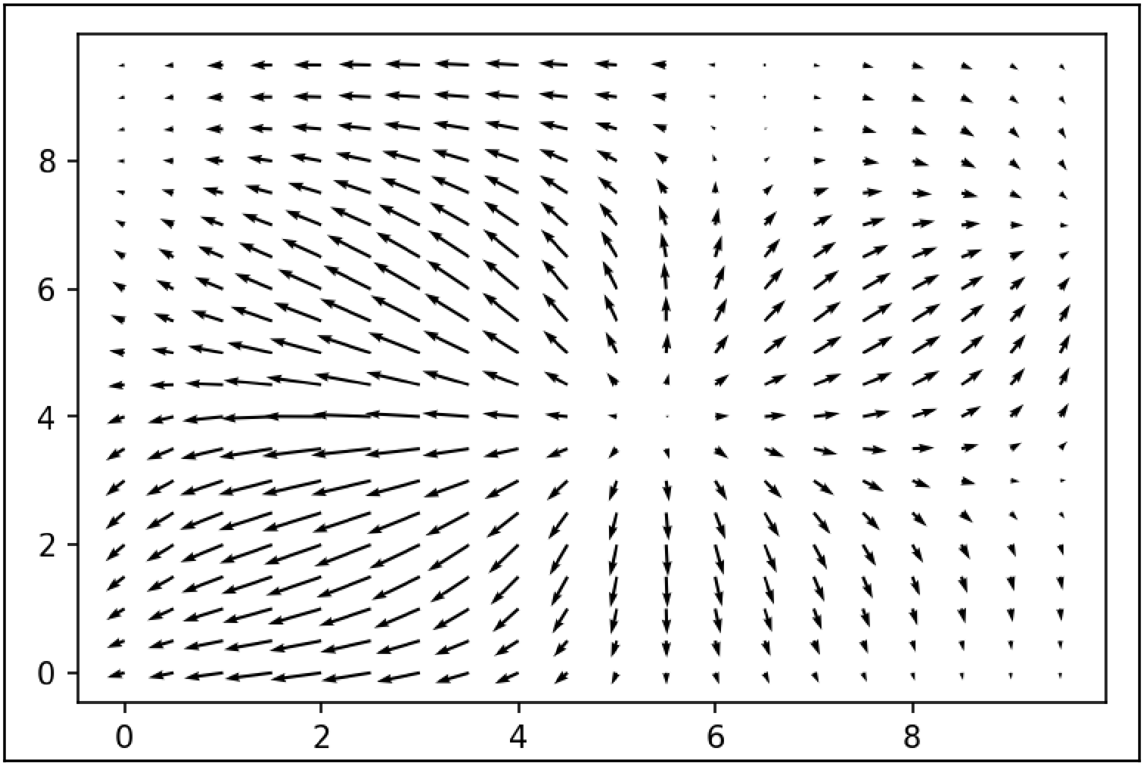

Φ
$\partial_x \Phi$
$\partial_y \Phi$
$|\nabla \Phi|$
0
5
10
15
0
10

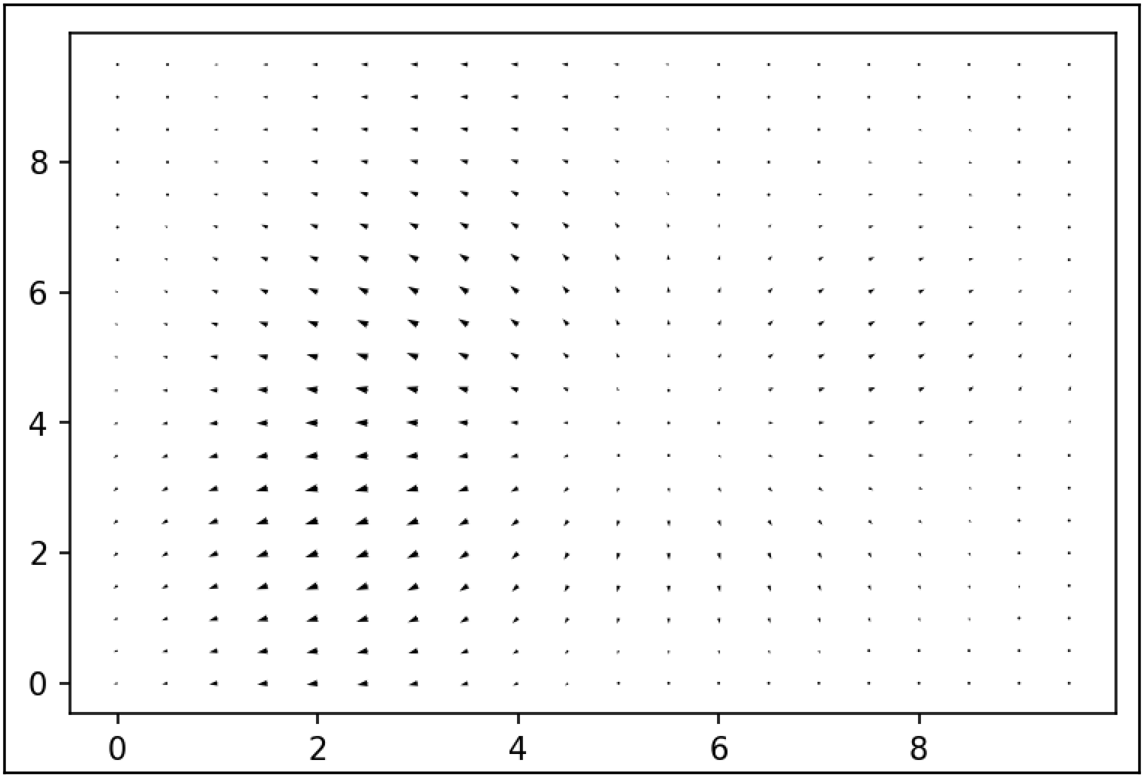

10
8
6
4
2
0
0
2
4
6
8
10

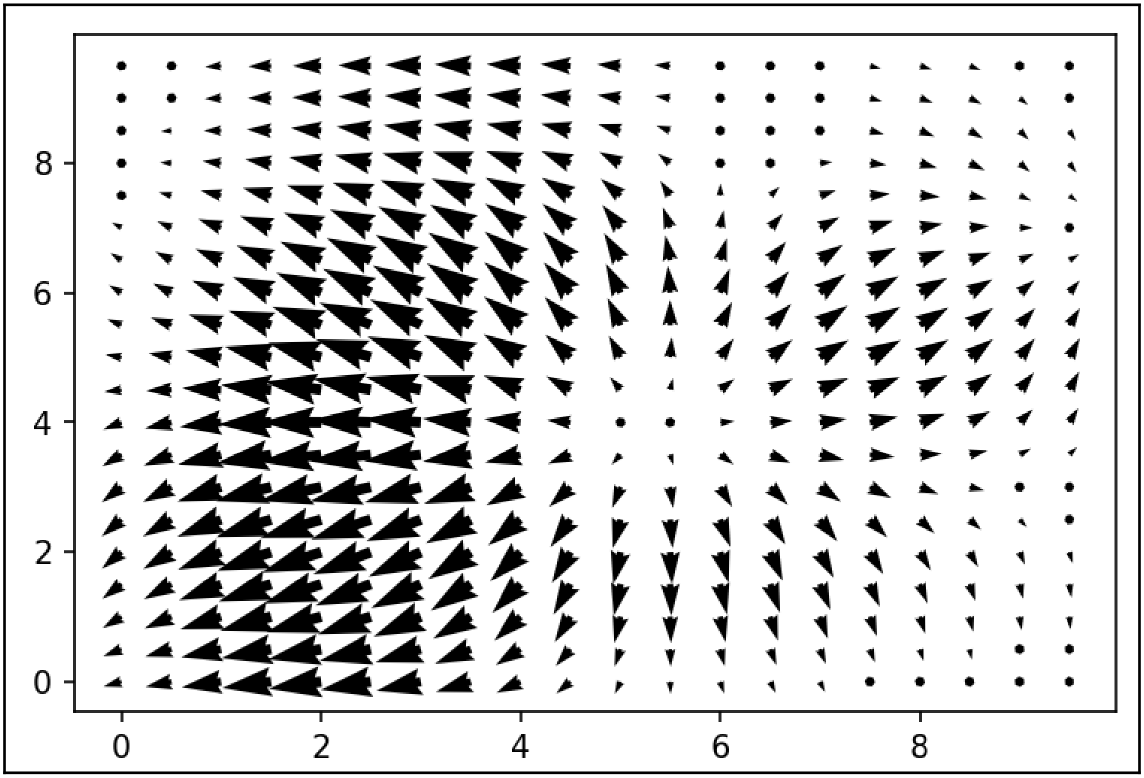

10
8
6
4
2
0
0
2
4
6
8
10

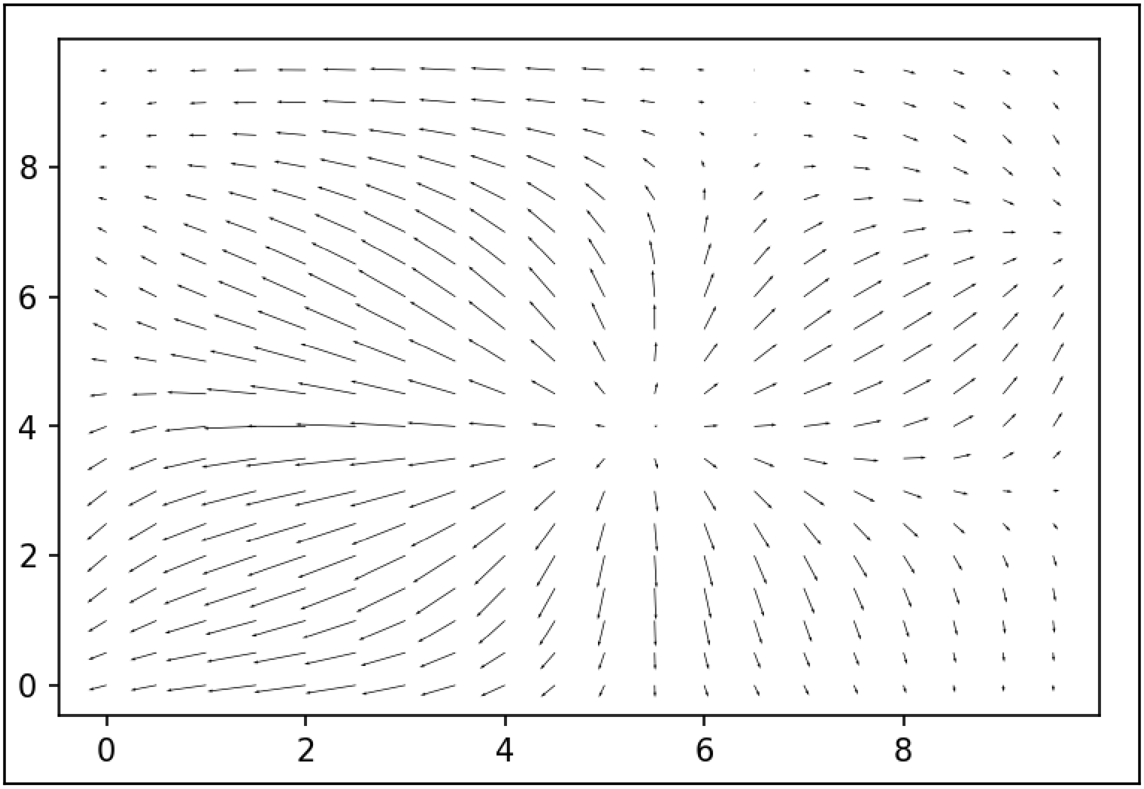

0
2
4
6
8
0
2
4
6
8

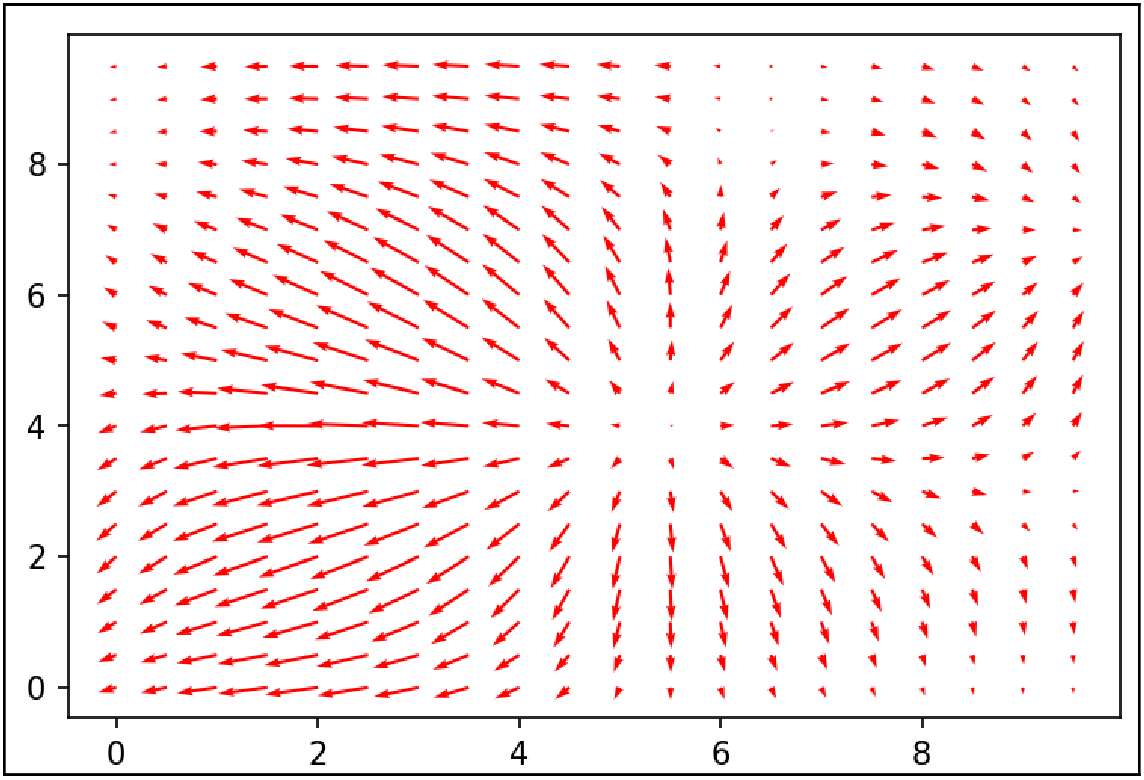

8
6
4
2
0
0
2
4
6
8

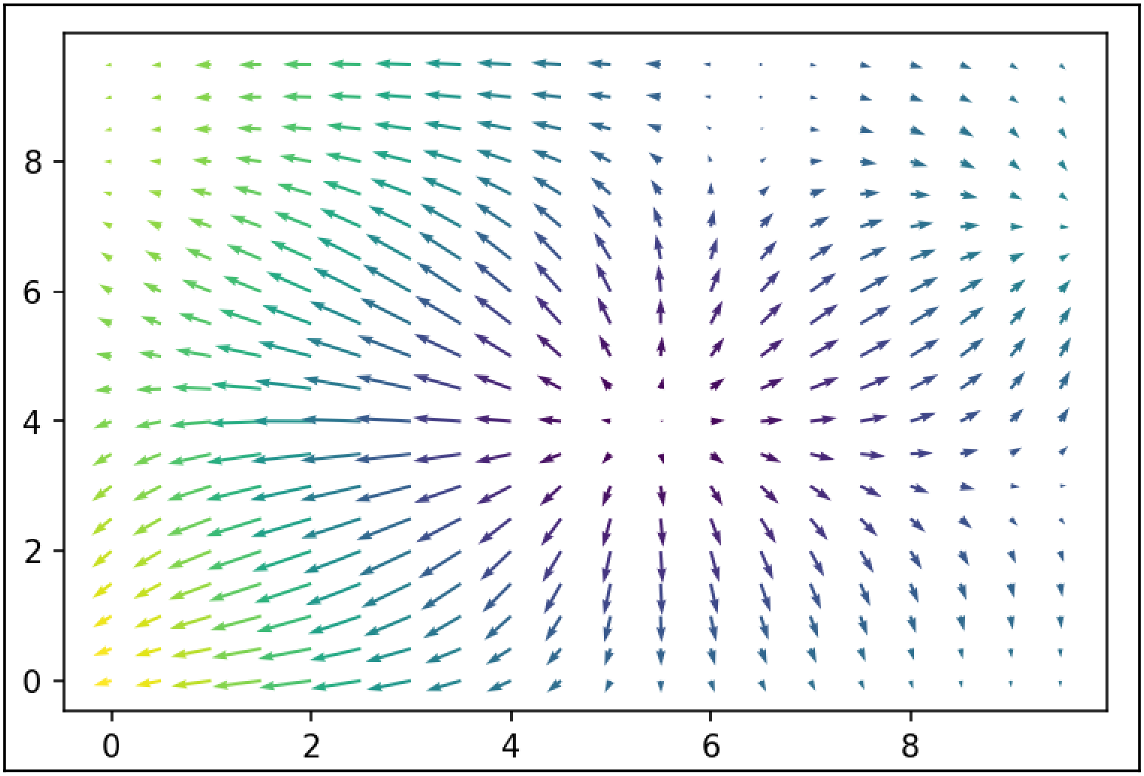

8
6
4
2
0
0
2
4
6
8

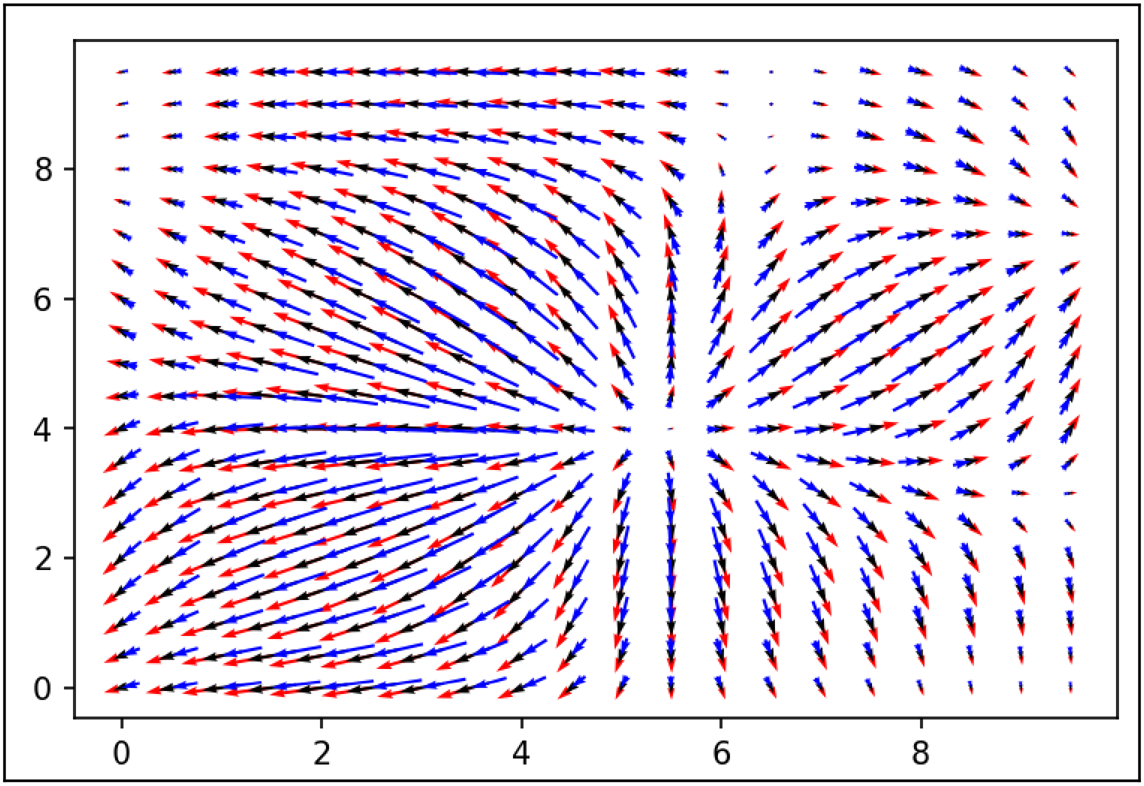

0
2
4
6
8
0
2
4
6
8

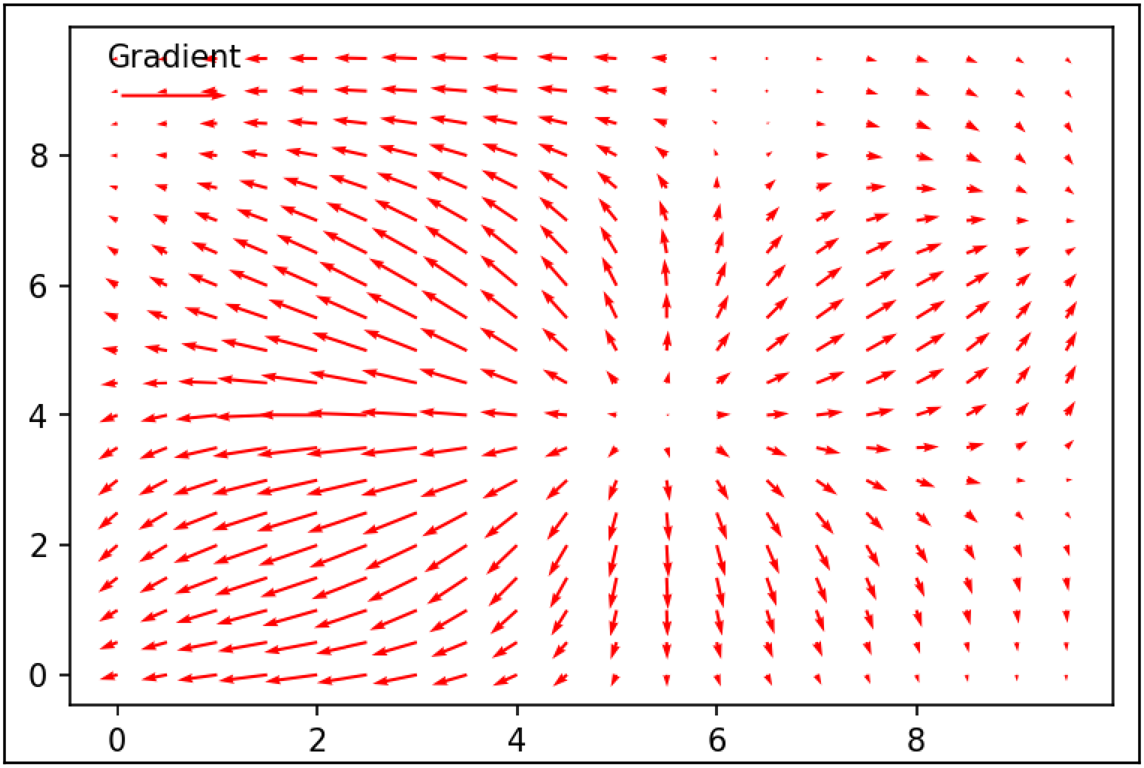

0
2
4
6
8
0
2
4
6
8

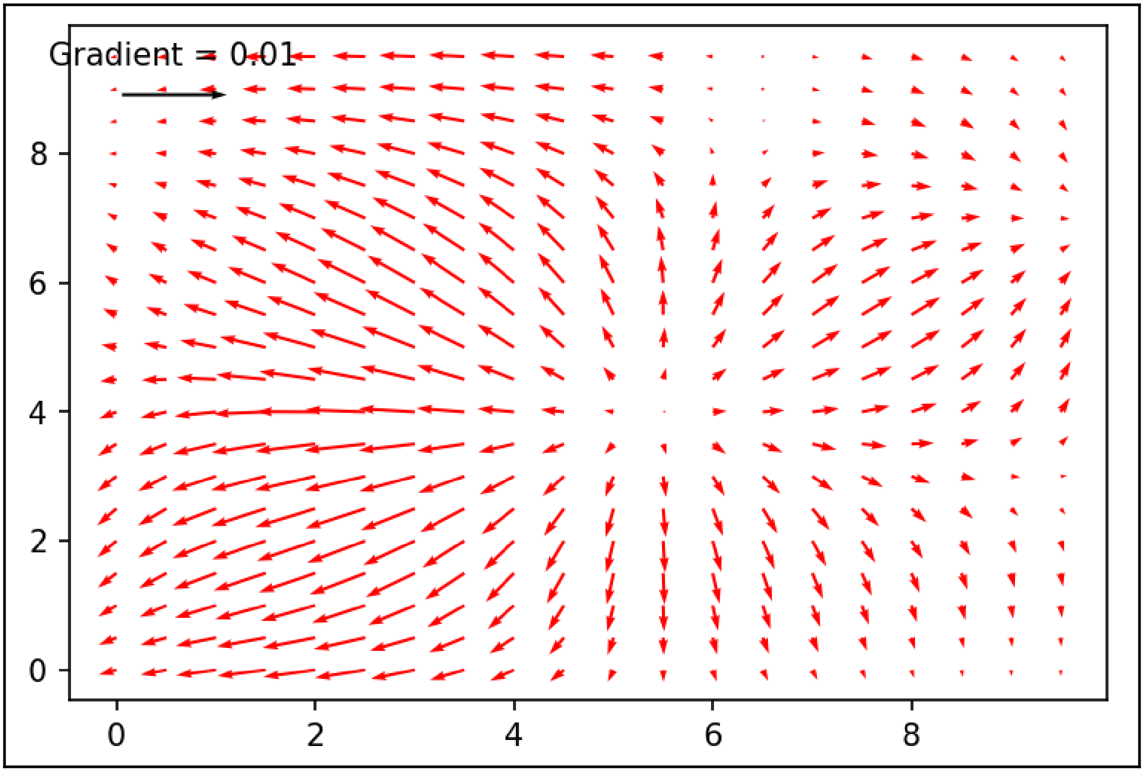

8
6
4
2
0
0
2
4
6
8

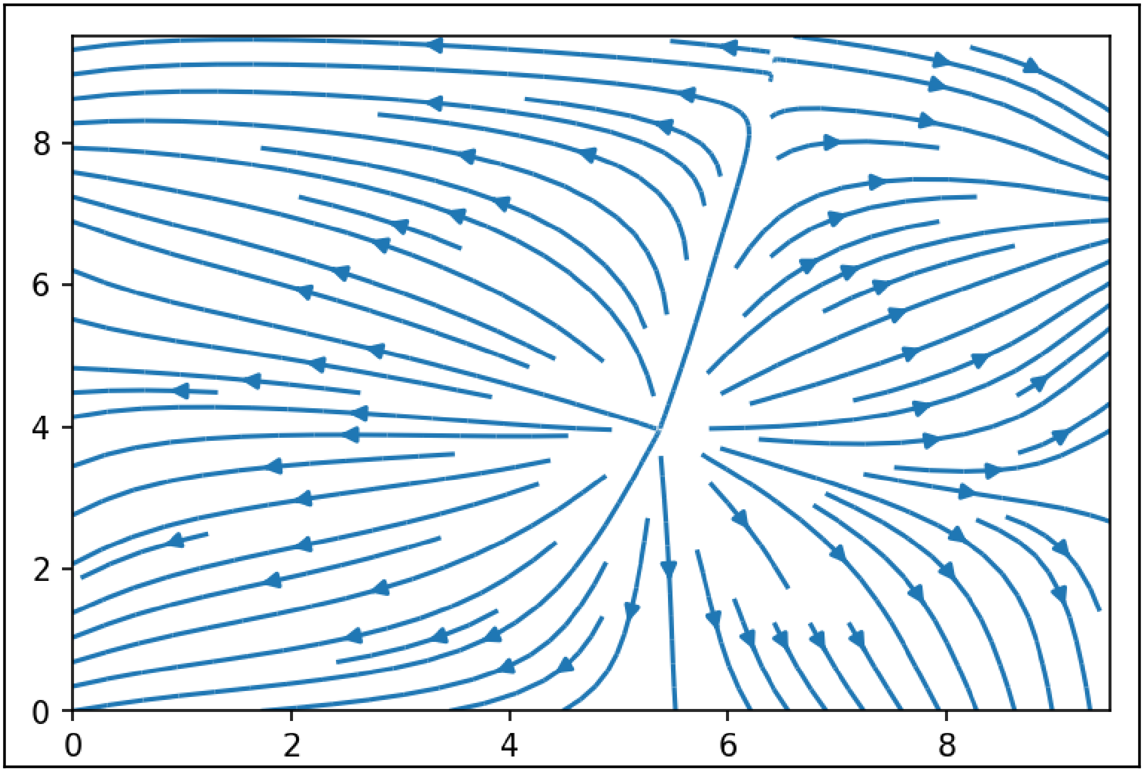

8
6
4
2
0
0
2
4
6
8

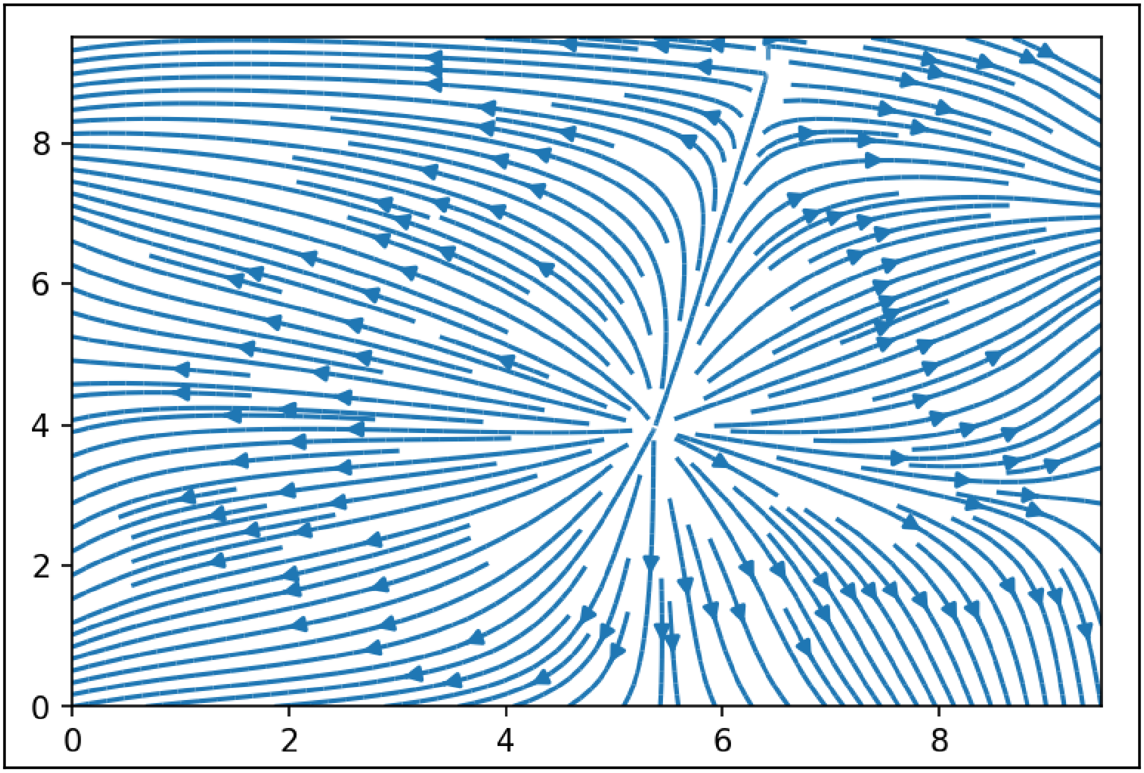

8
6
4
2
0
0
2
4
6
8


8
6
4
2
0
0
2
4
6
8

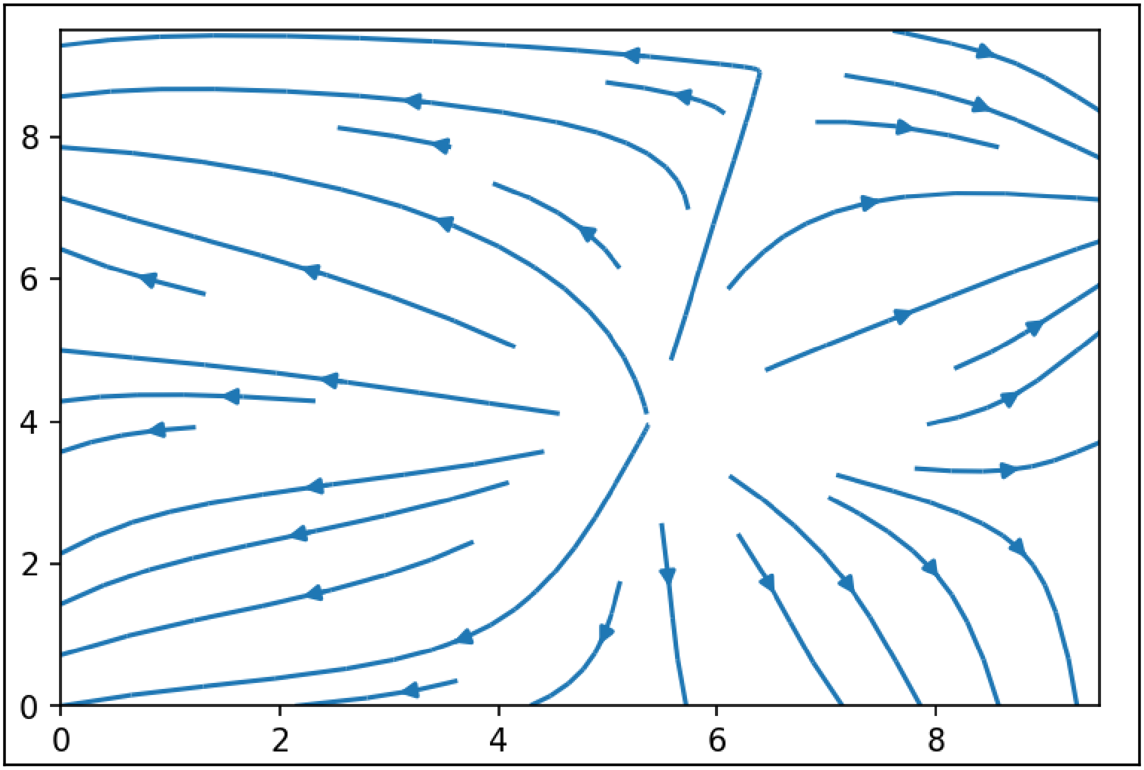

Gradient
0
2
4
6
8
0
2
4
6
8

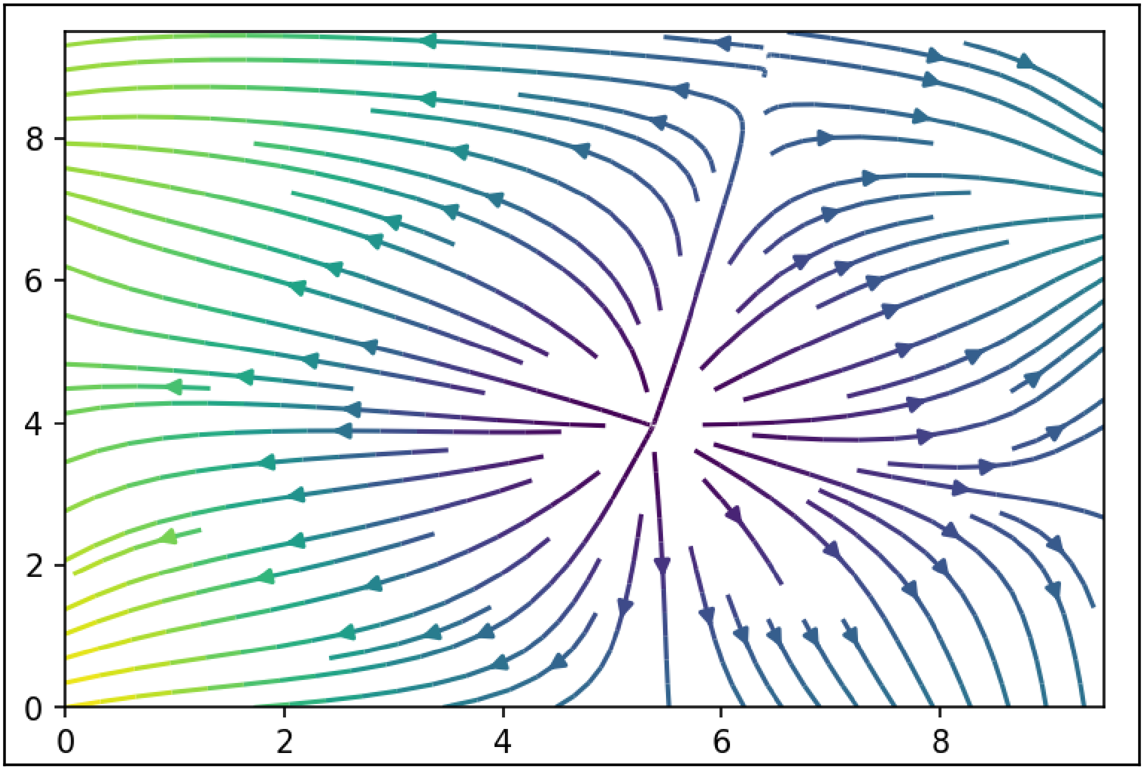

Gradient = 0.01
8
6
4
2
0
0
2
4
6
8

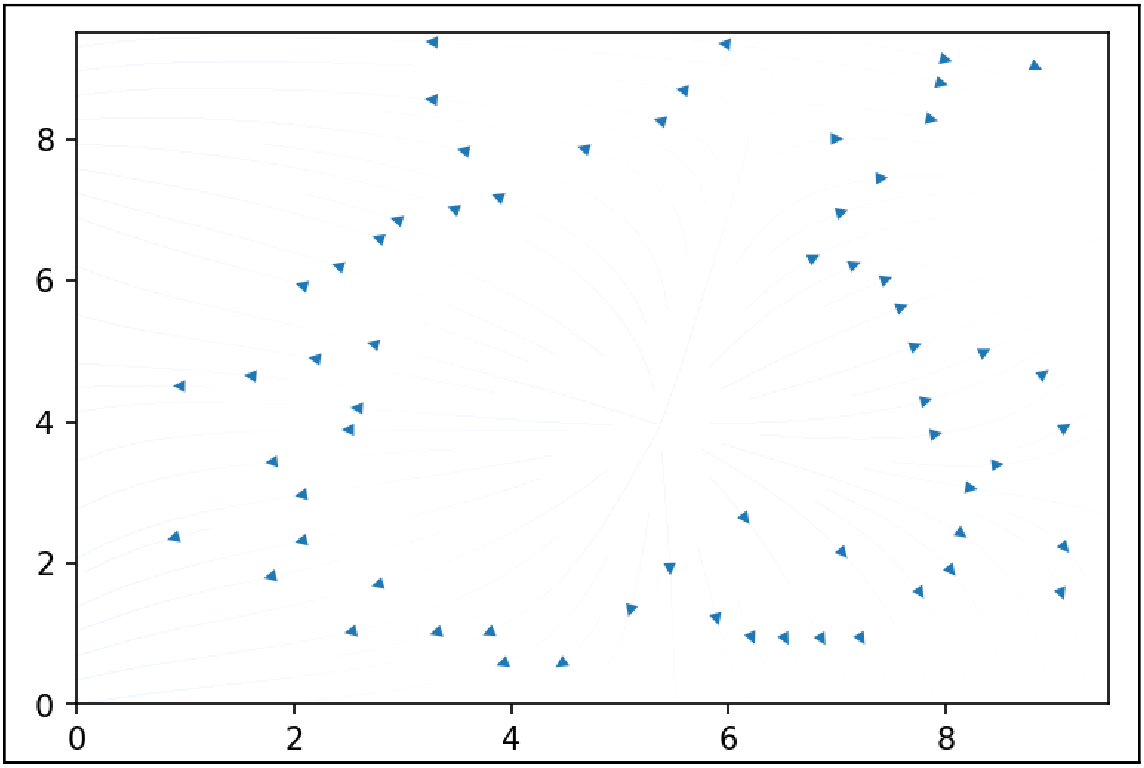

8
6
4
2
0
0
2
4
6
8

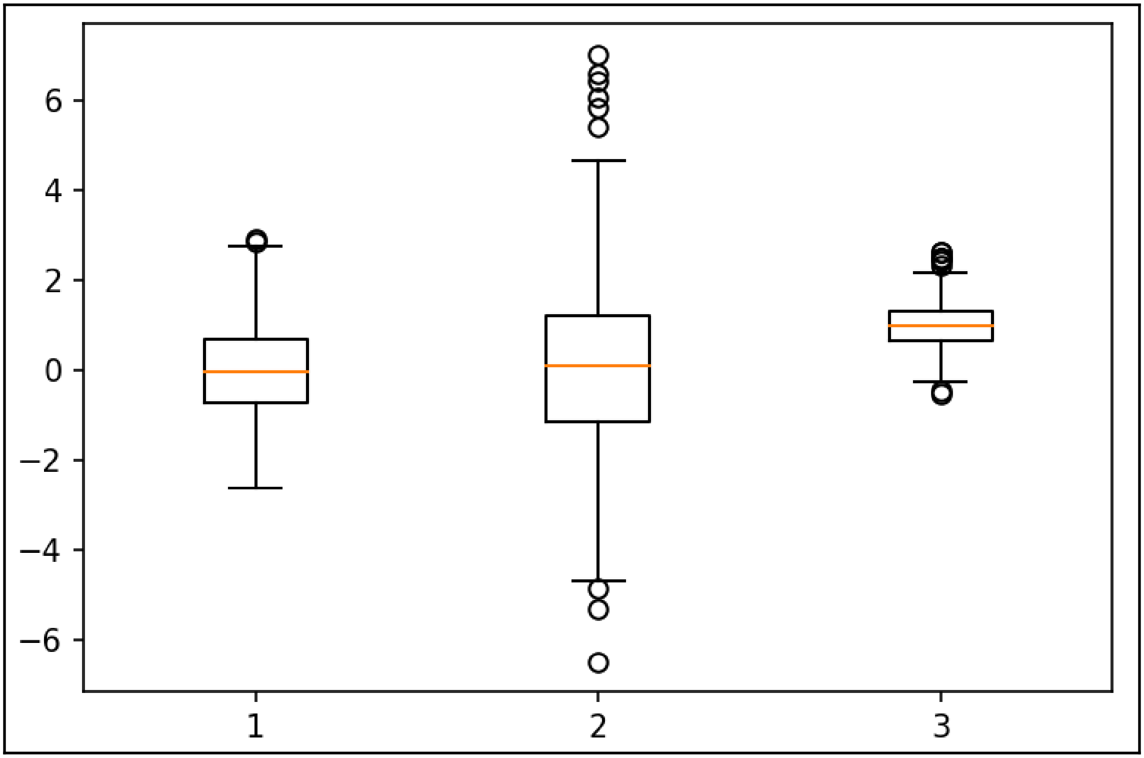


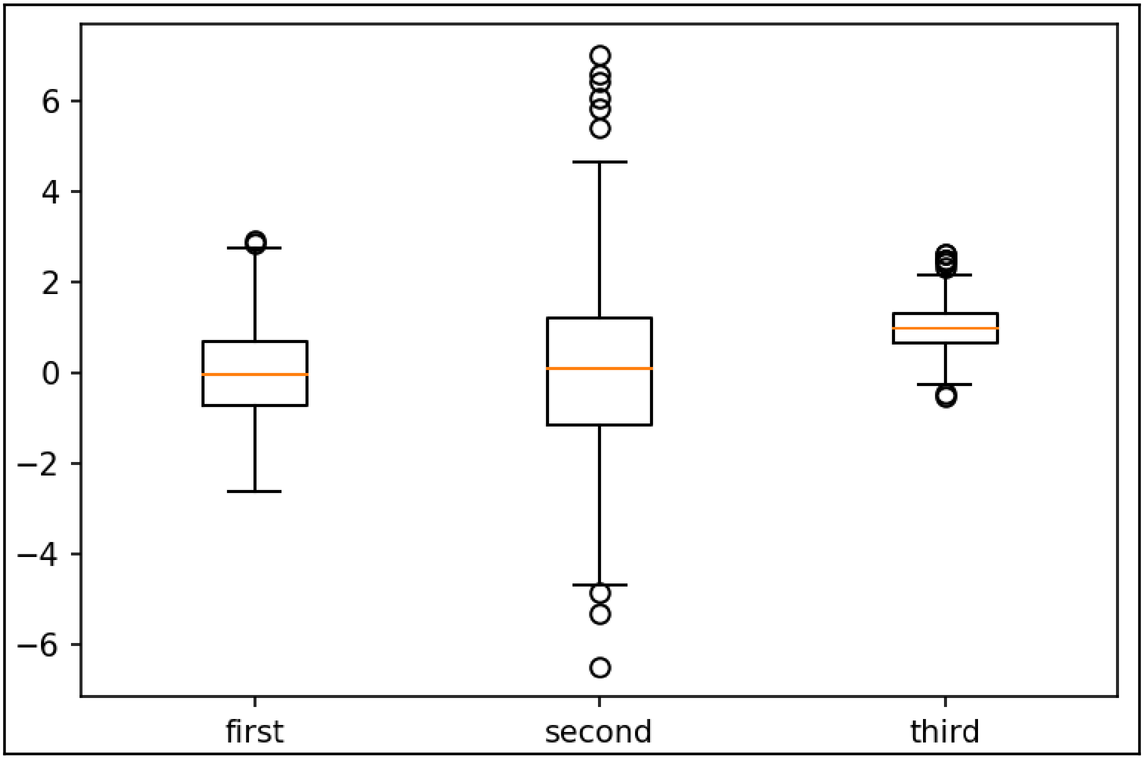
8
6
4
2
0
0
2
4
6
8

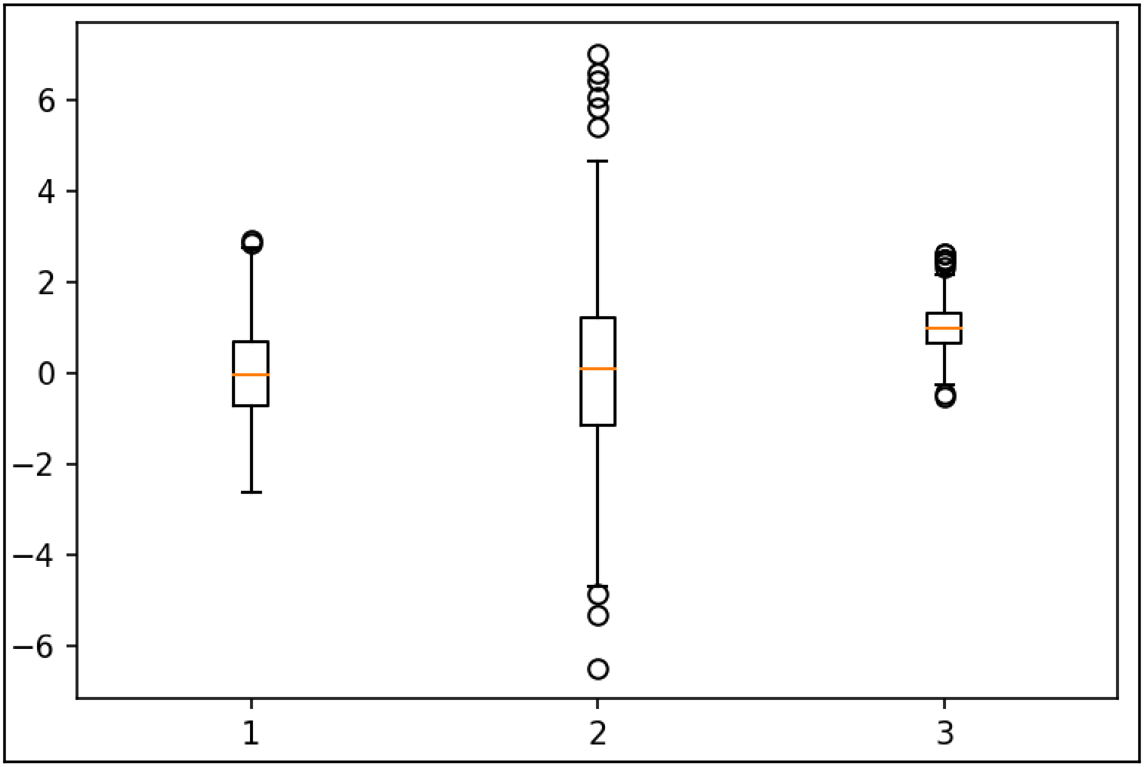

0
2
4
6
8
0
2
4
6
8

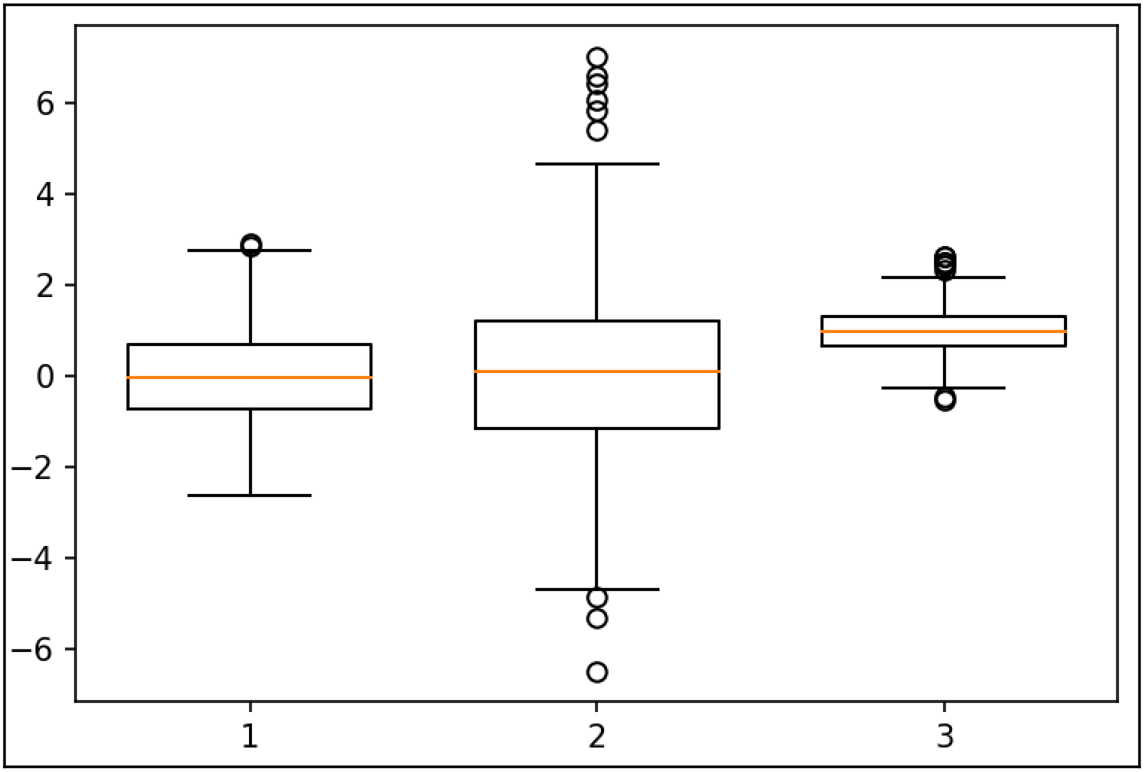

0
2
4
6
8
0
2
4
6
8

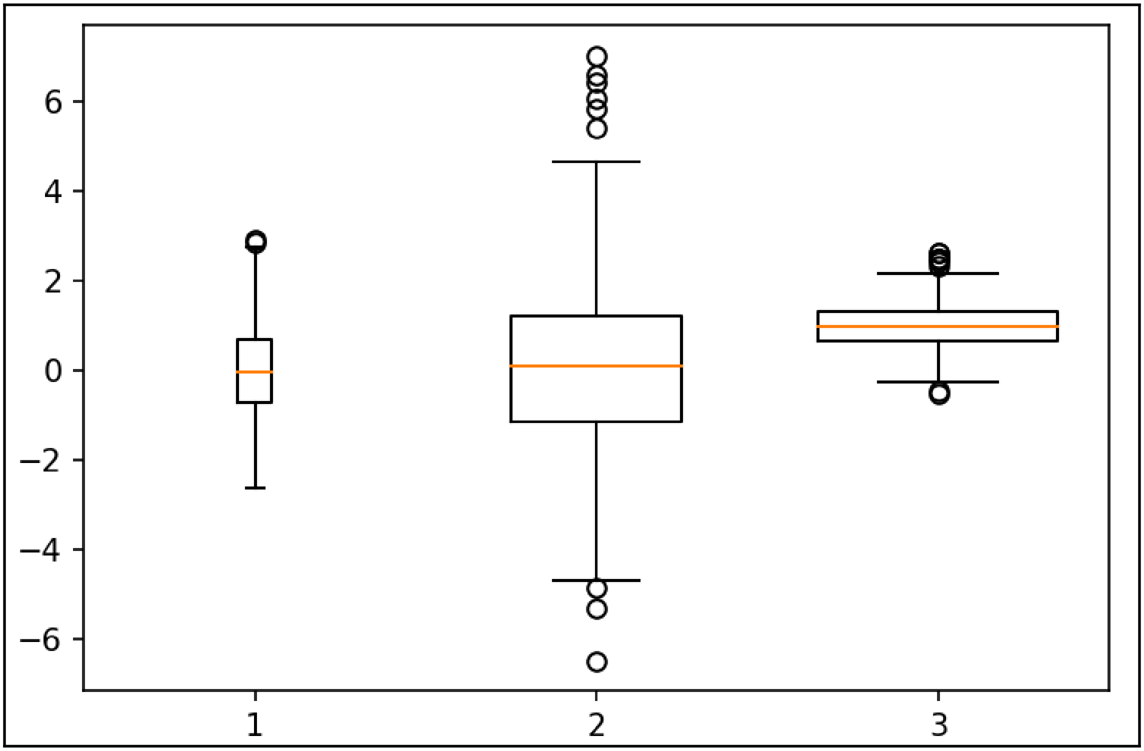

0
2
4
6
8
0
2
4
6
8

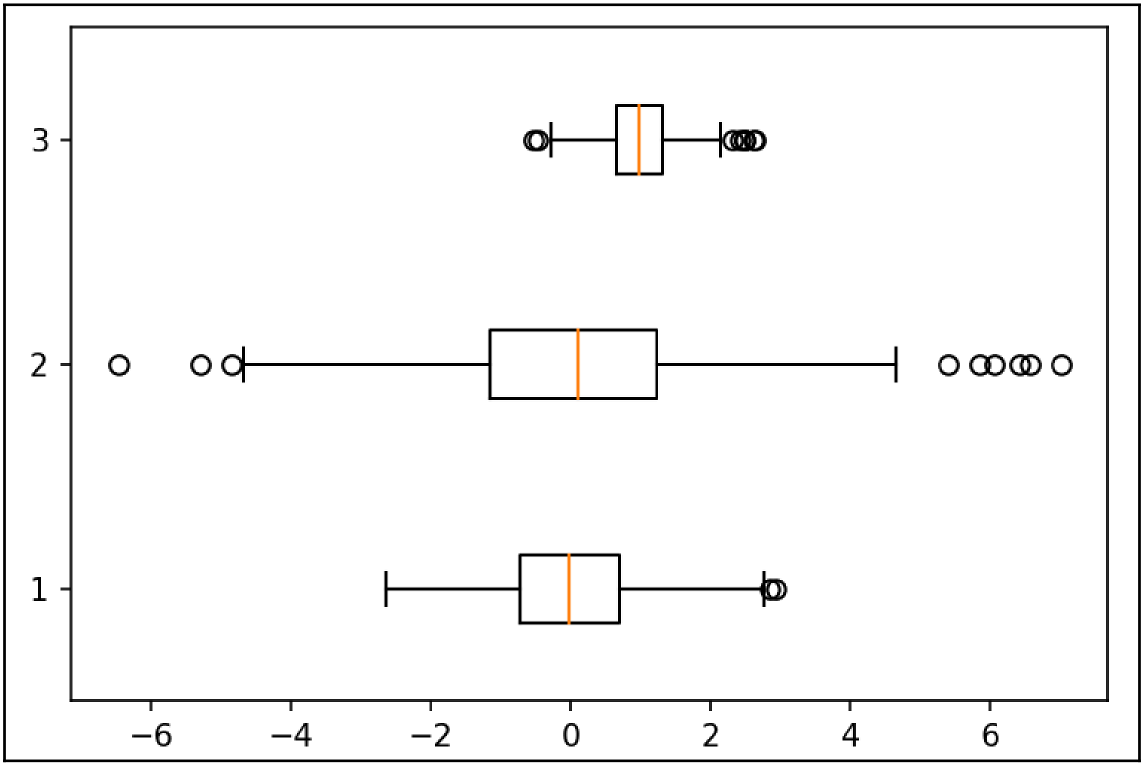

6
4
2
0
−2
−4
−6
1
2
3

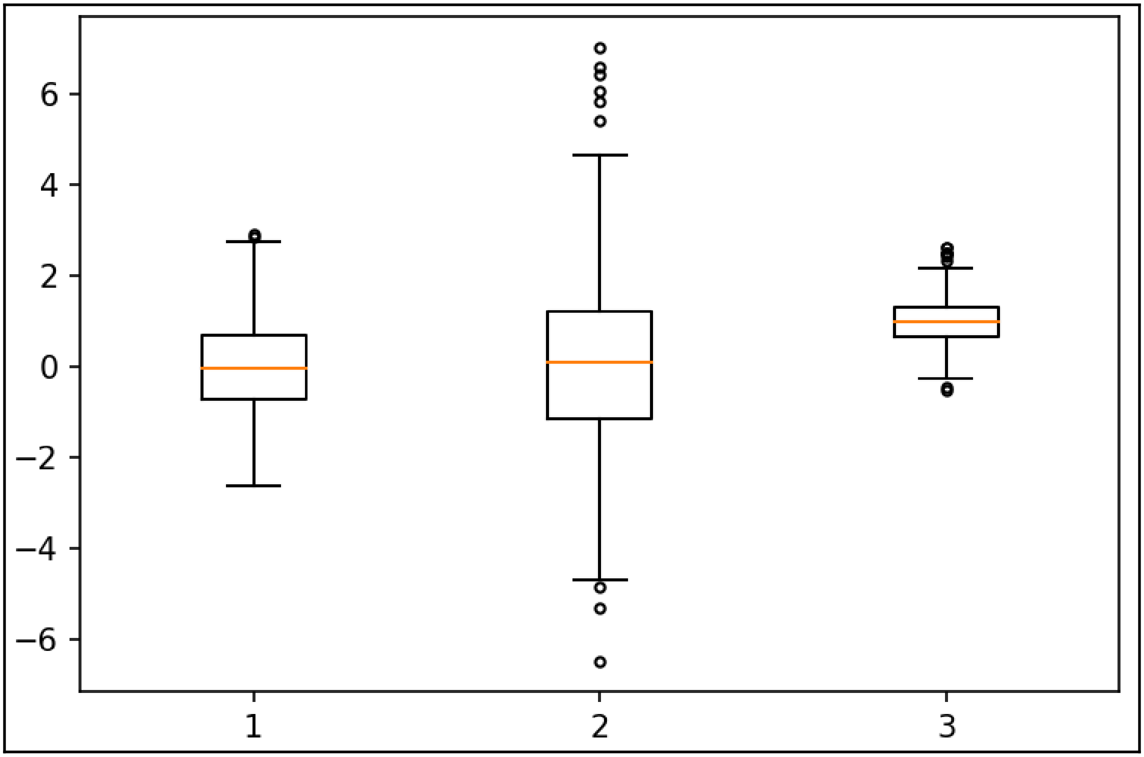

6
4
2
0
−2
−4
−6
first
second
third

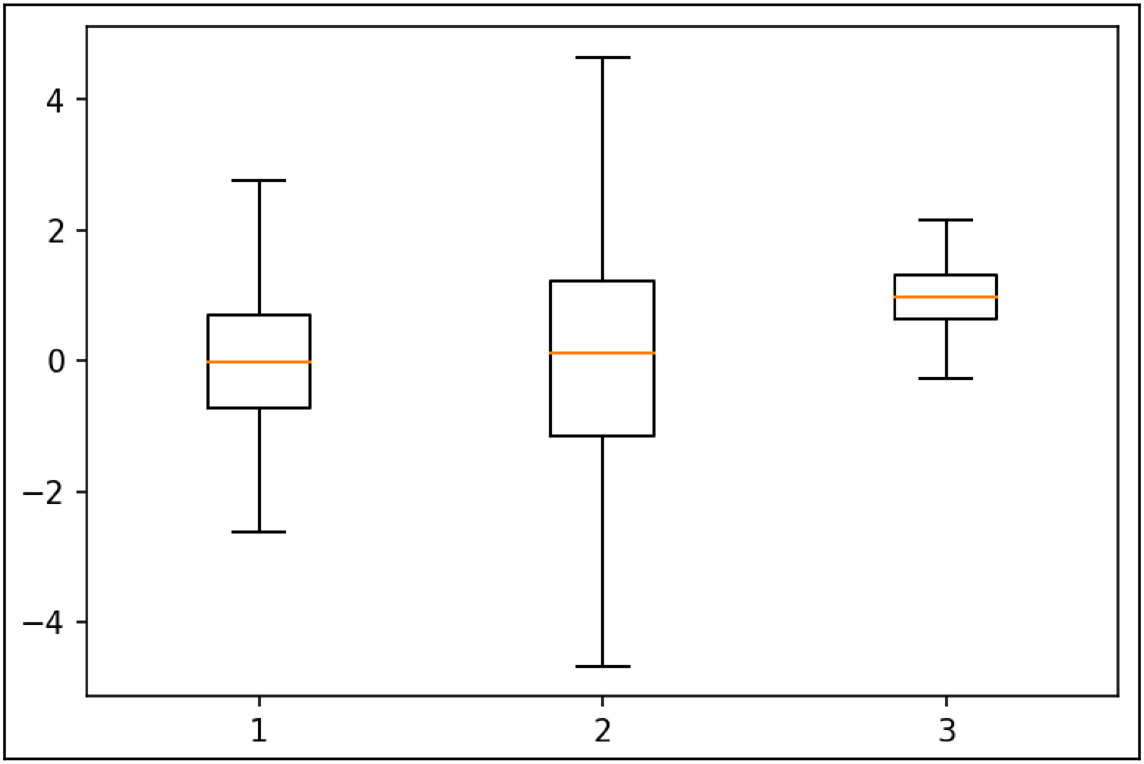

6
4
2
0
−2
−4
−6
1
2
3

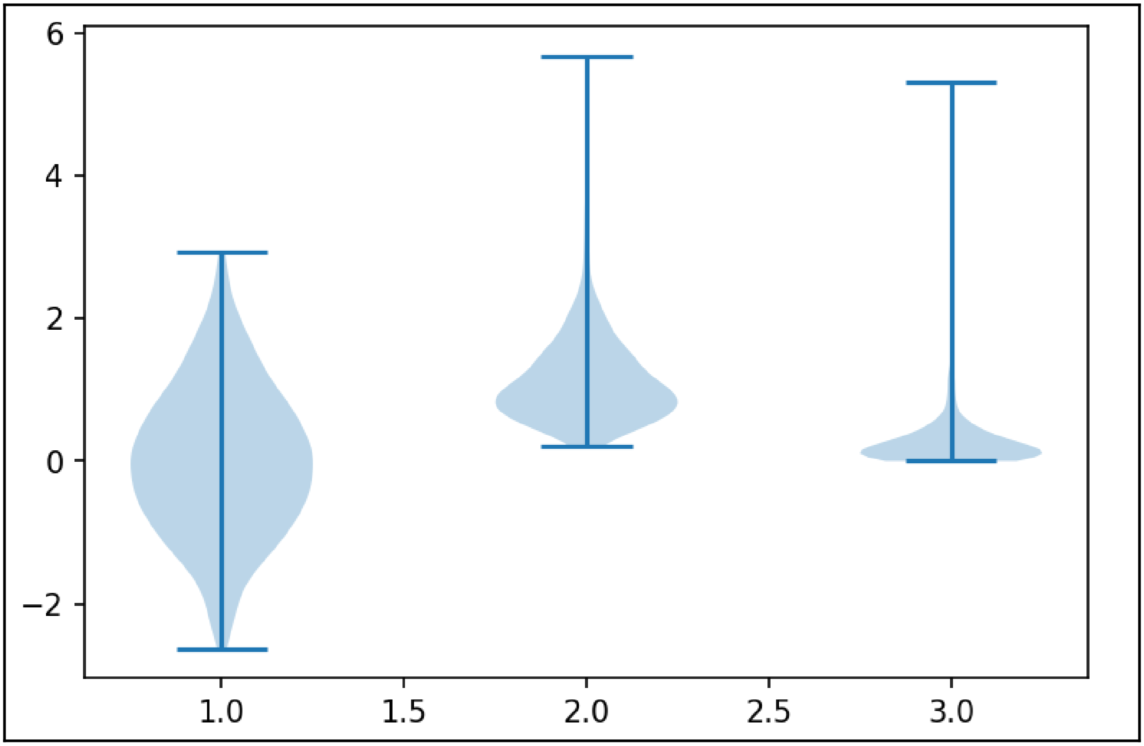

6
4
2
0
−2
−4
−6
1
2
3

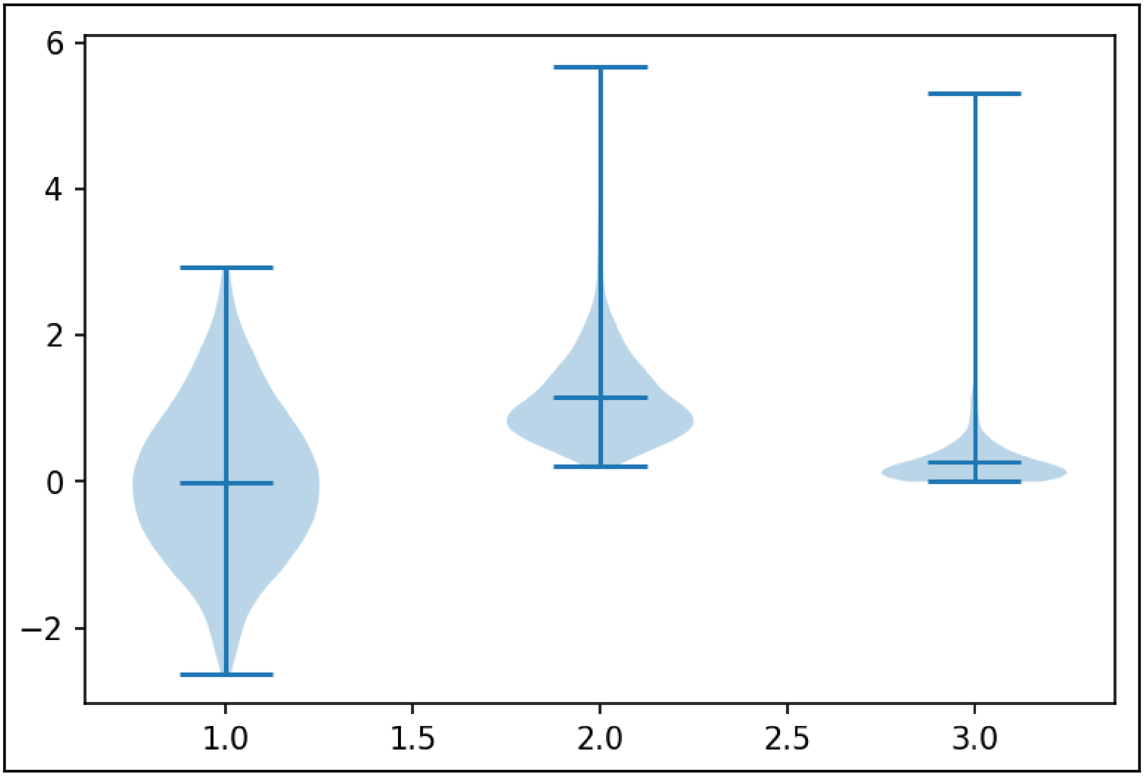

6
4
2
0
−2
−4
−6
1
2
3

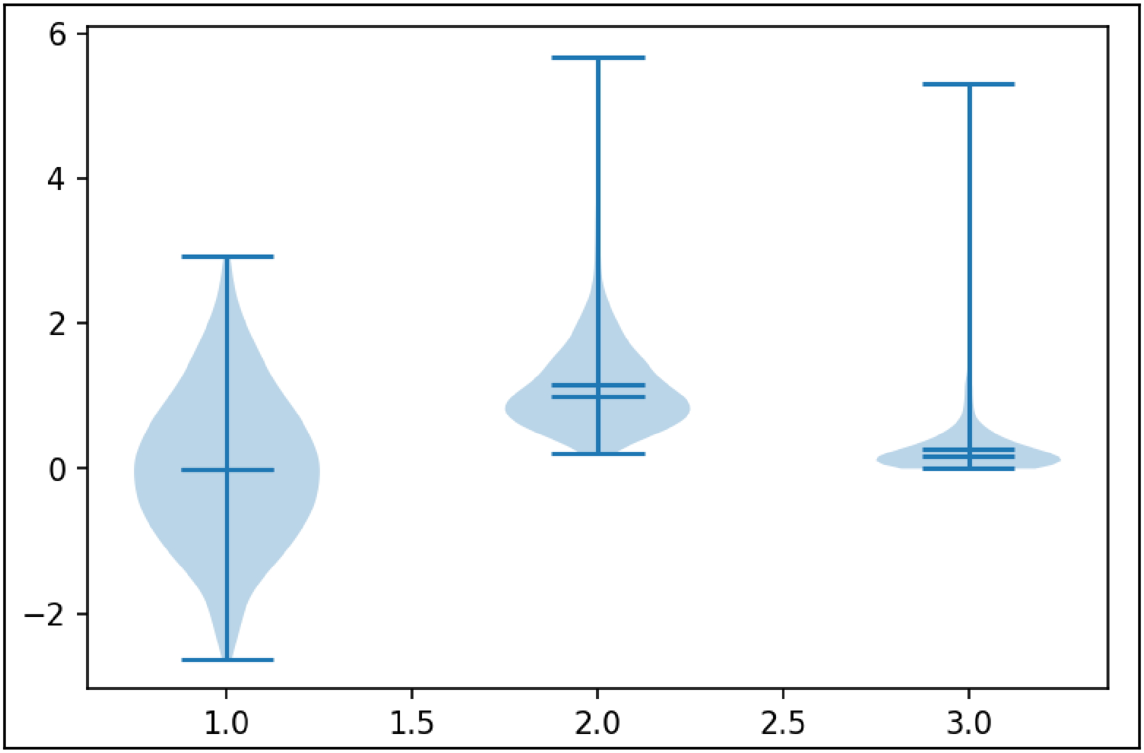

3
2
1
−6
−4
−2
0
2
4
6

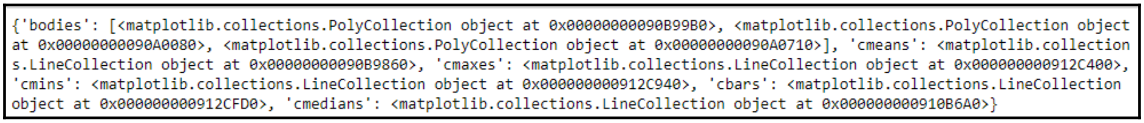

6
4
2
0
−2
−4
−6
1
2
3


4
2
0
−2
−4
1
2
3

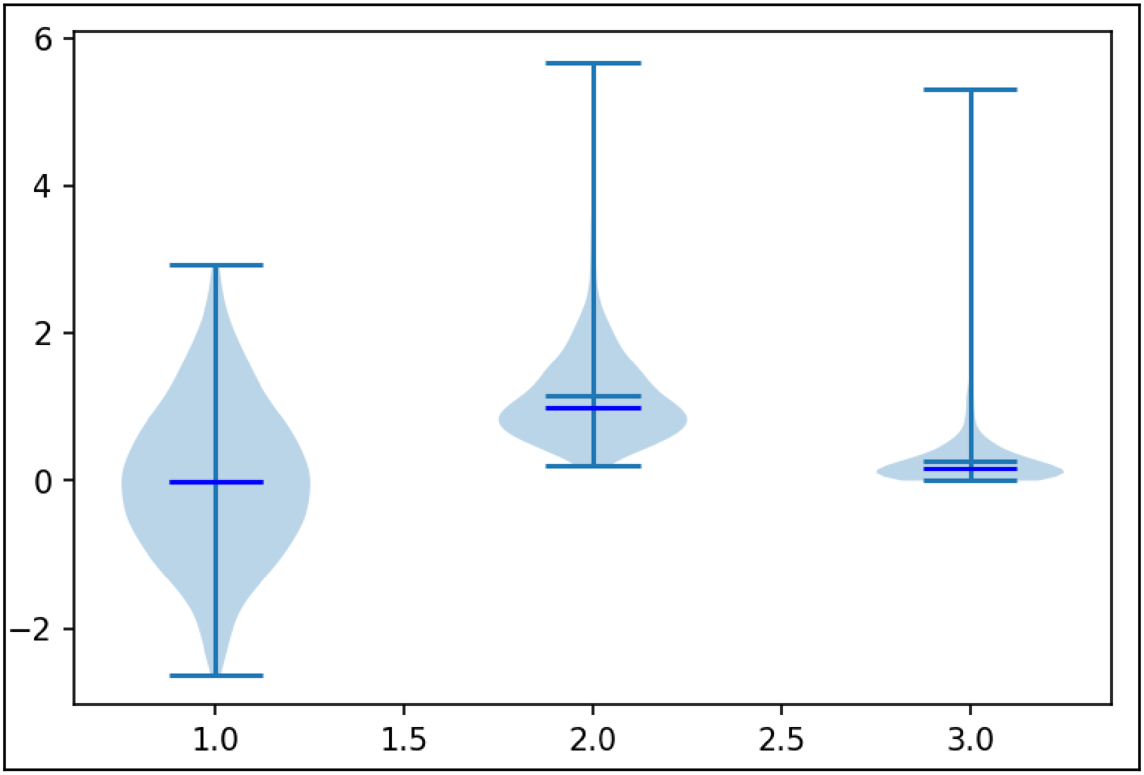

6
4
2
0
−2
1.0
1.5
2.0
2.5
3.0

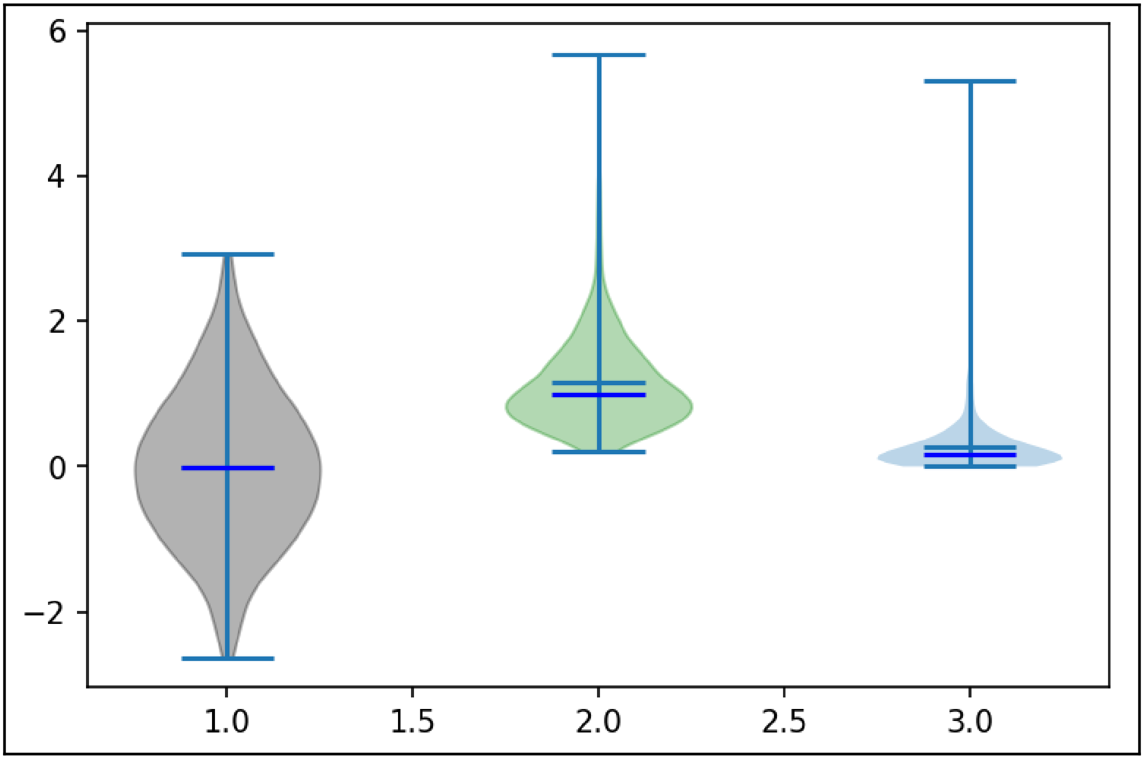

6
4
2
0
−2
1.0
1.5
2.0
2.5
3.0

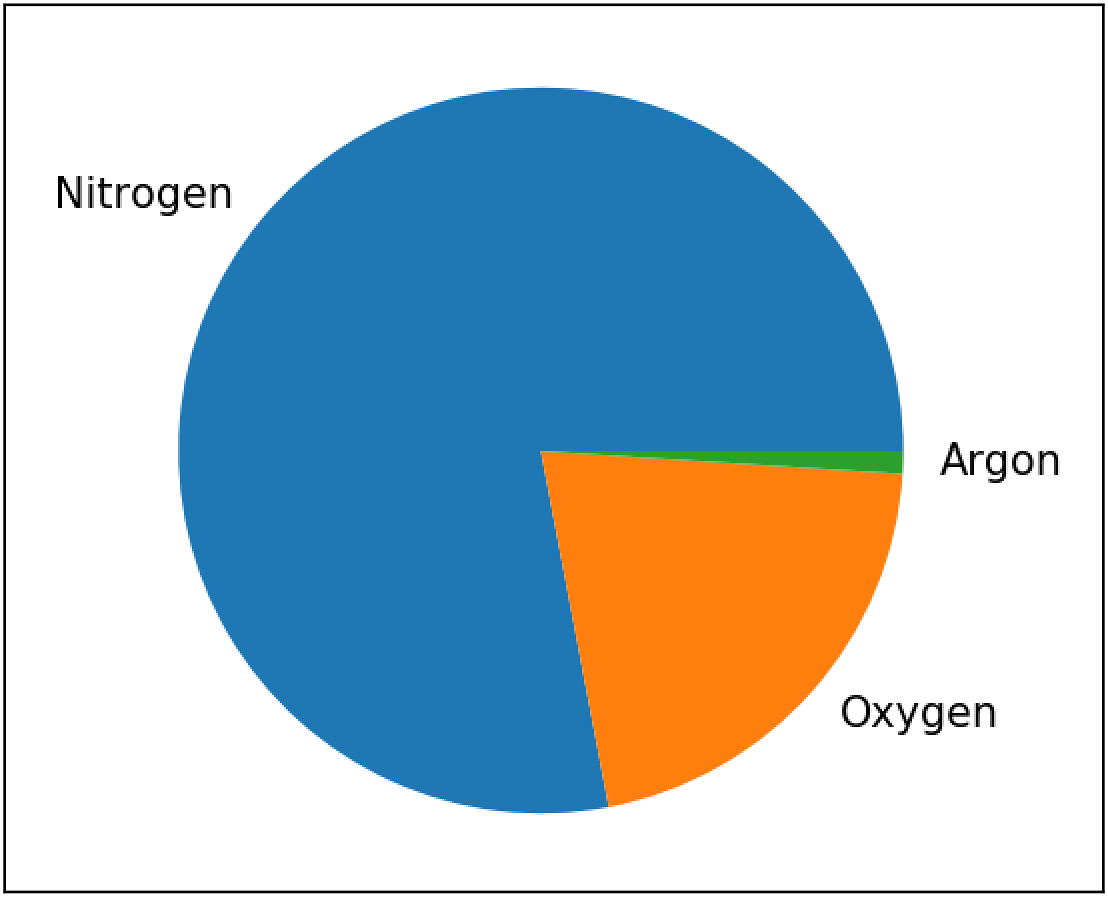


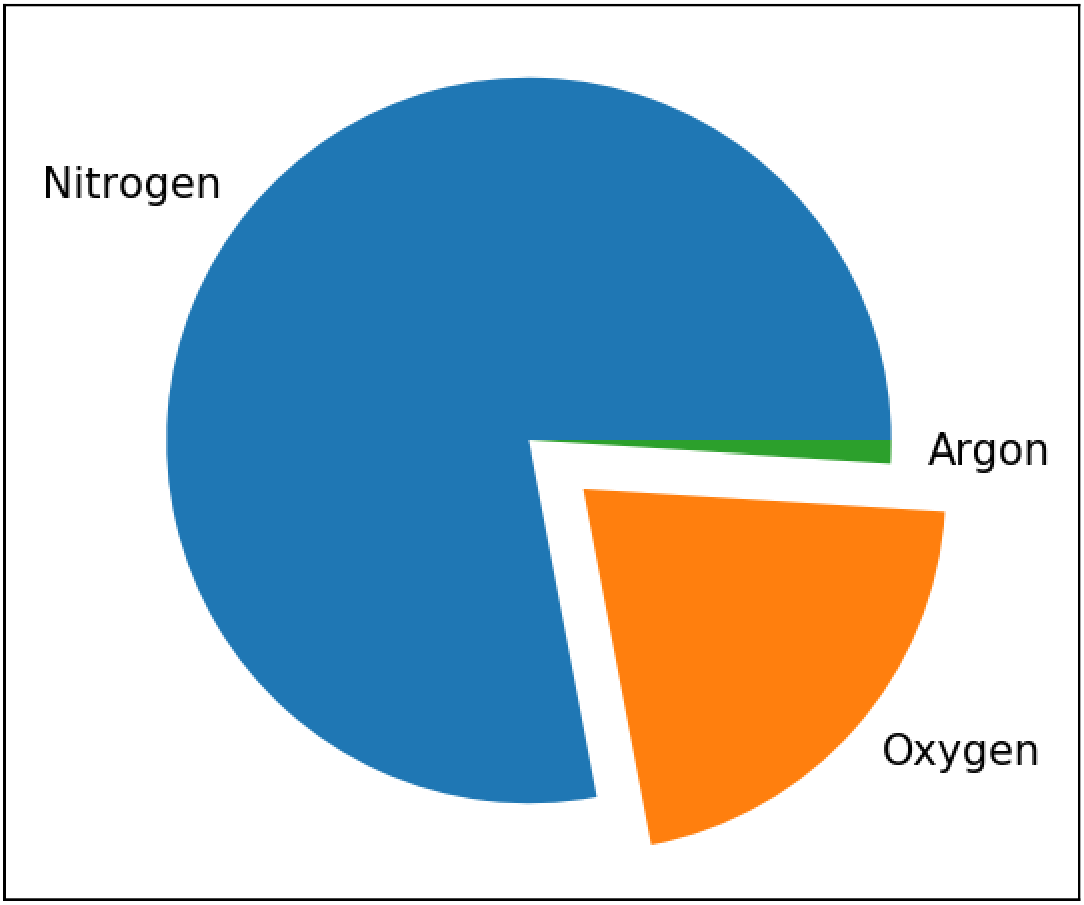


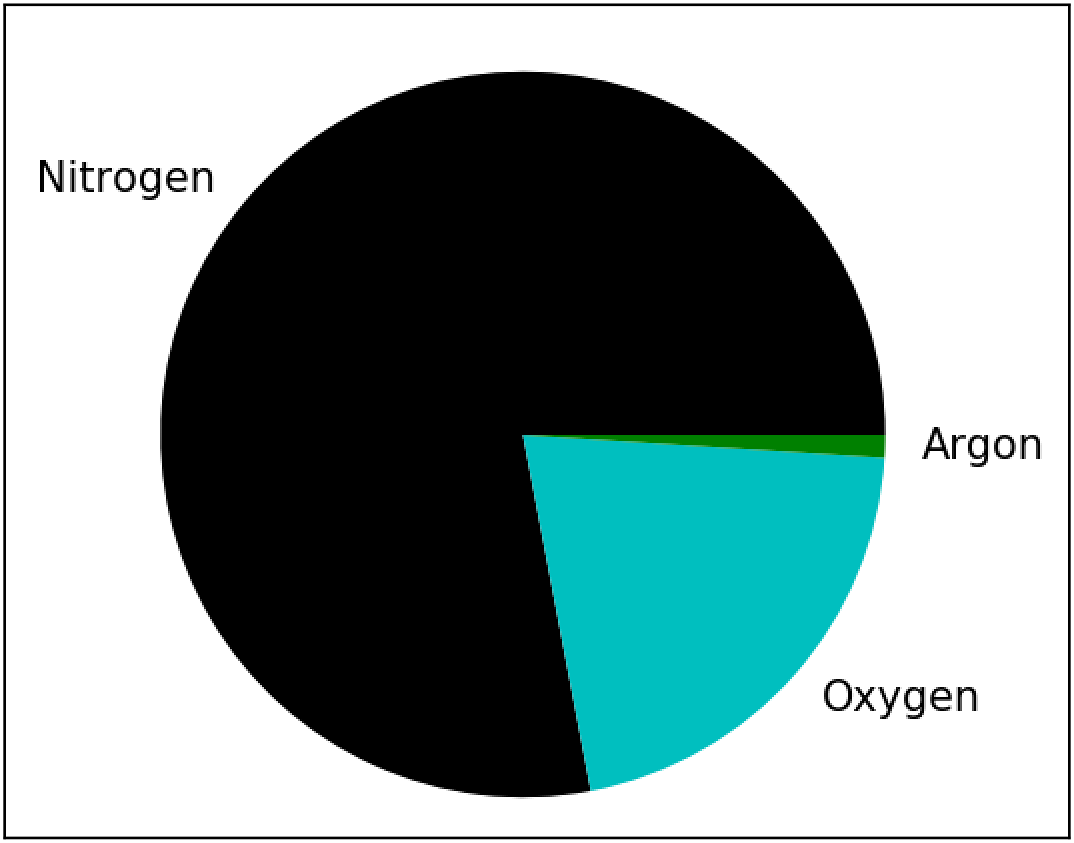
```
{'bodies': [<matplotlib.collections.PolyCollection object at 0x00000000090B99B0>, <matplotlib.collections.PolyCollection object
at 0x00000000090A0080>, <matplotlib.collections.PolyCollection object at 0x00000000090A0710>], 'cmeans': <matplotlib.collection
s.LineCollection object at 0x00000000090B9860>, 'cmaxes': <matplotlib.collections.LineCollection object at 0x000000000912C400>,
'cmins': <matplotlib.collections.LineCollection object at 0x000000000912C940>, 'cbars': <matplotlib.collections.LineCollection
object at 0x000000000912CFD0>, 'cmedians': <matplotlib.collections.LineCollection object at 0x00000000910B6A0>}
```

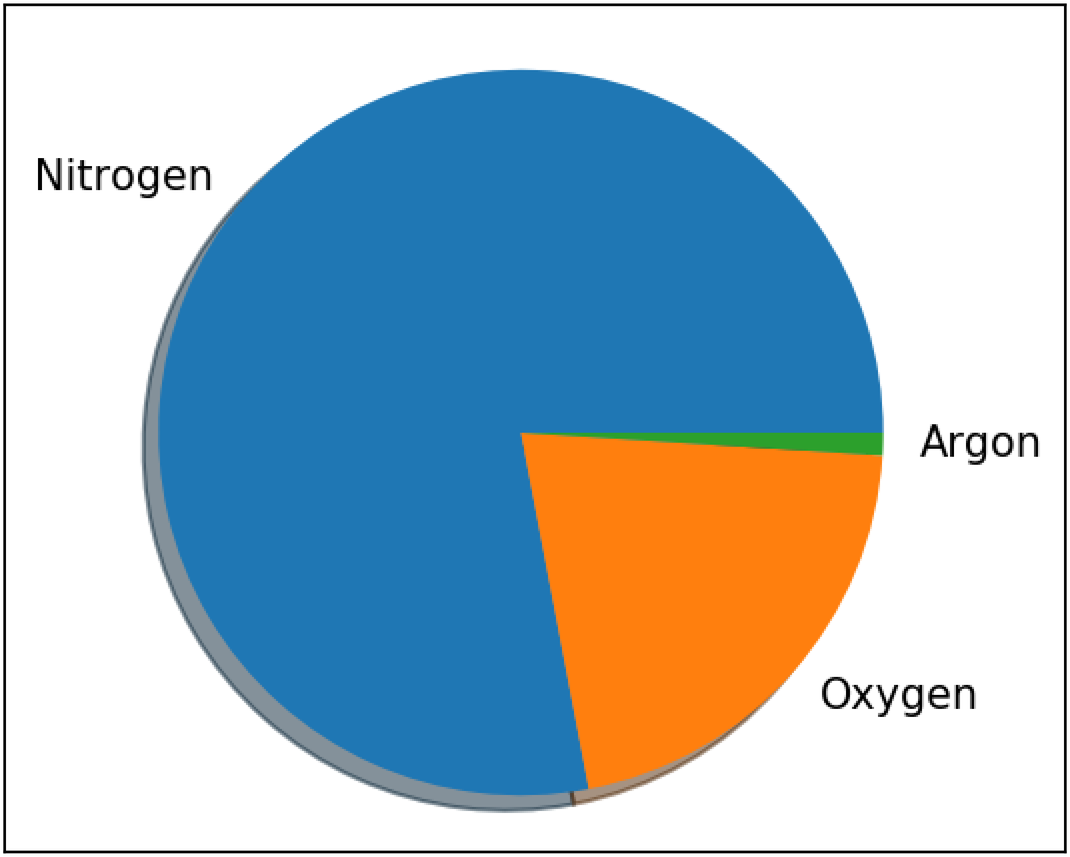

6
4
2
0
−2
1.0
1.5
2.0
2.5
3.0

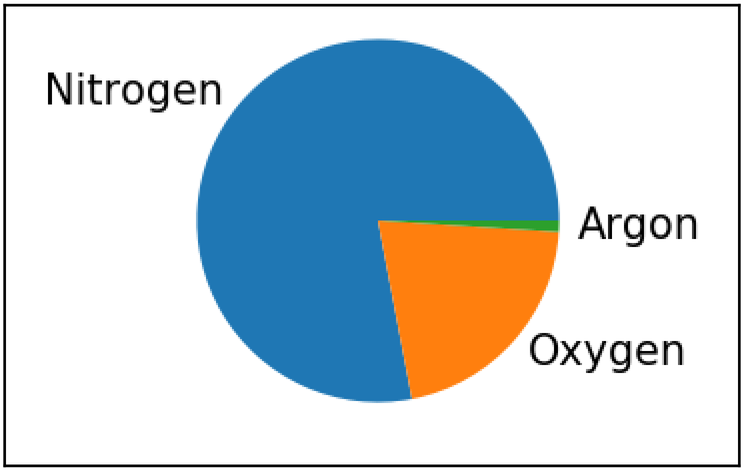

6
4
2
0
−2
1.0
1.5
2.0
2.5
3.0

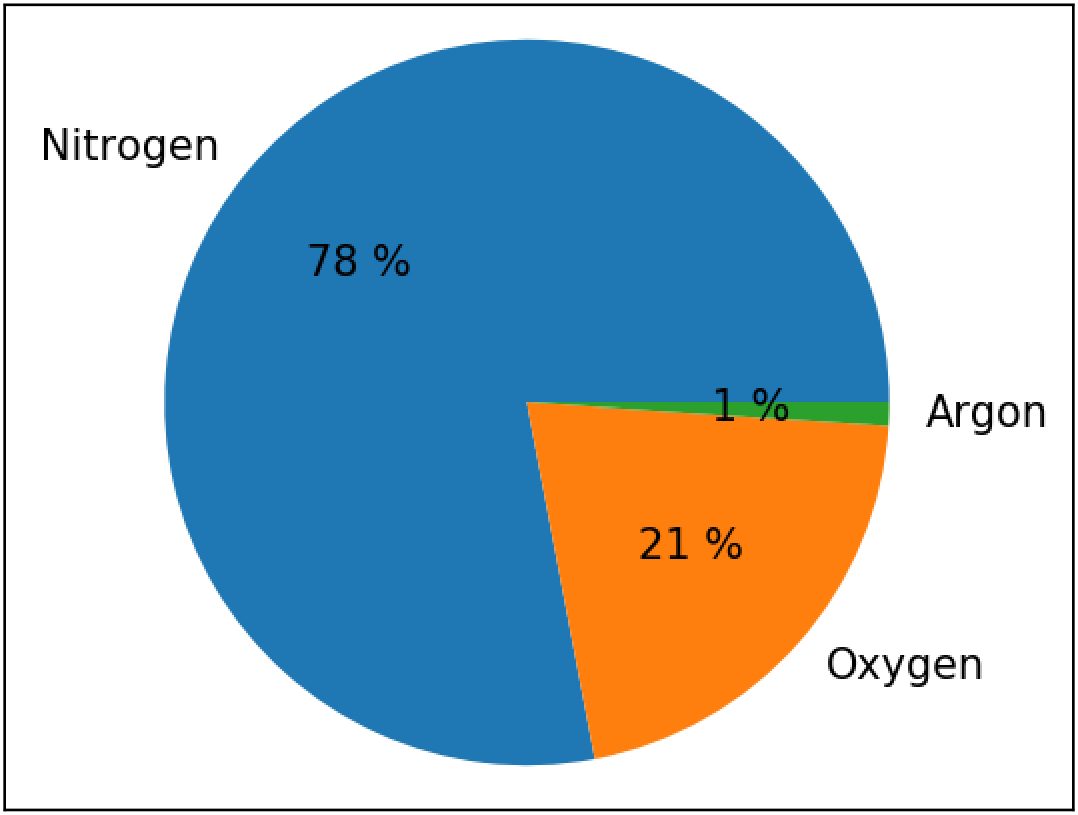

Nitrogen
Argon
Oxygen

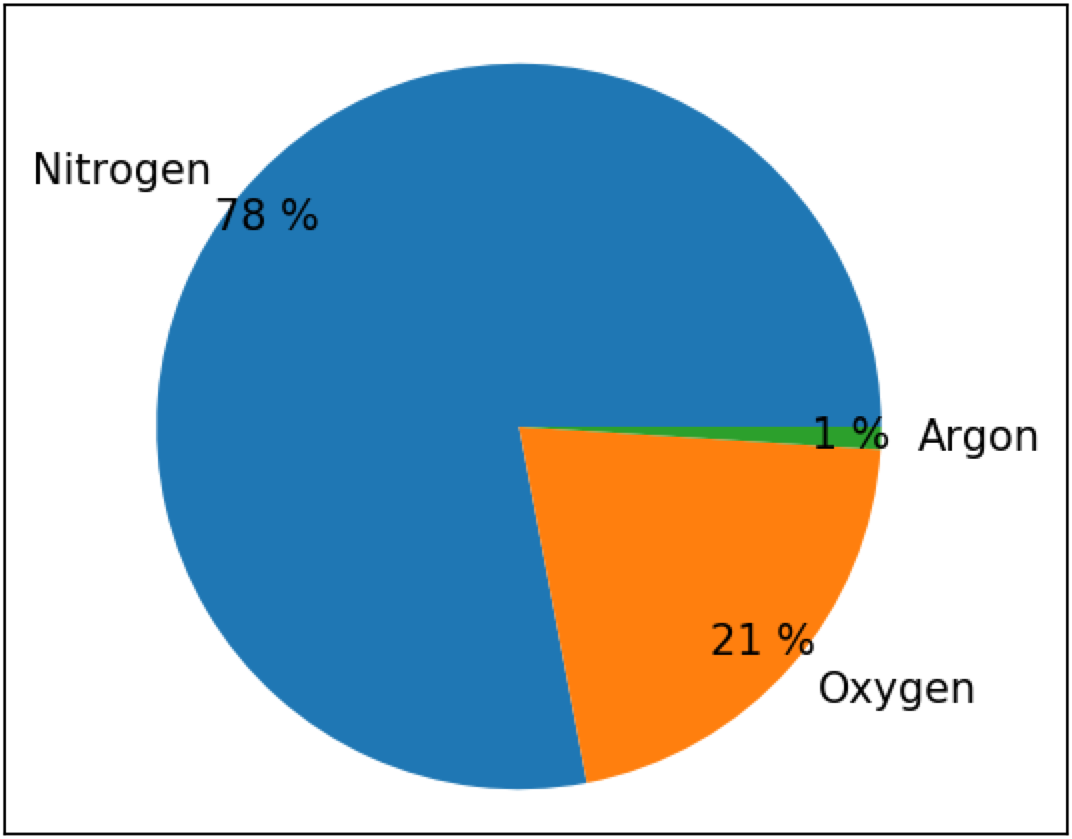

Nitrogen
Argon
Oxygen

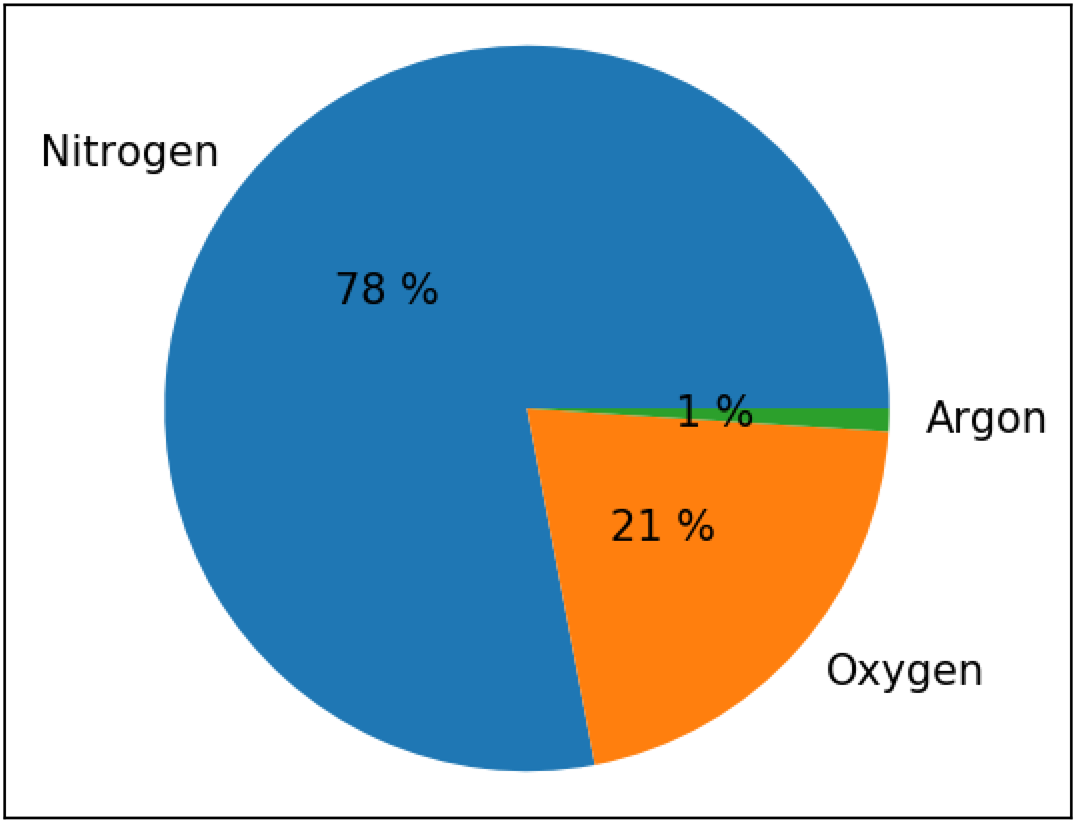

Nitrogen
Argon
Oxygen

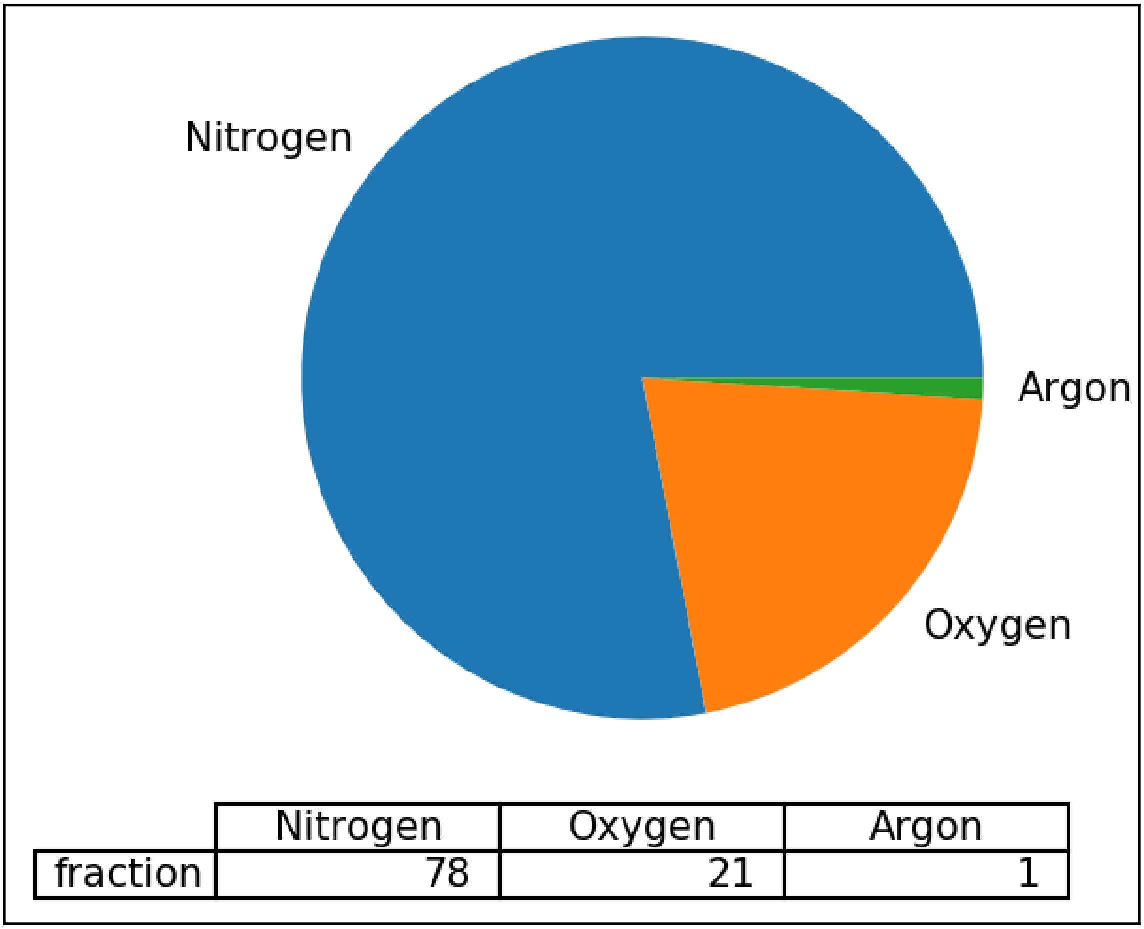

Nitrogen
Argon
Oxygen


Nitrogen
Argon
Oxygen

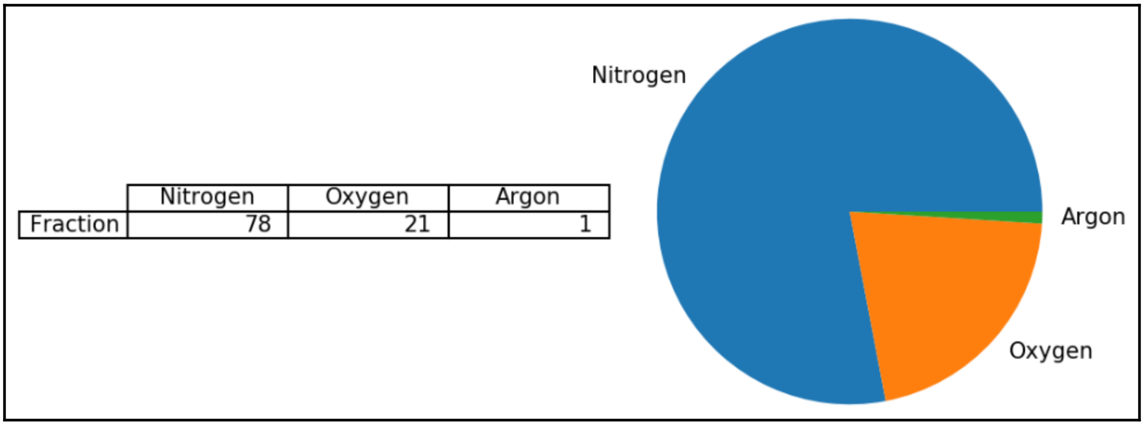

Nitrogen
78 %
1 %
Argon
21 %
Oxygen


Nitrogen
78 %
1 %
Argon
21 %
Oxygen

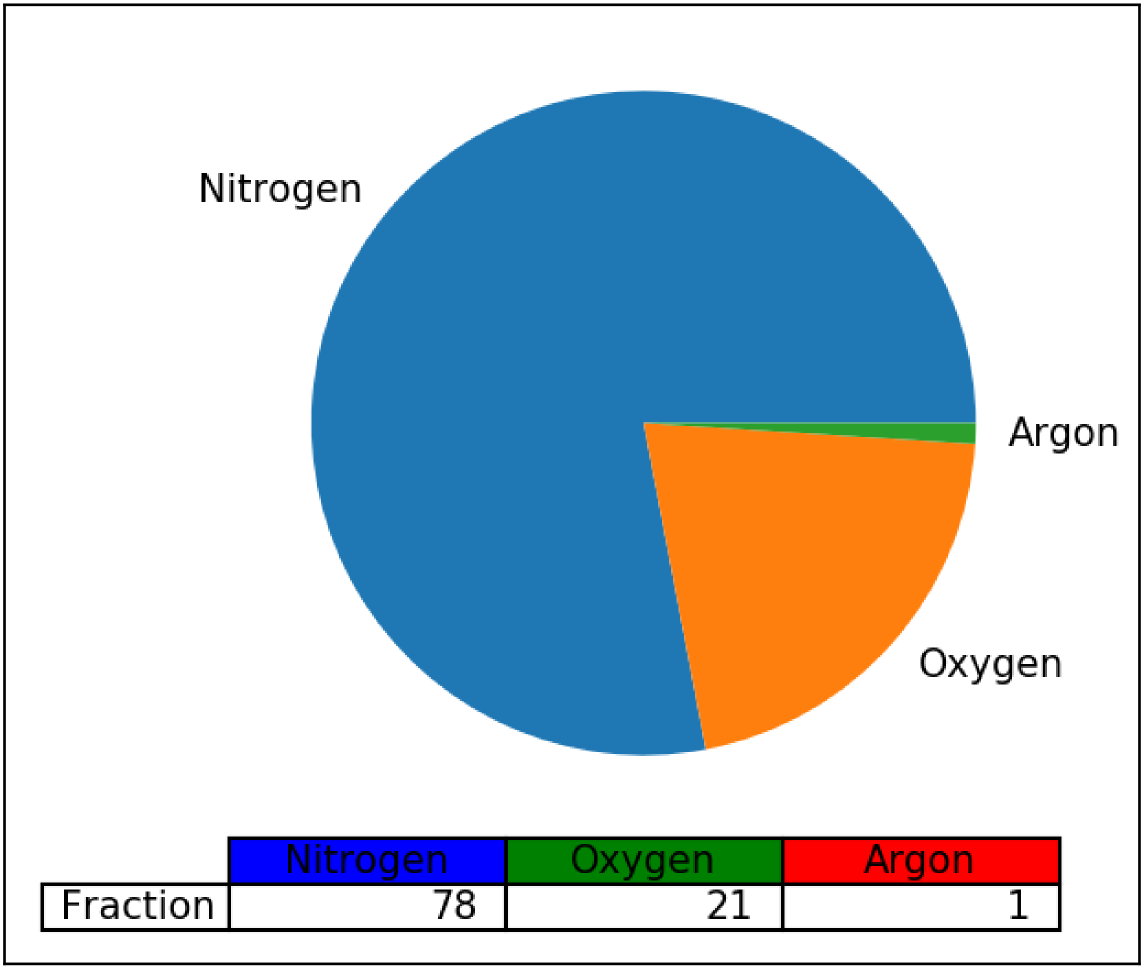

Nitrogen
78 %
1 %
Argon
21 %
Oxygen



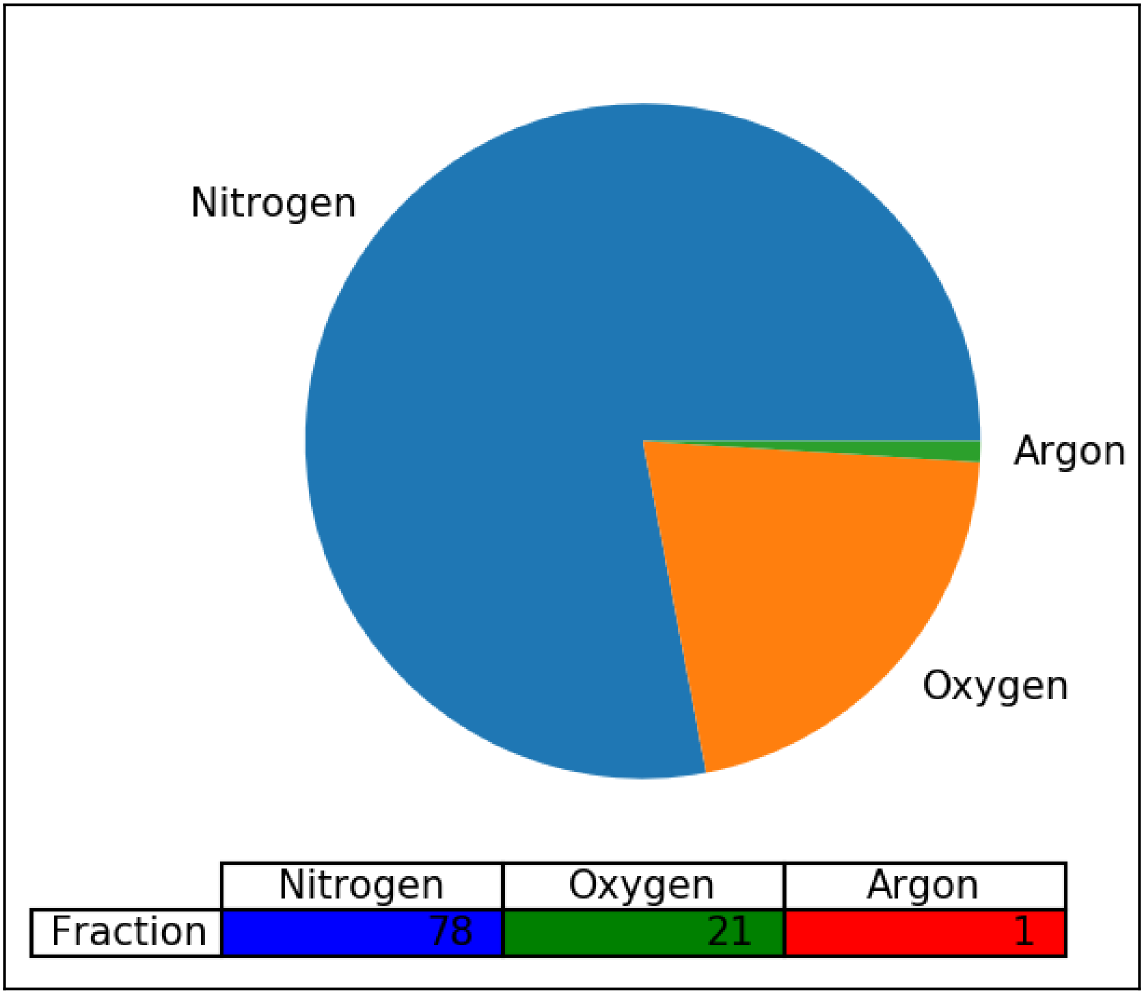
	Nitrogen	Oxygen	Argon
fraction	78	21	1



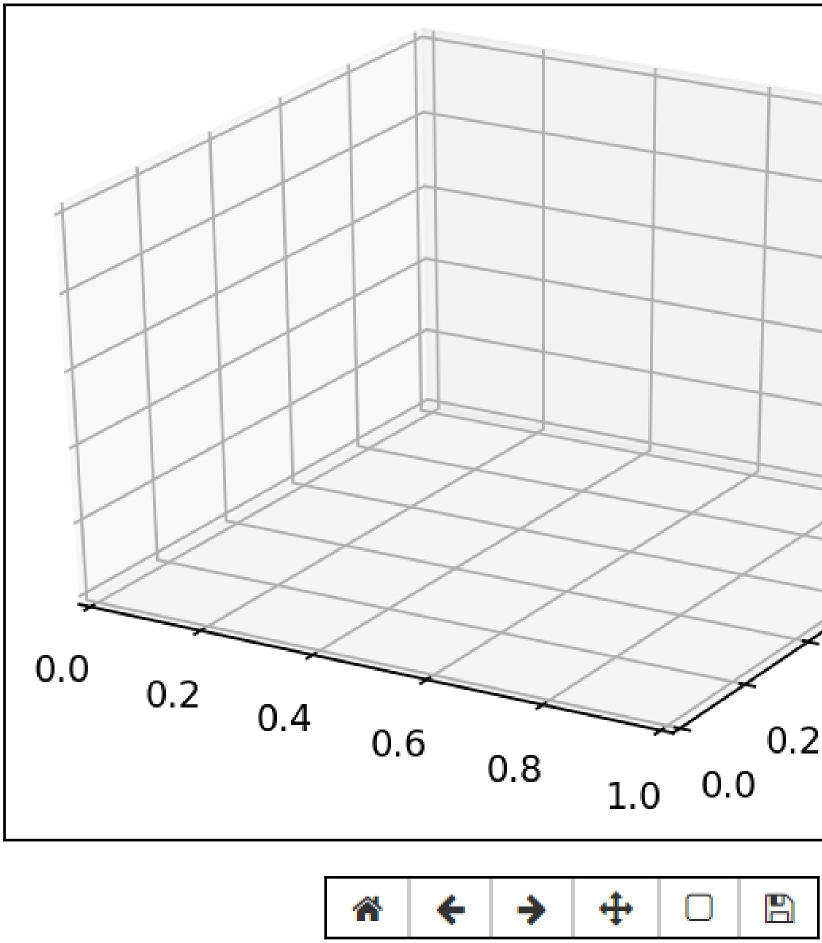
	Nitrogen	Oxygen	Argon
Fraction	78	21	1

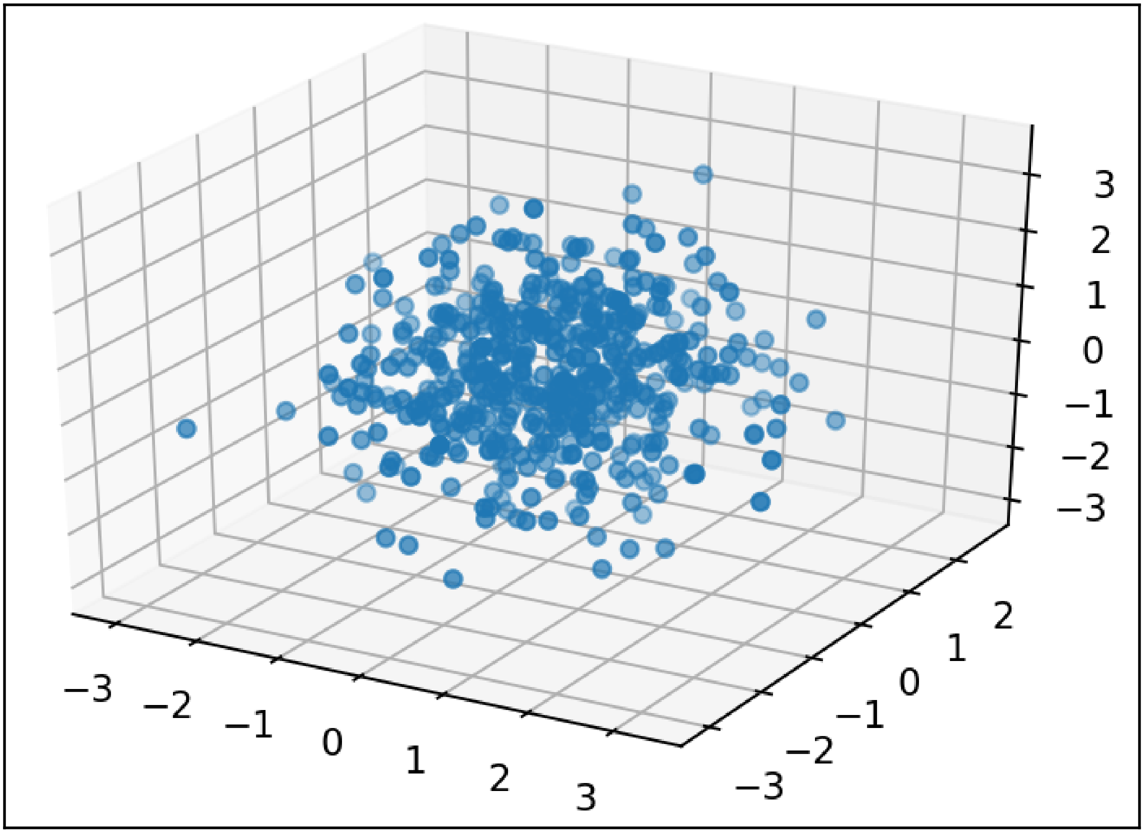


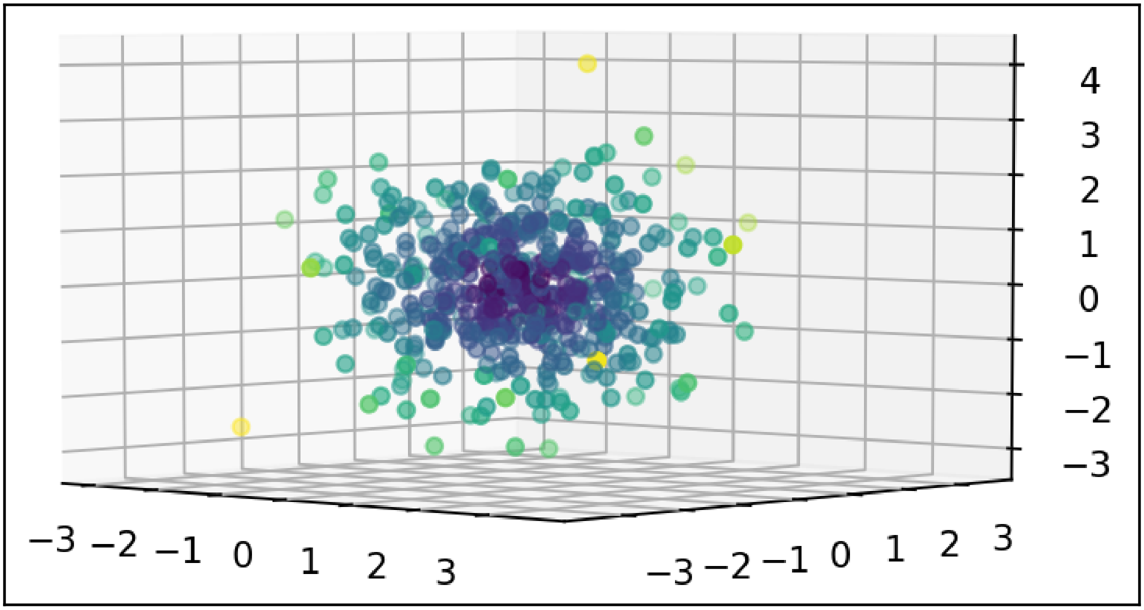
	Nitrogen	Oxygen	Argon
Fraction	78	21	1

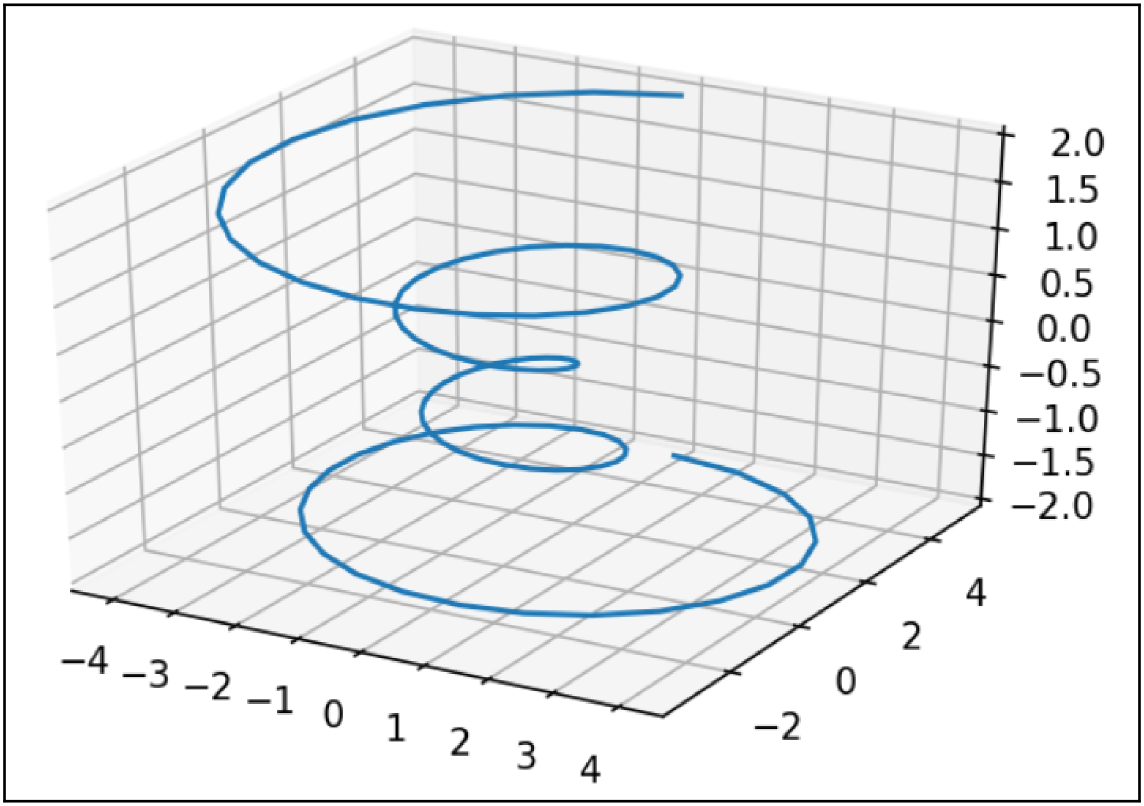


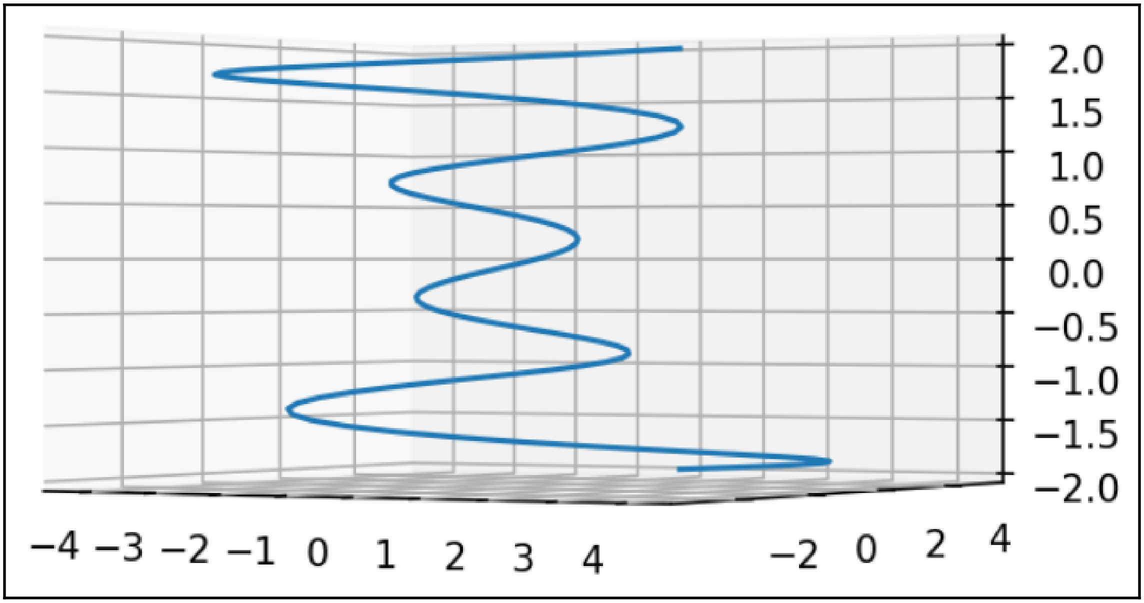
	Nitrogen	Oxygen	Argon
Fraction	78	21	1

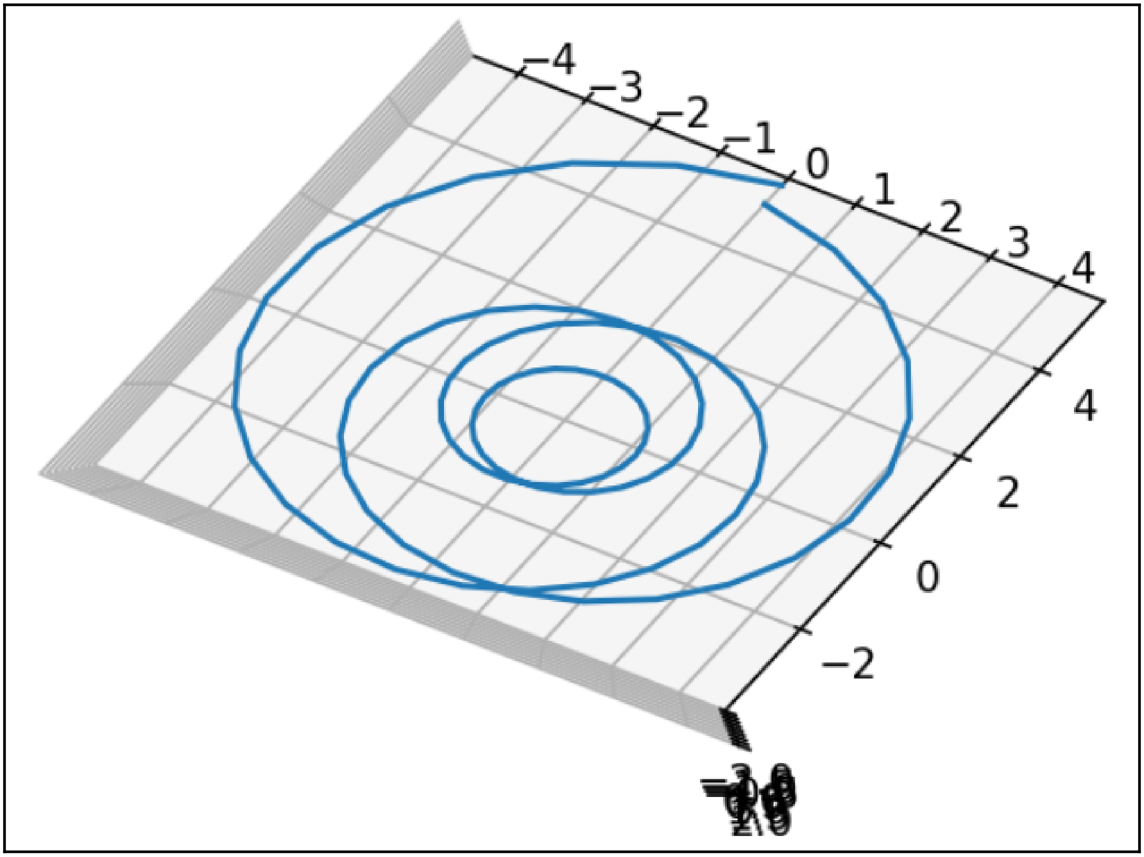

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.2
0.4
0.6
0.8
1.0

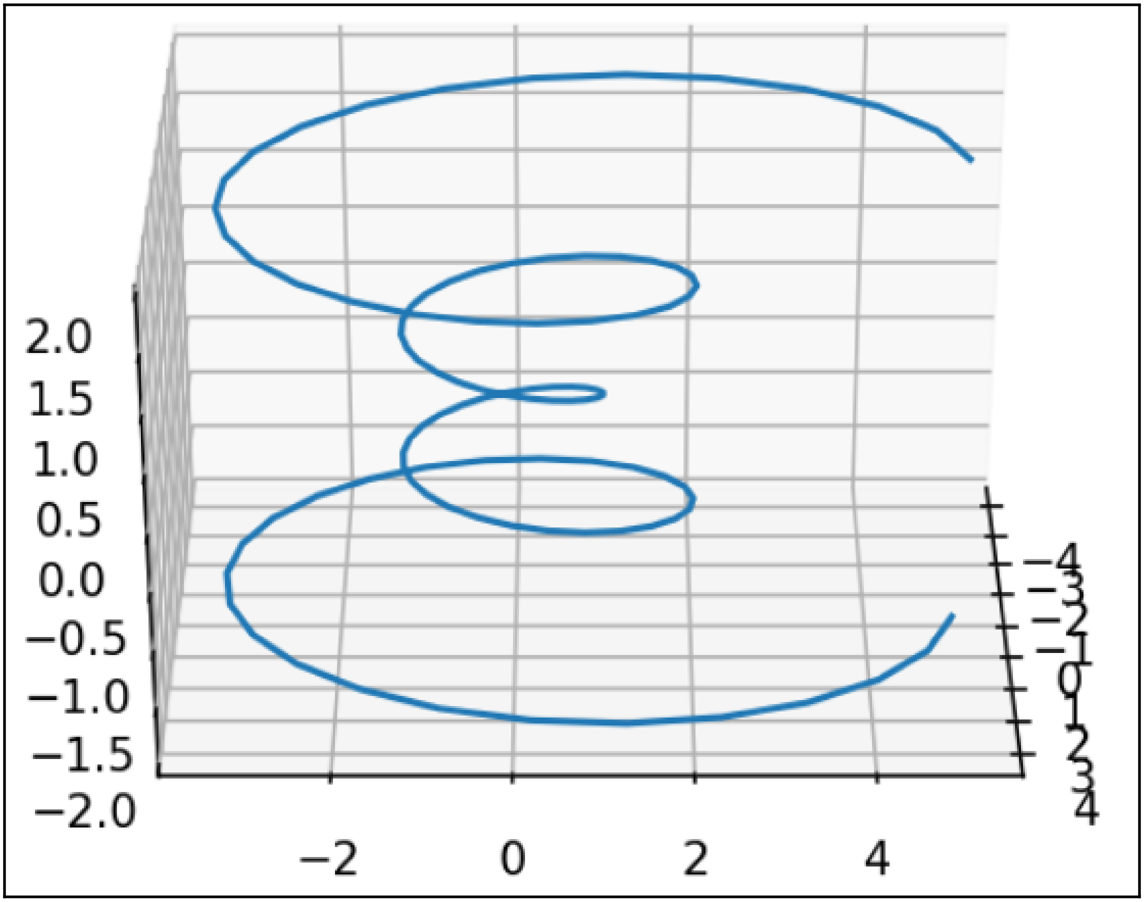

−3
−2
−1
0
1
2
3
−3
−2
−1
0
1
2
3
−3
−2
−1
0
1
2

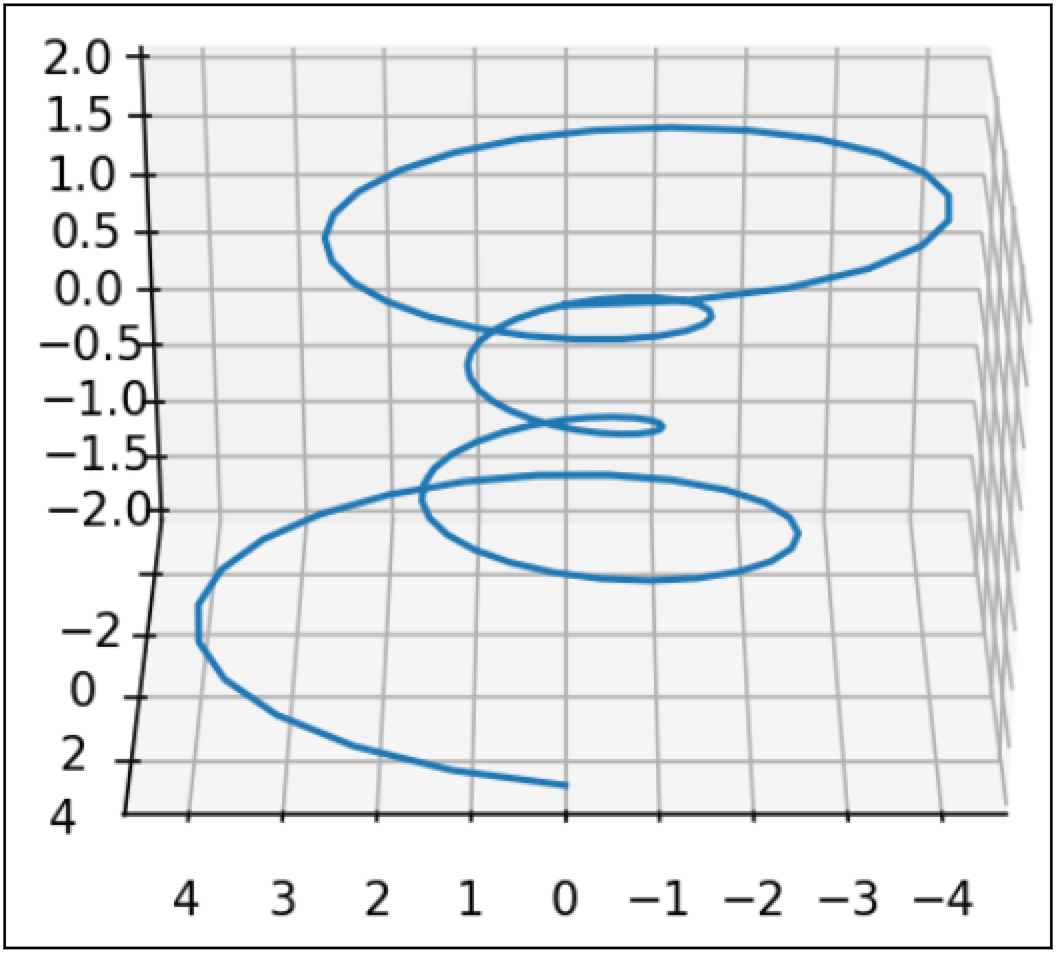

−3
−2
−1
0
1
2
3
−3
−2
−1
0
1
2
3
4
3
2
1
0
−1
−2
−3

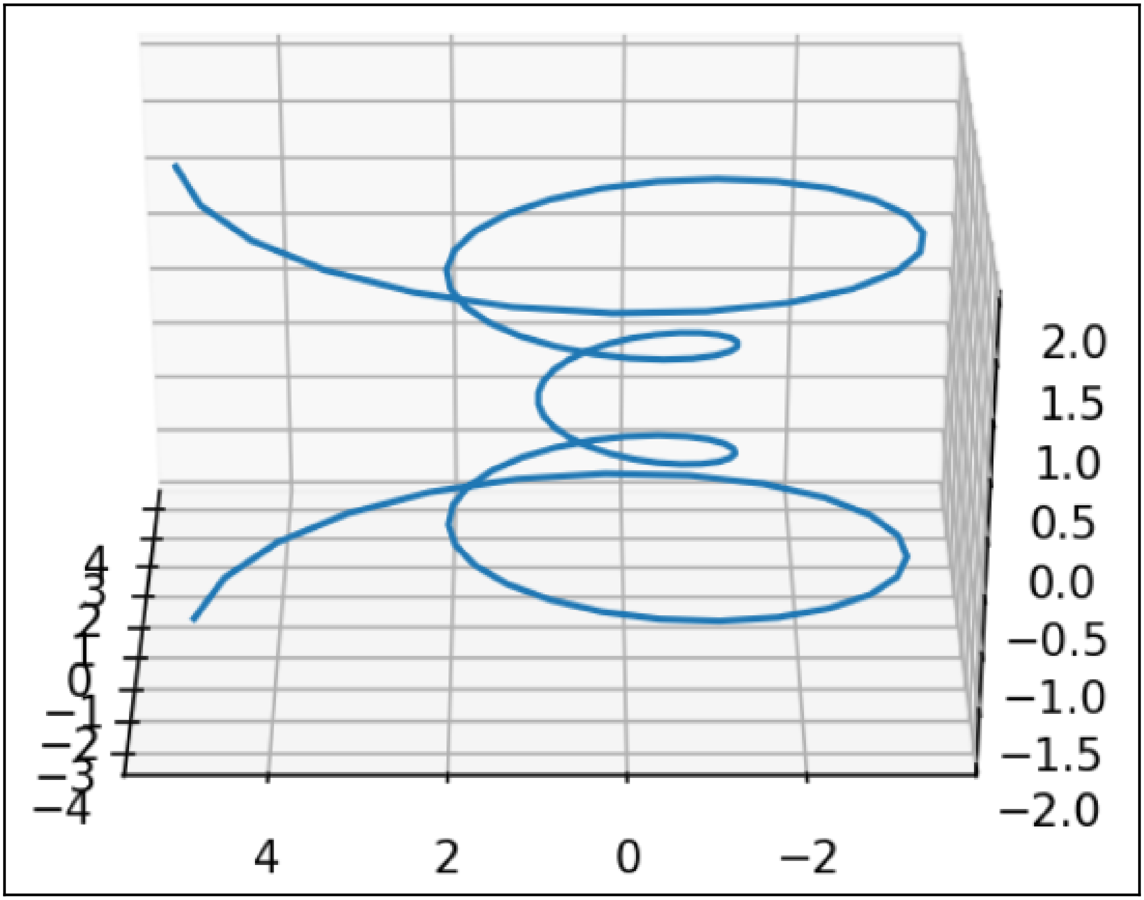

2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
4
2
0
−2
−4
−3
−2
−1
0
1
2
3
4


2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−4
−3
−2
−1
0
1
2
3
4
−2
0
2
4

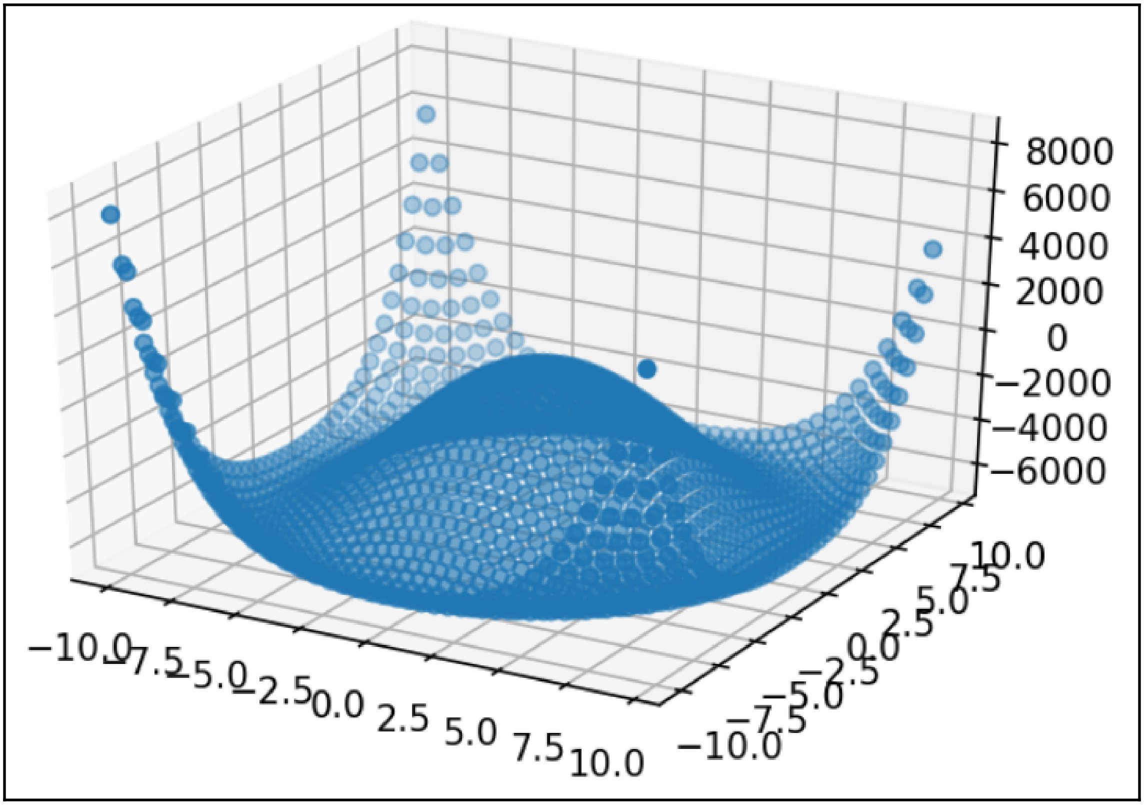

−4
−3
−2
−1
0
1
2
3
4
4
2
0
−2

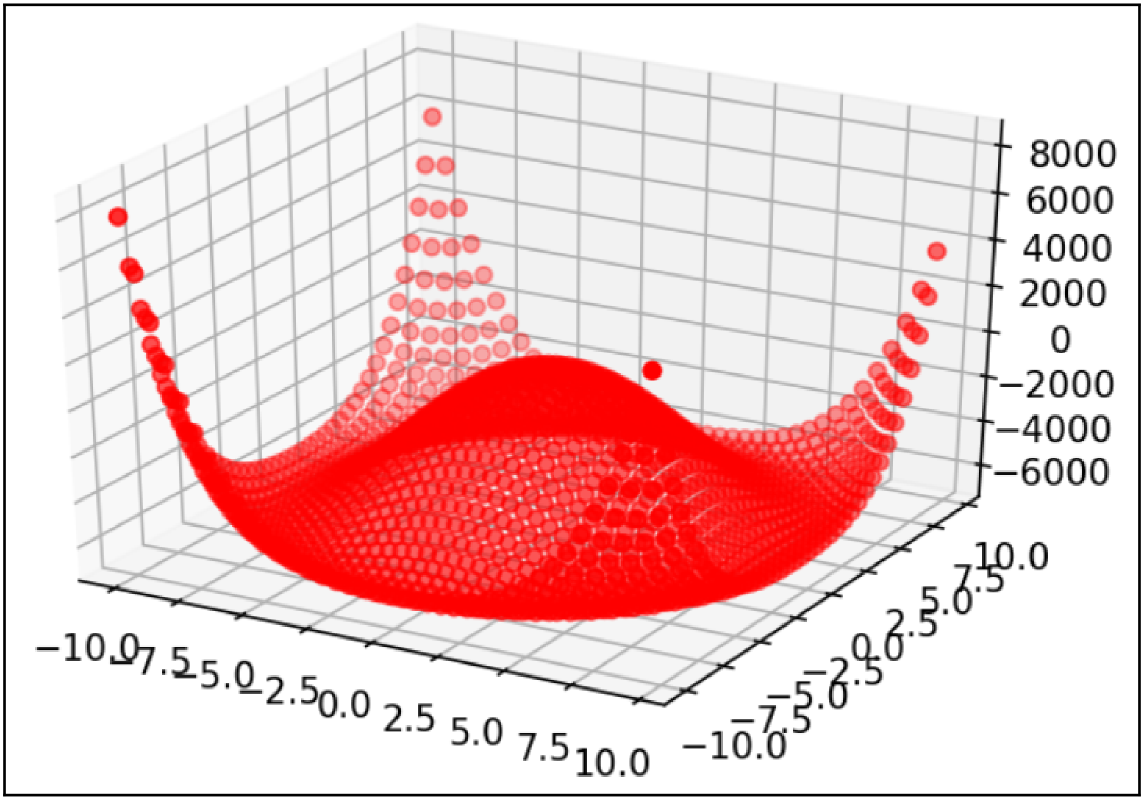

2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2
0
2
4
−4
−3
−2
−1
0
1
2
3
4

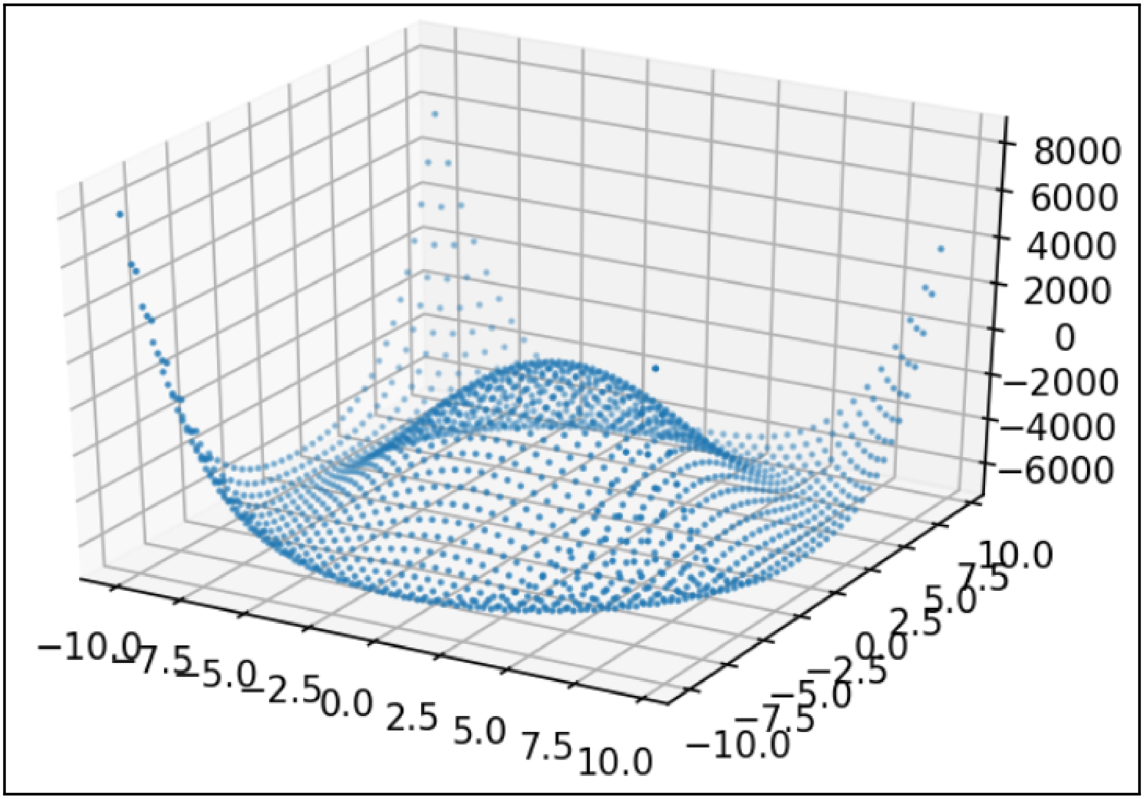

2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2
0
2
4
4
3
2
1
0
−1
−2
−3
−4

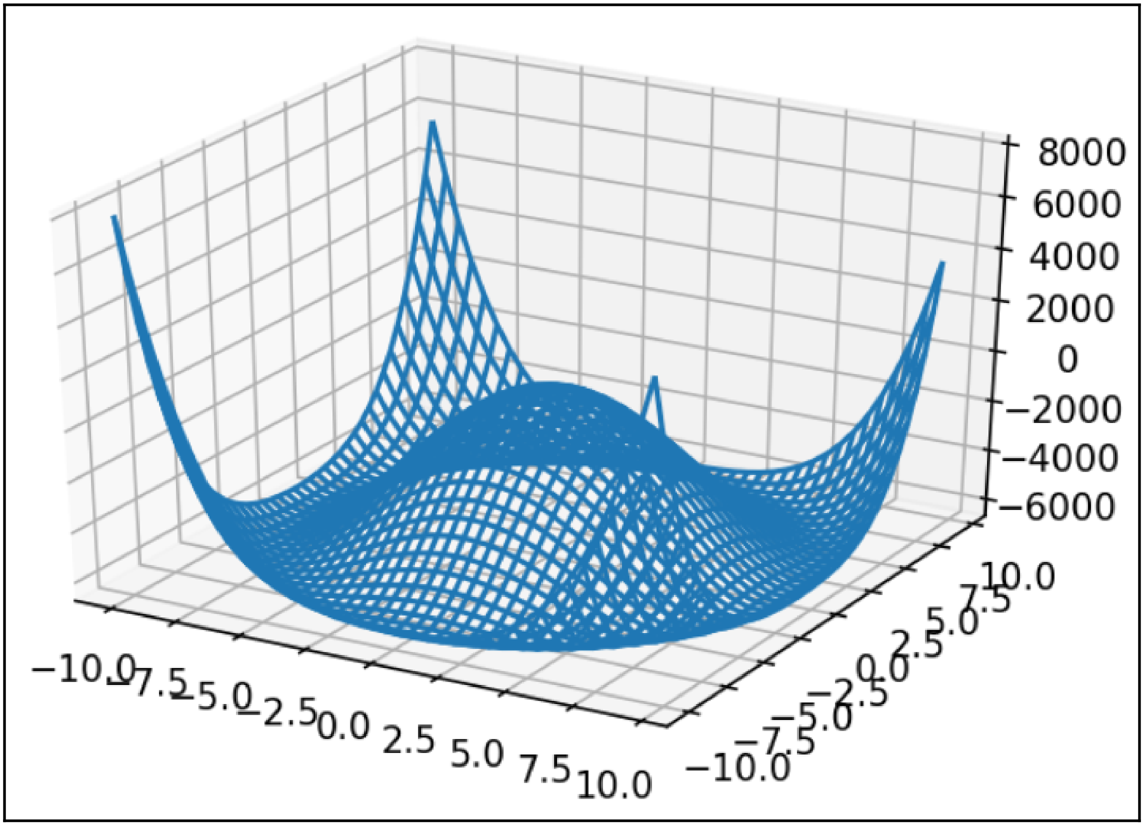


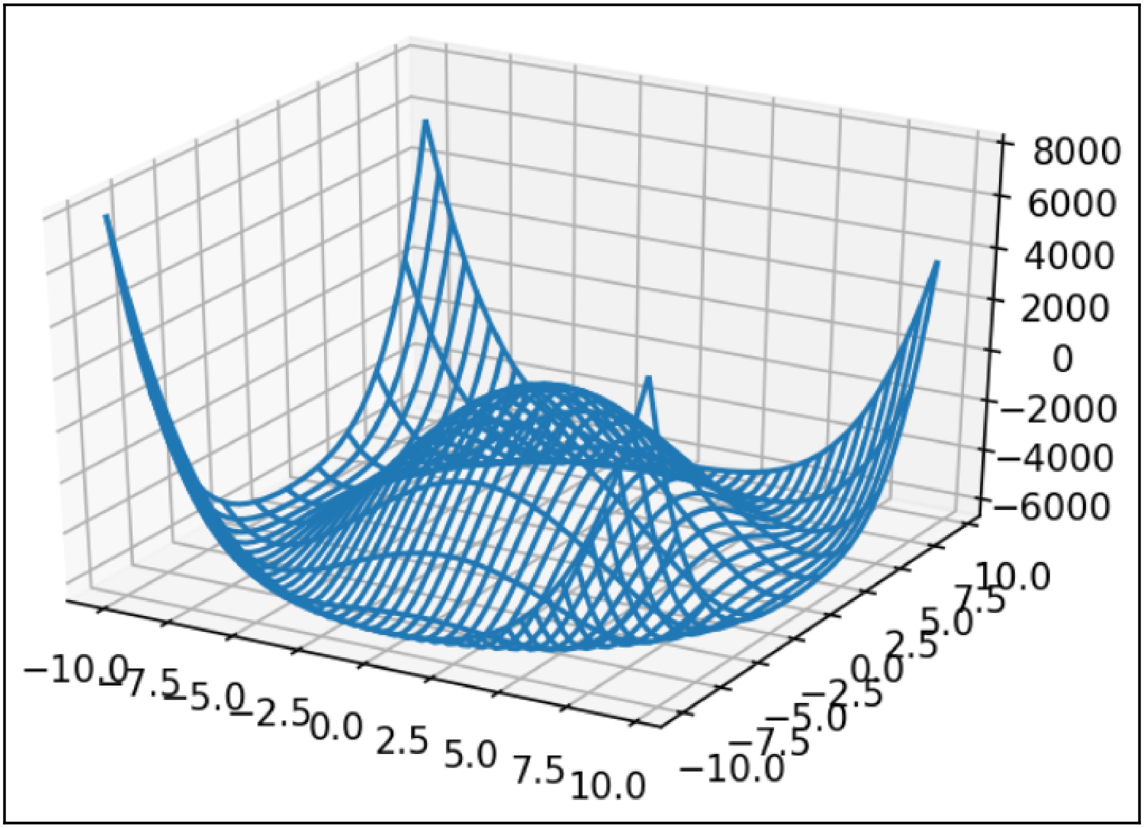
4
3
2
1
0
−1
−2
−3
−4
4
2
0
−2
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0

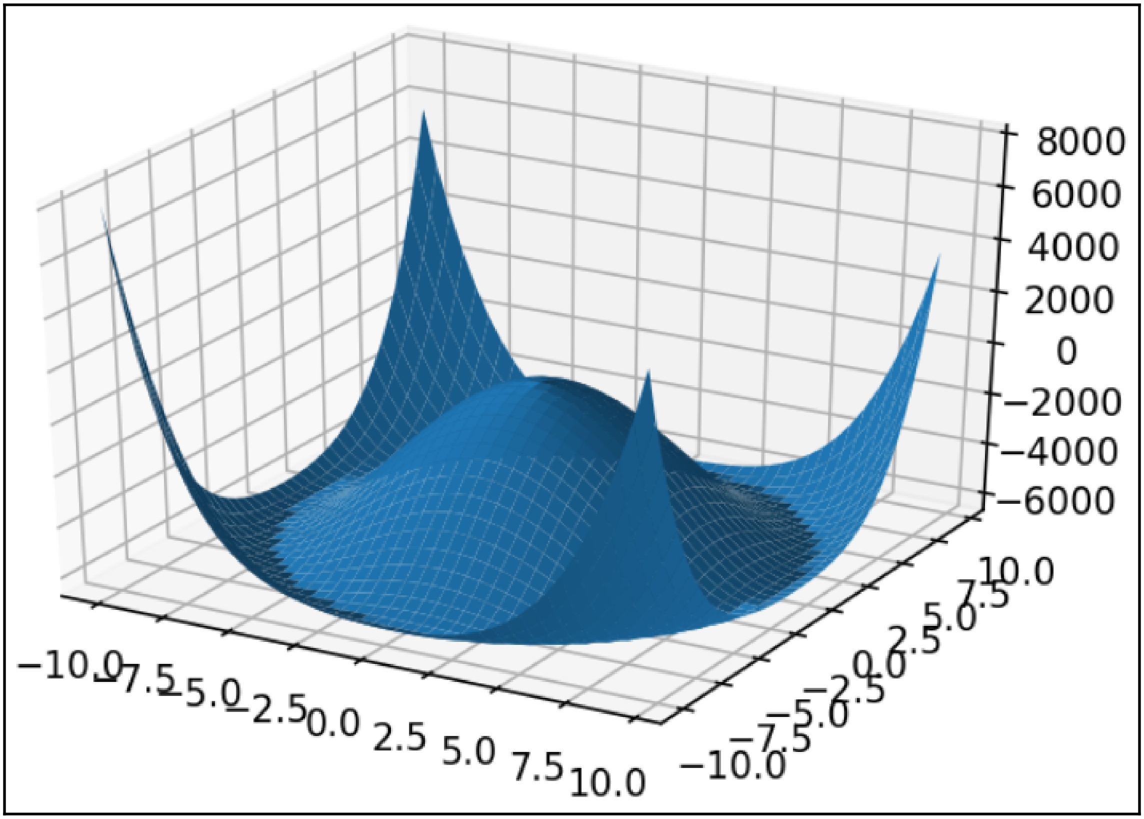

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

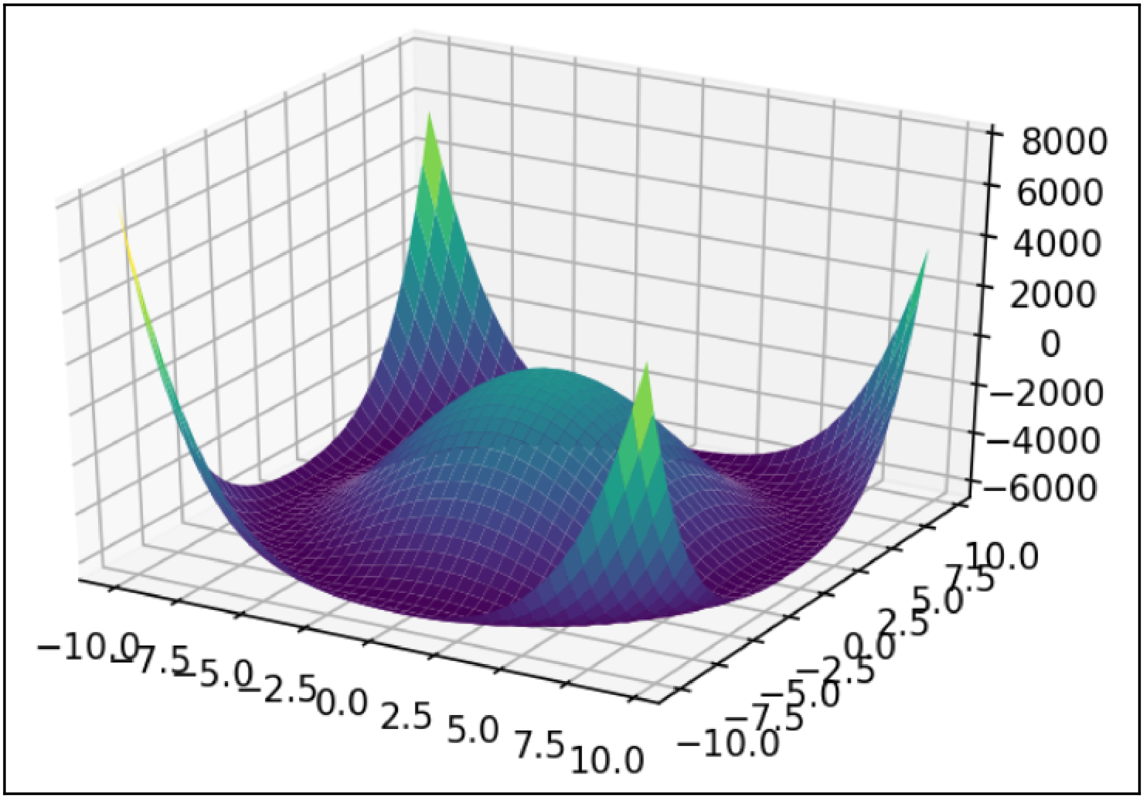

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0

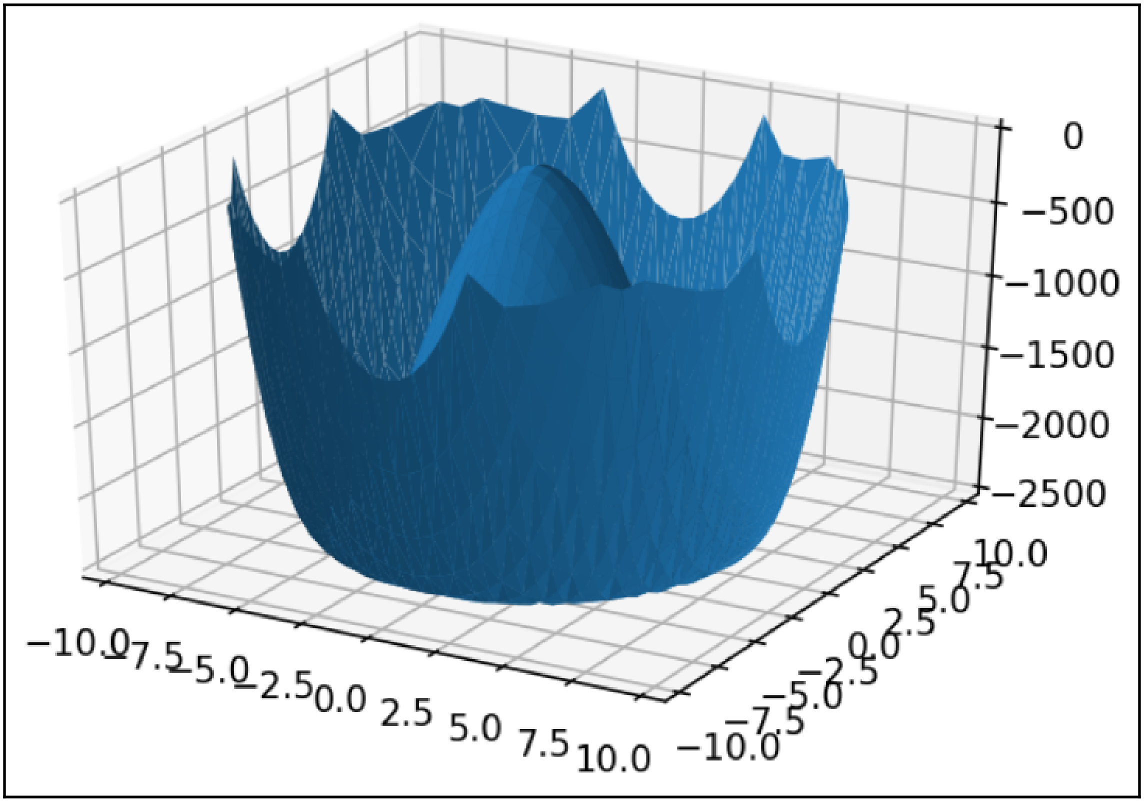

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

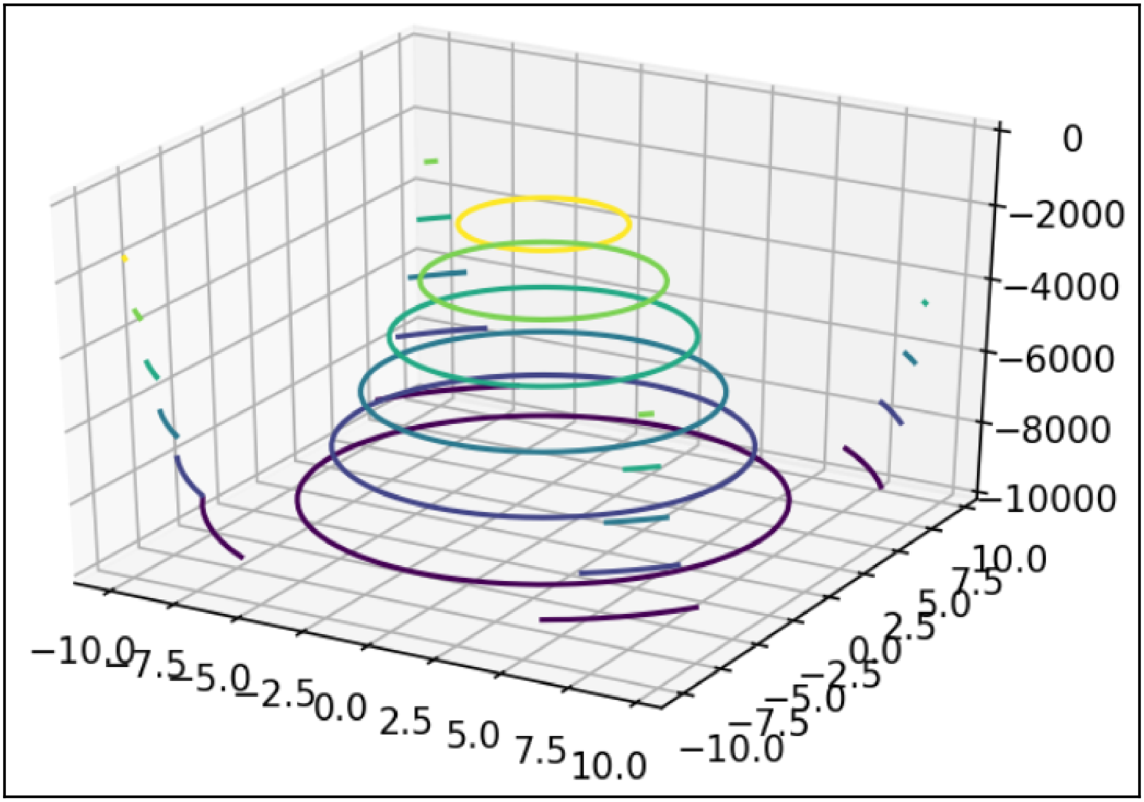

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

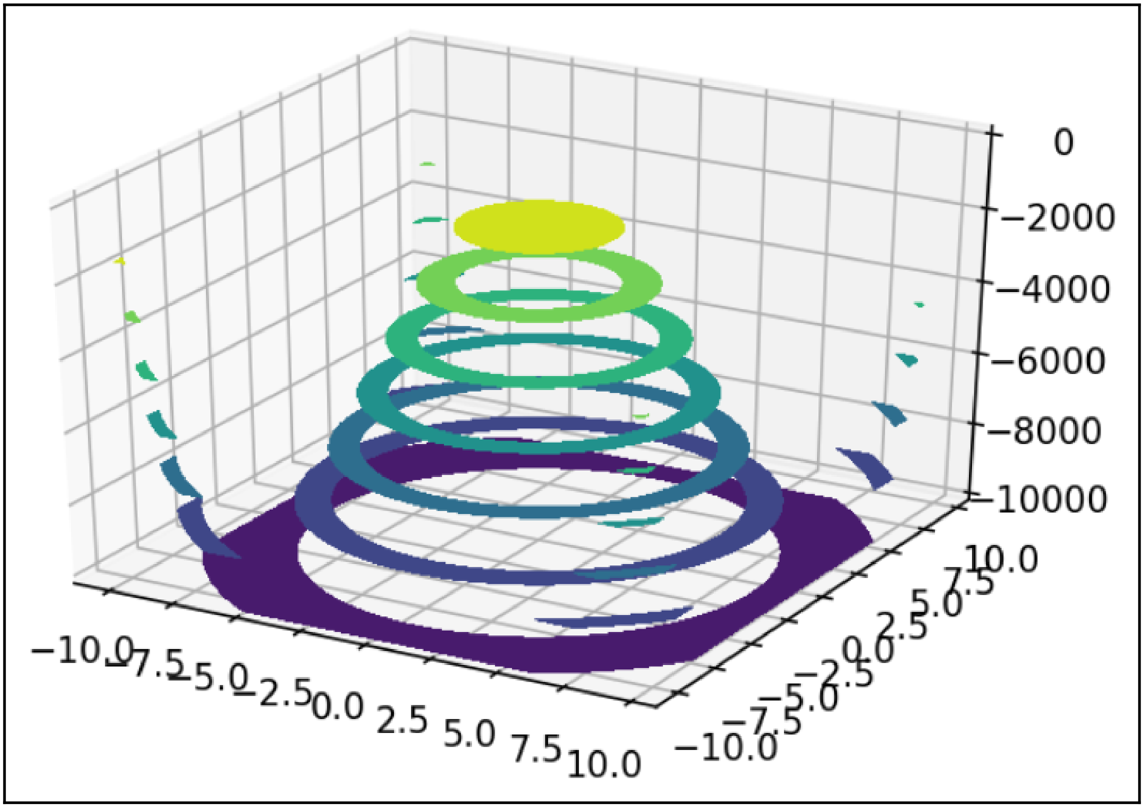

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

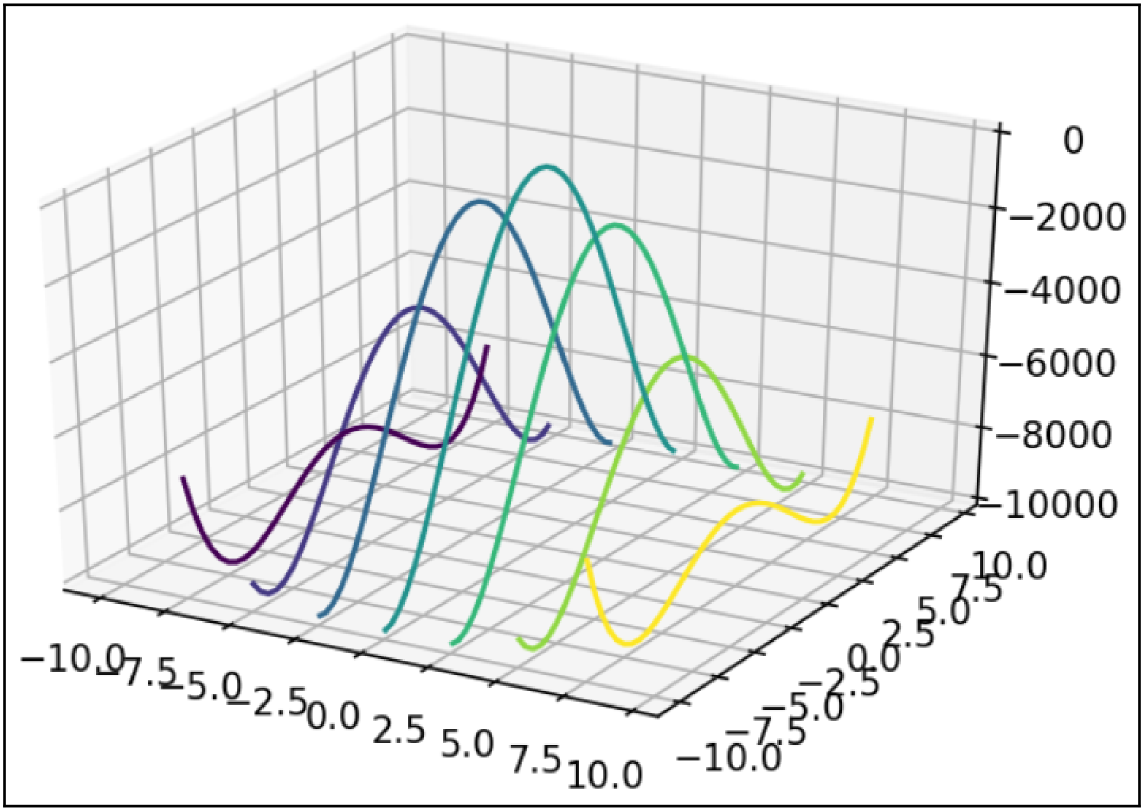

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

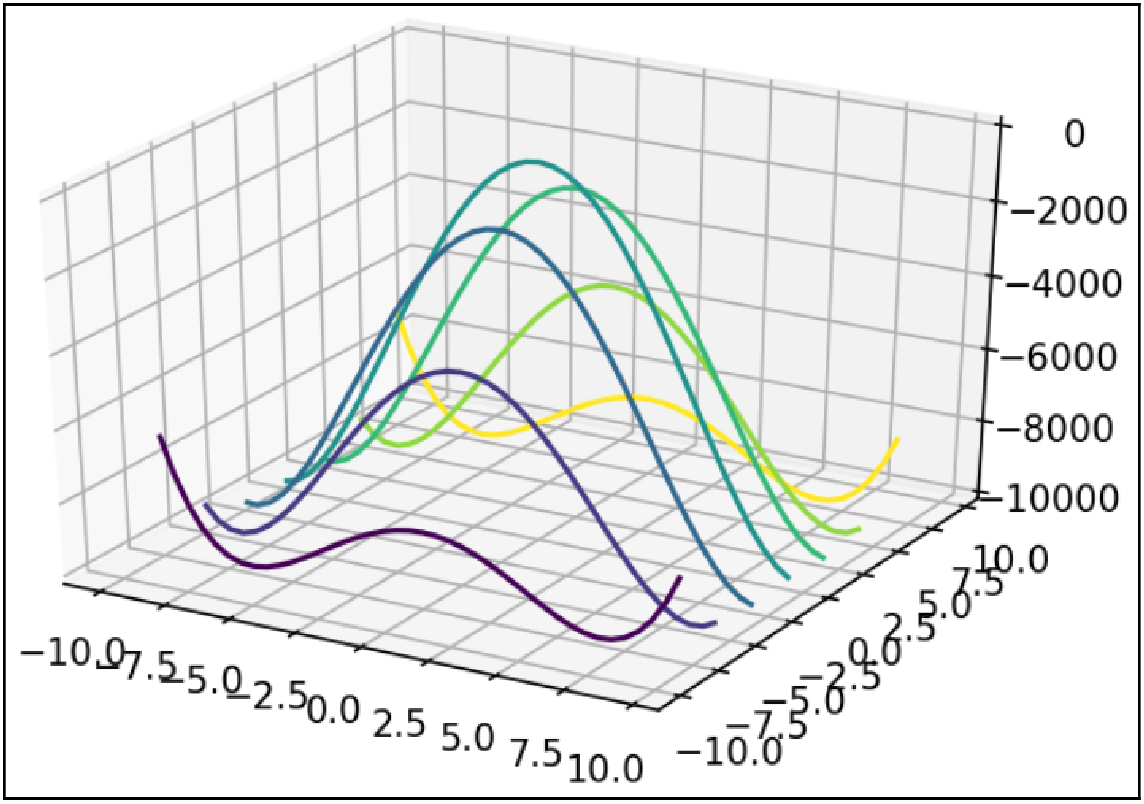

8000
6000
4000
2000
0
−2000
−4000
−6000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

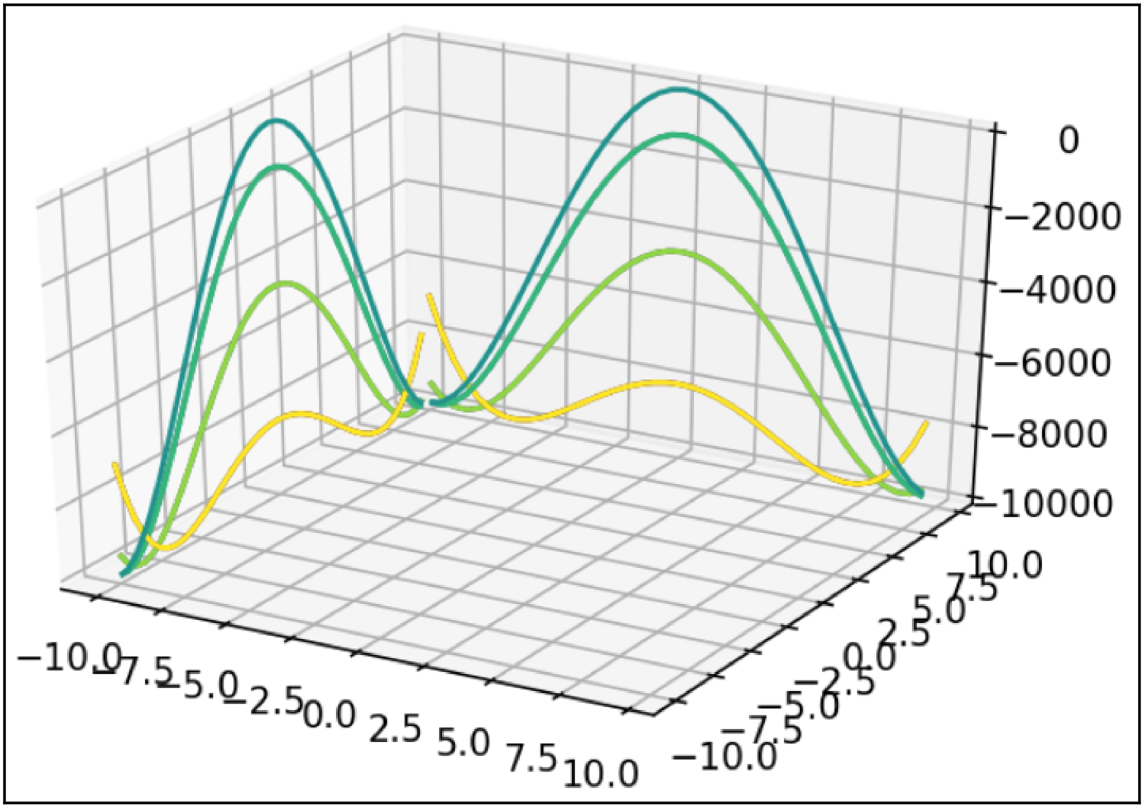

0
−500
−1000
−1500
−2000
−2500
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

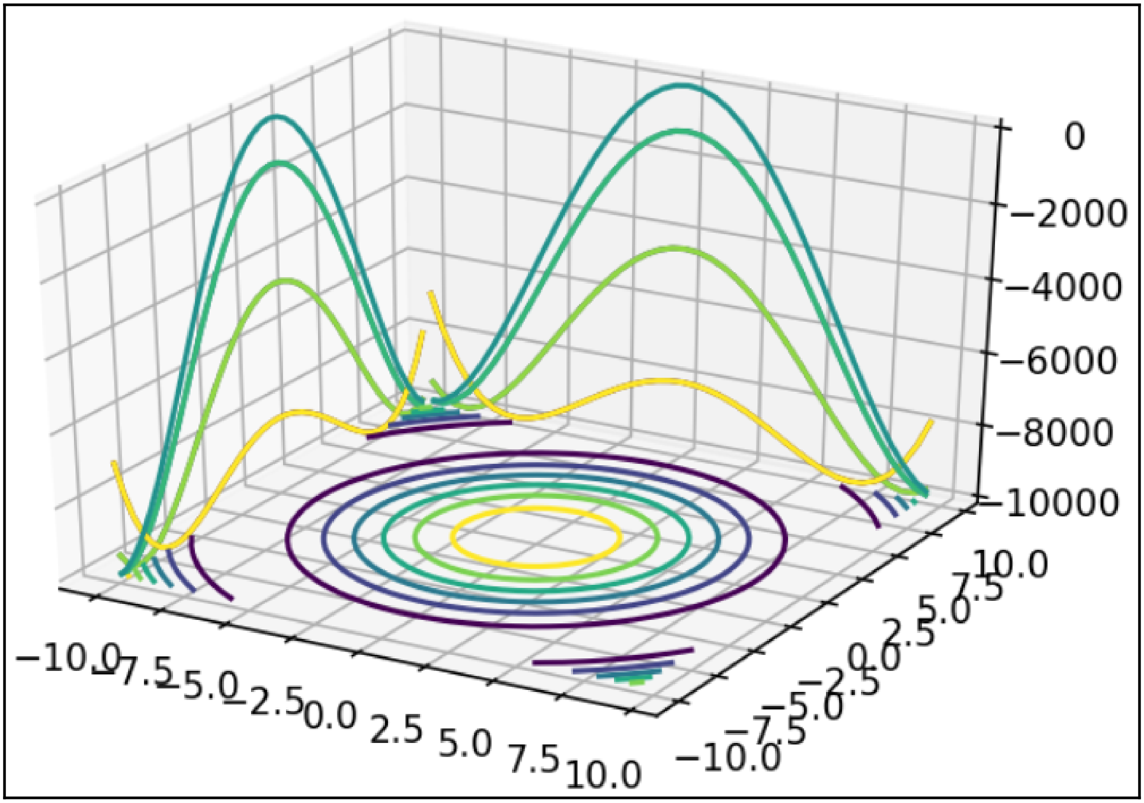

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0

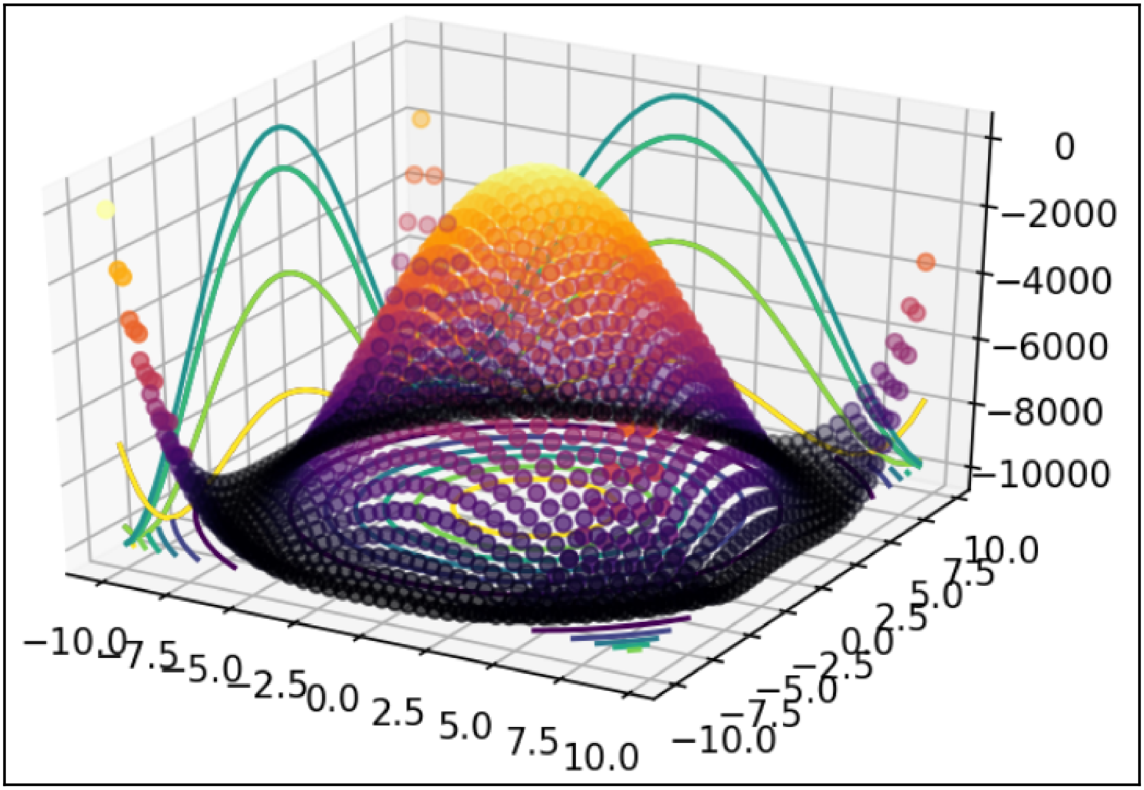

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

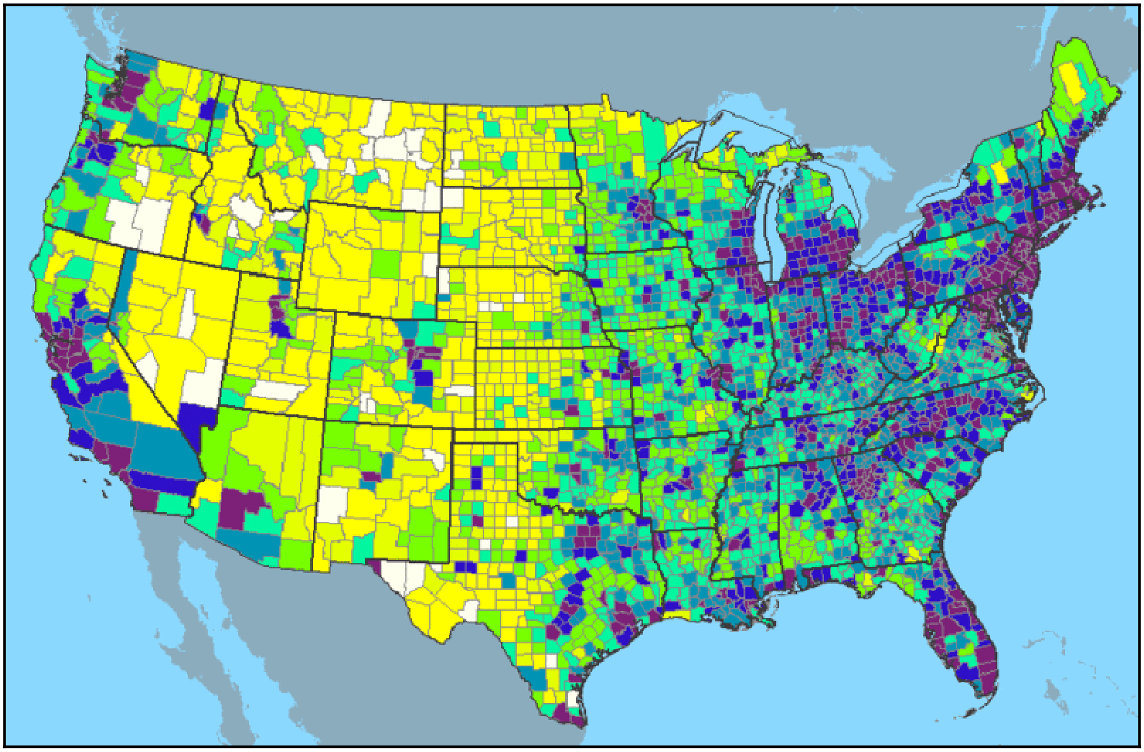

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

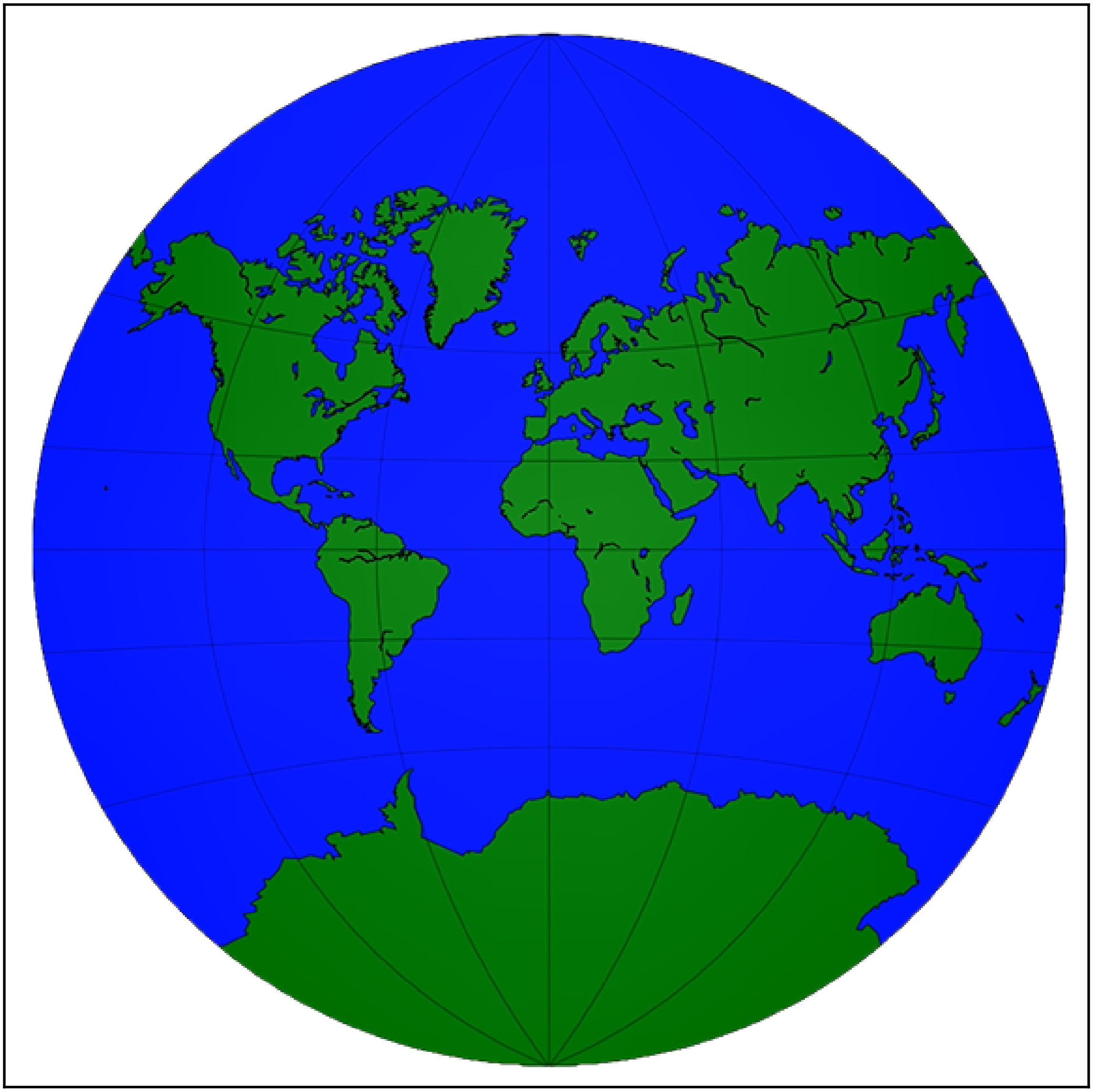

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0

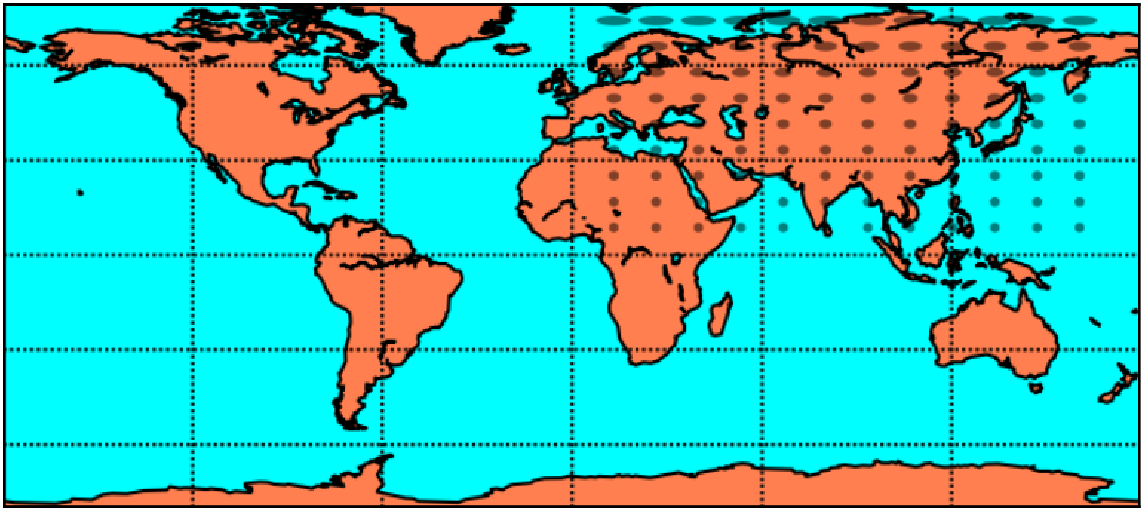

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

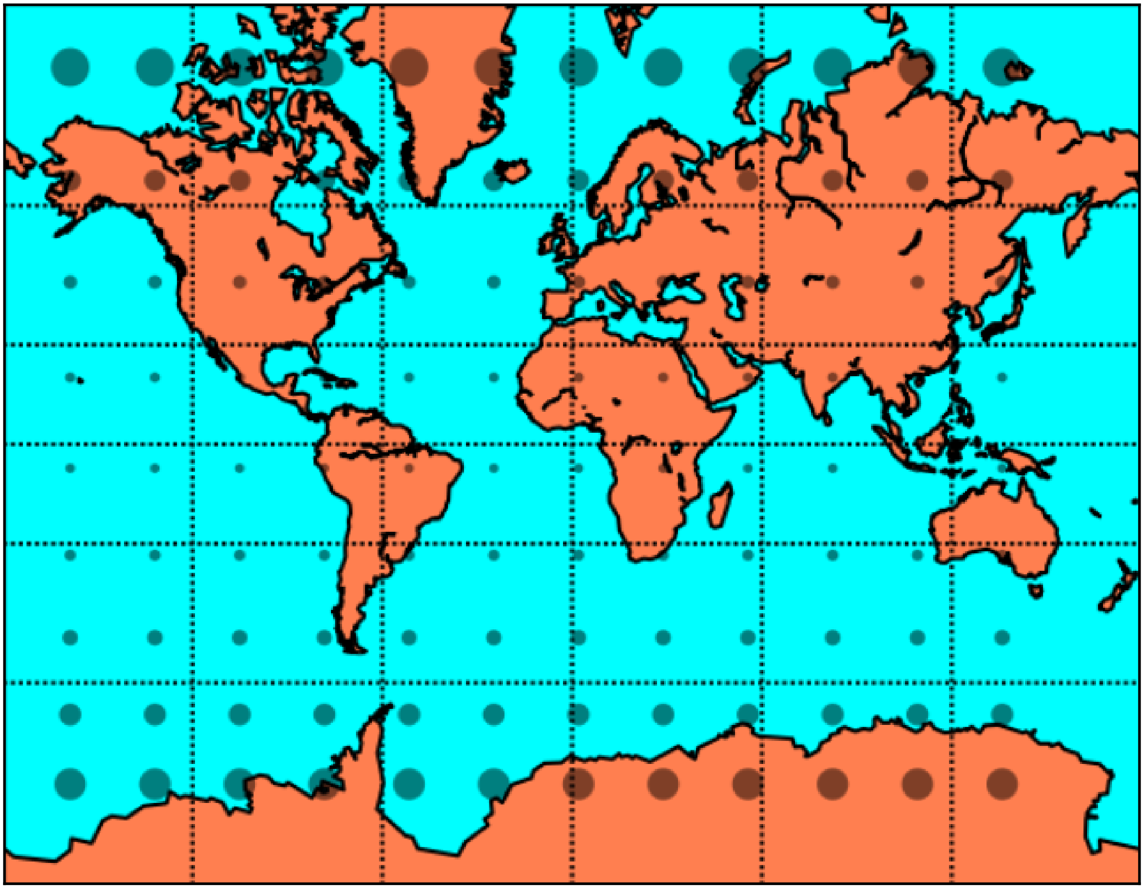

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

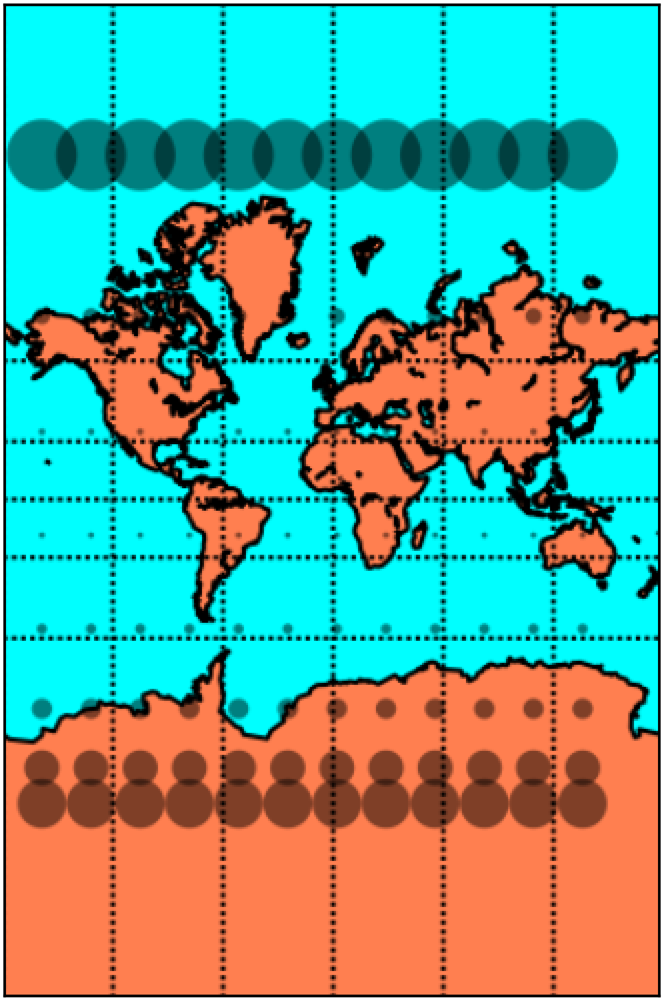

0
−2000
−4000
−6000
−8000
−10000
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

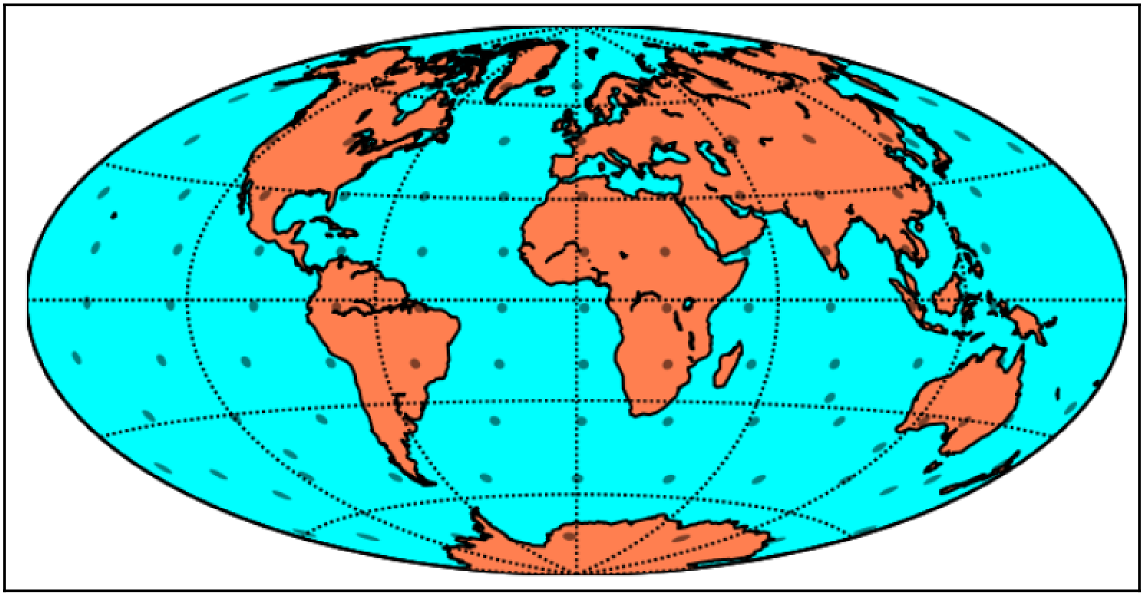


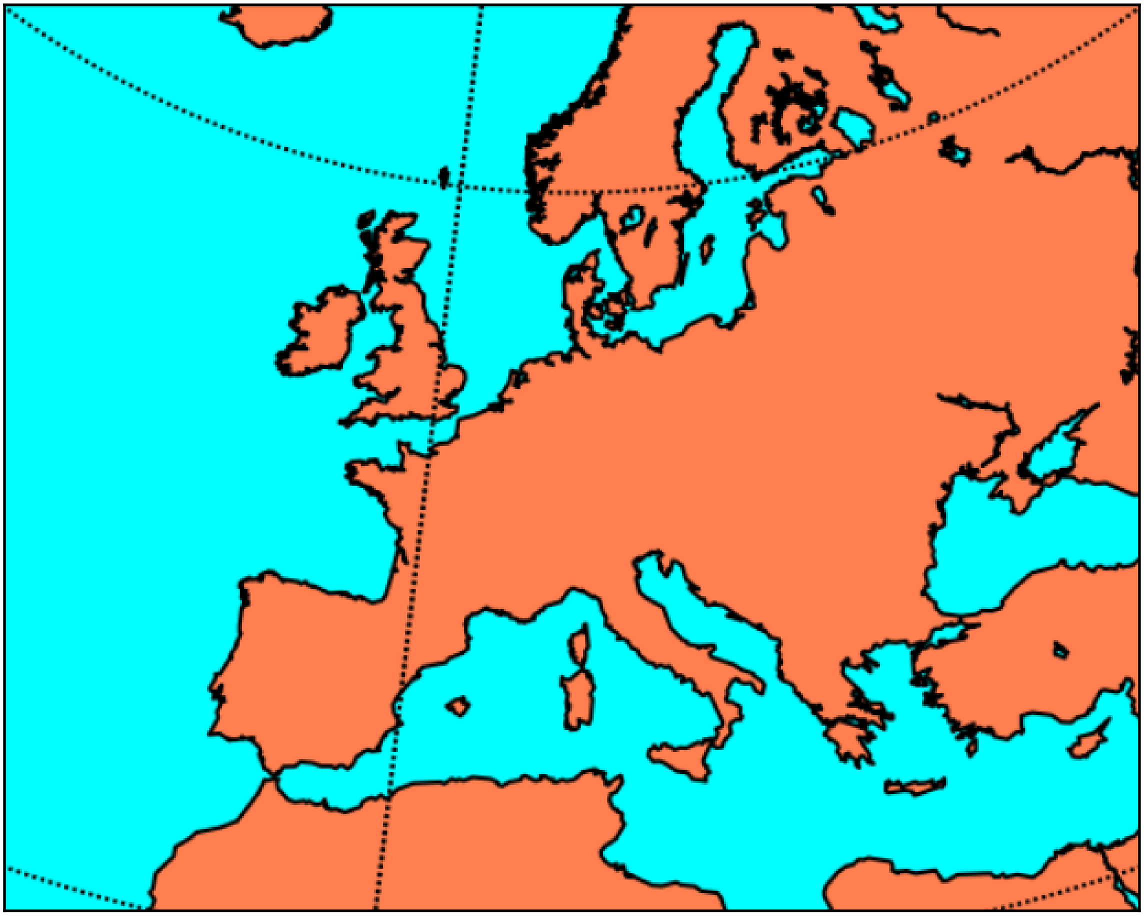


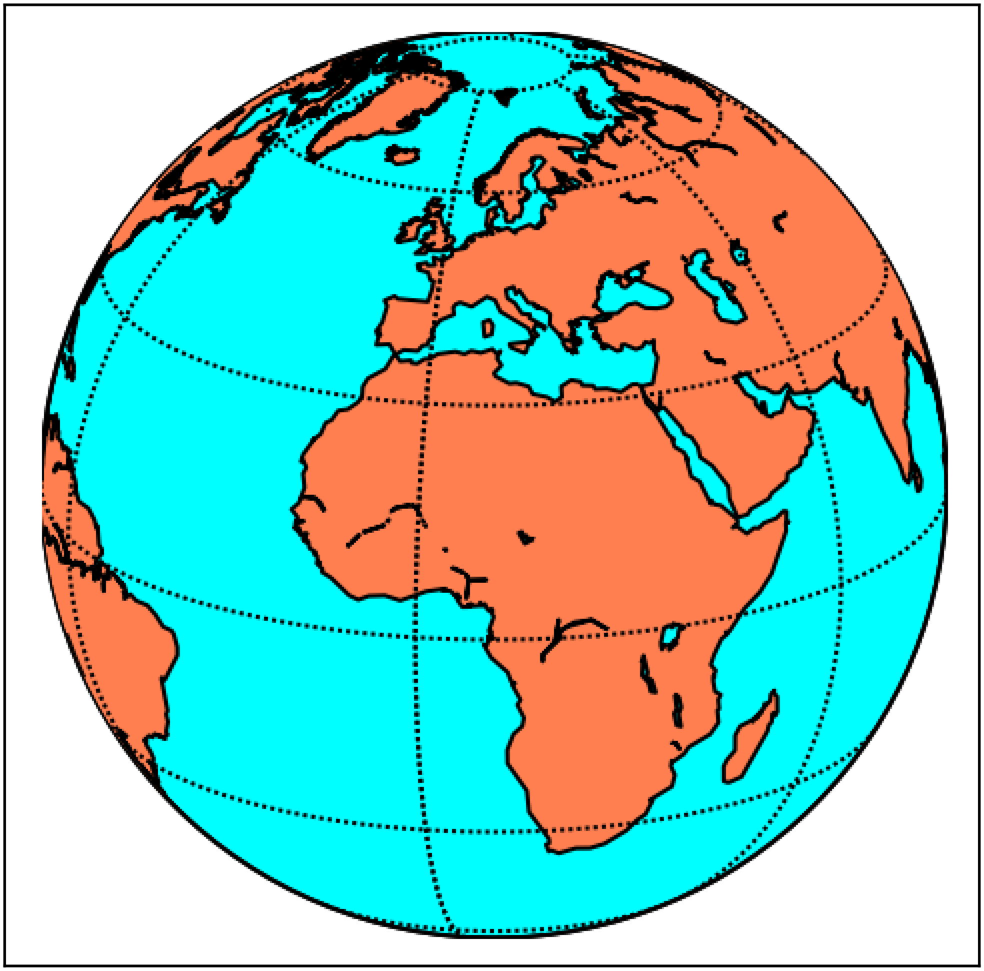


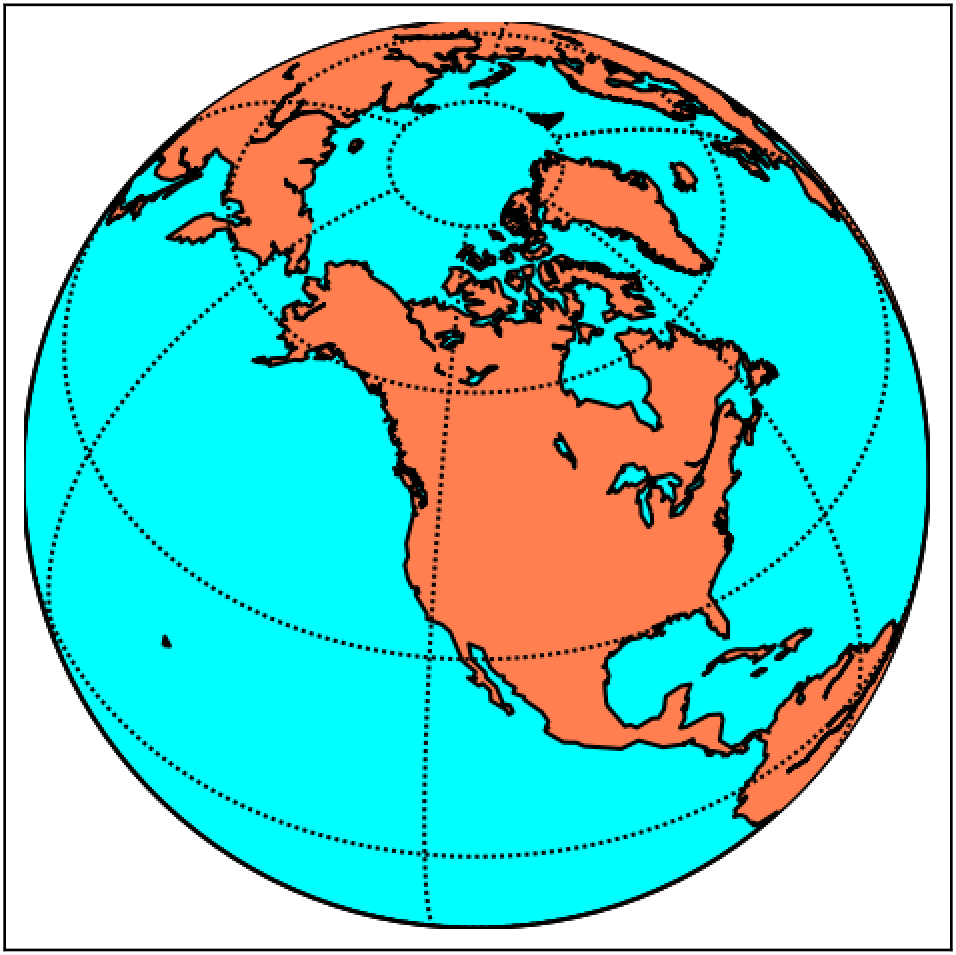


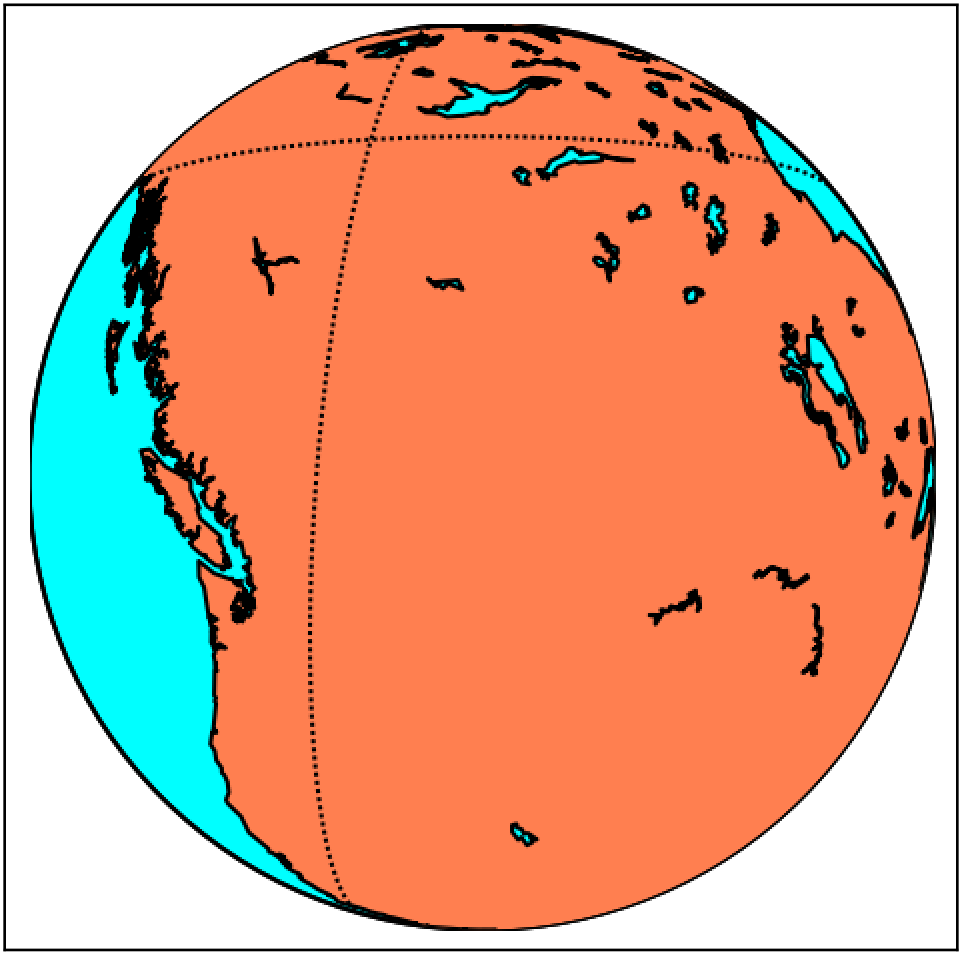


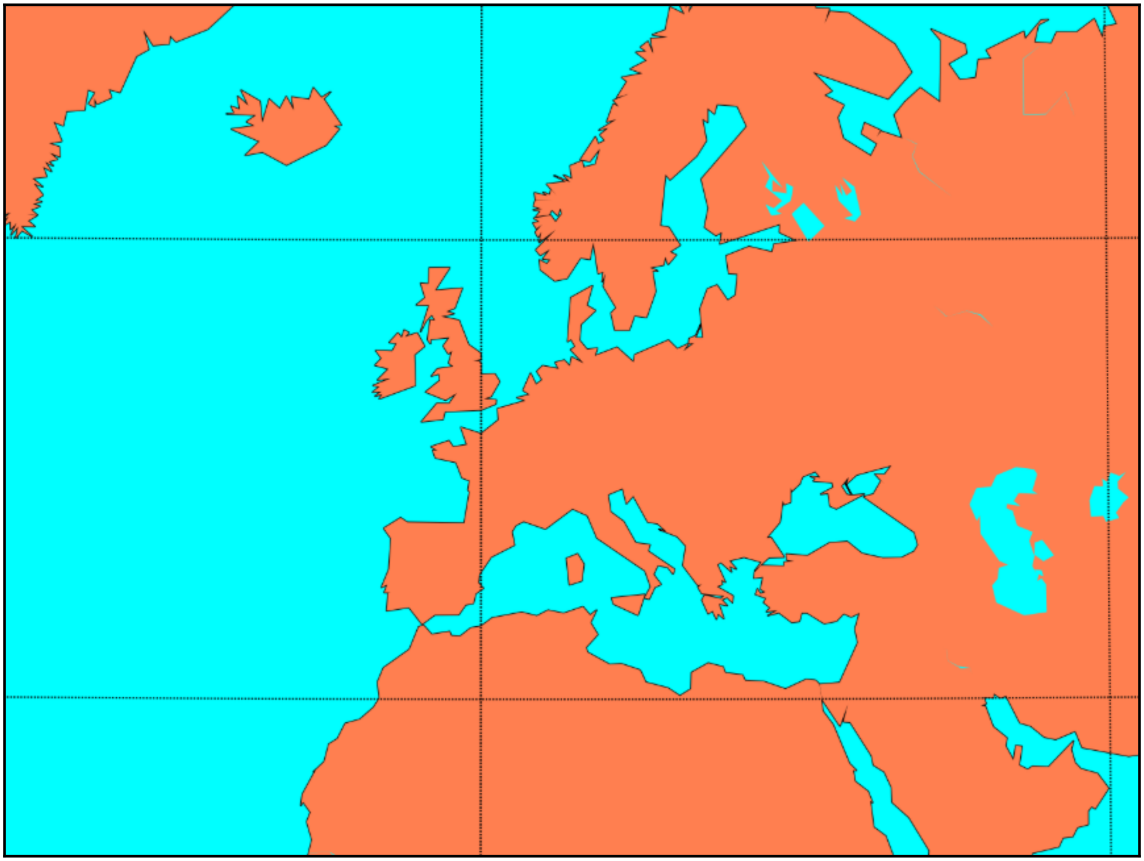


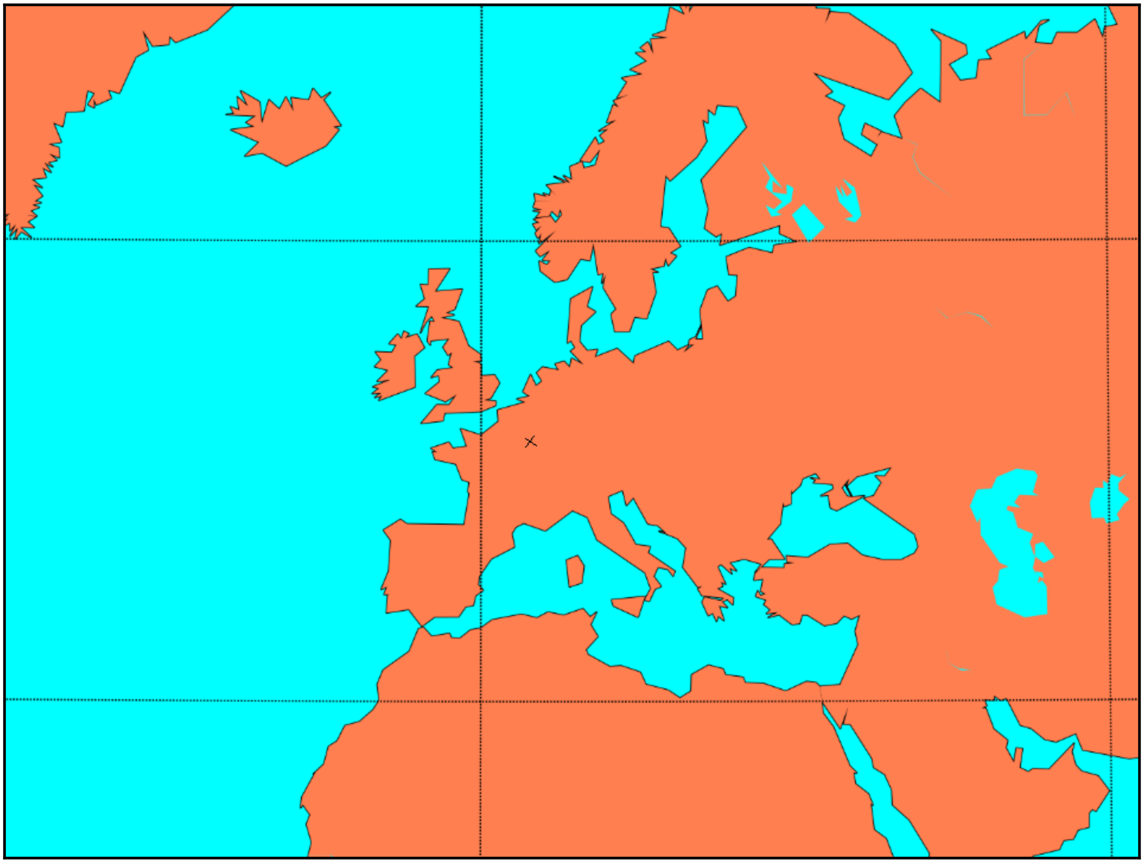


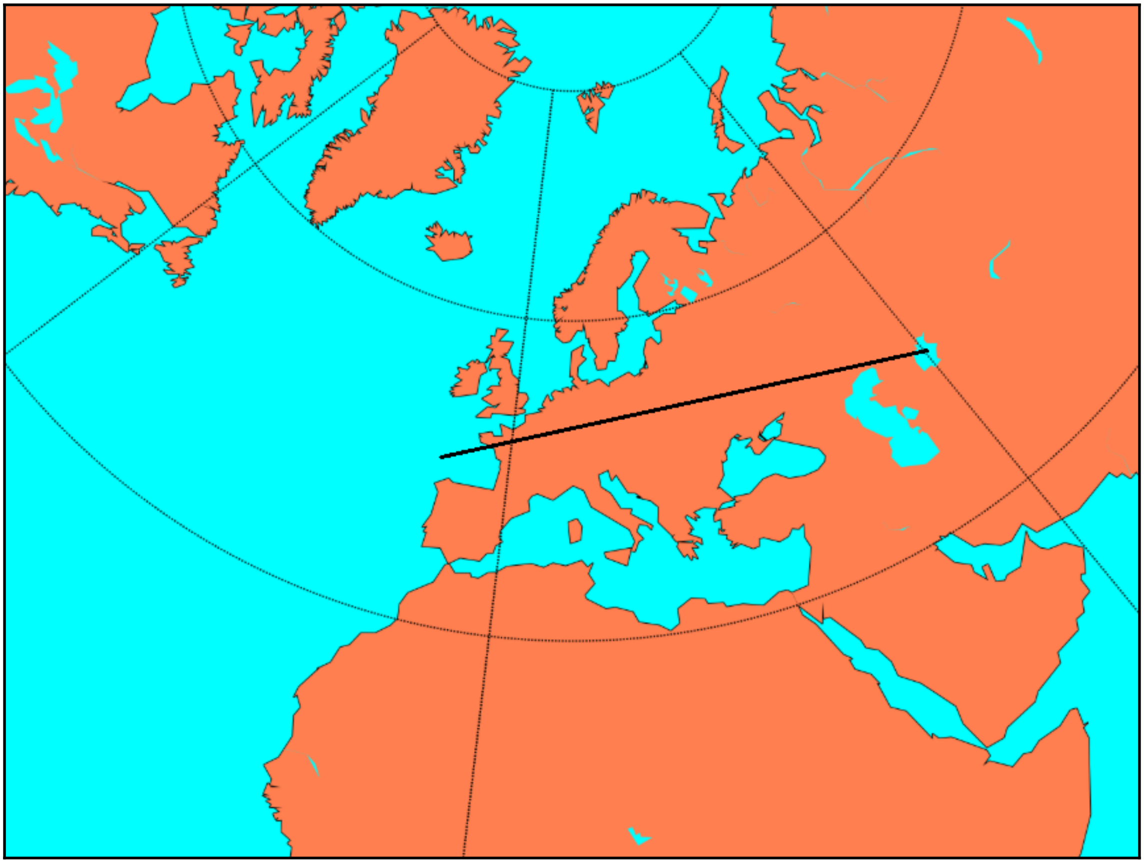


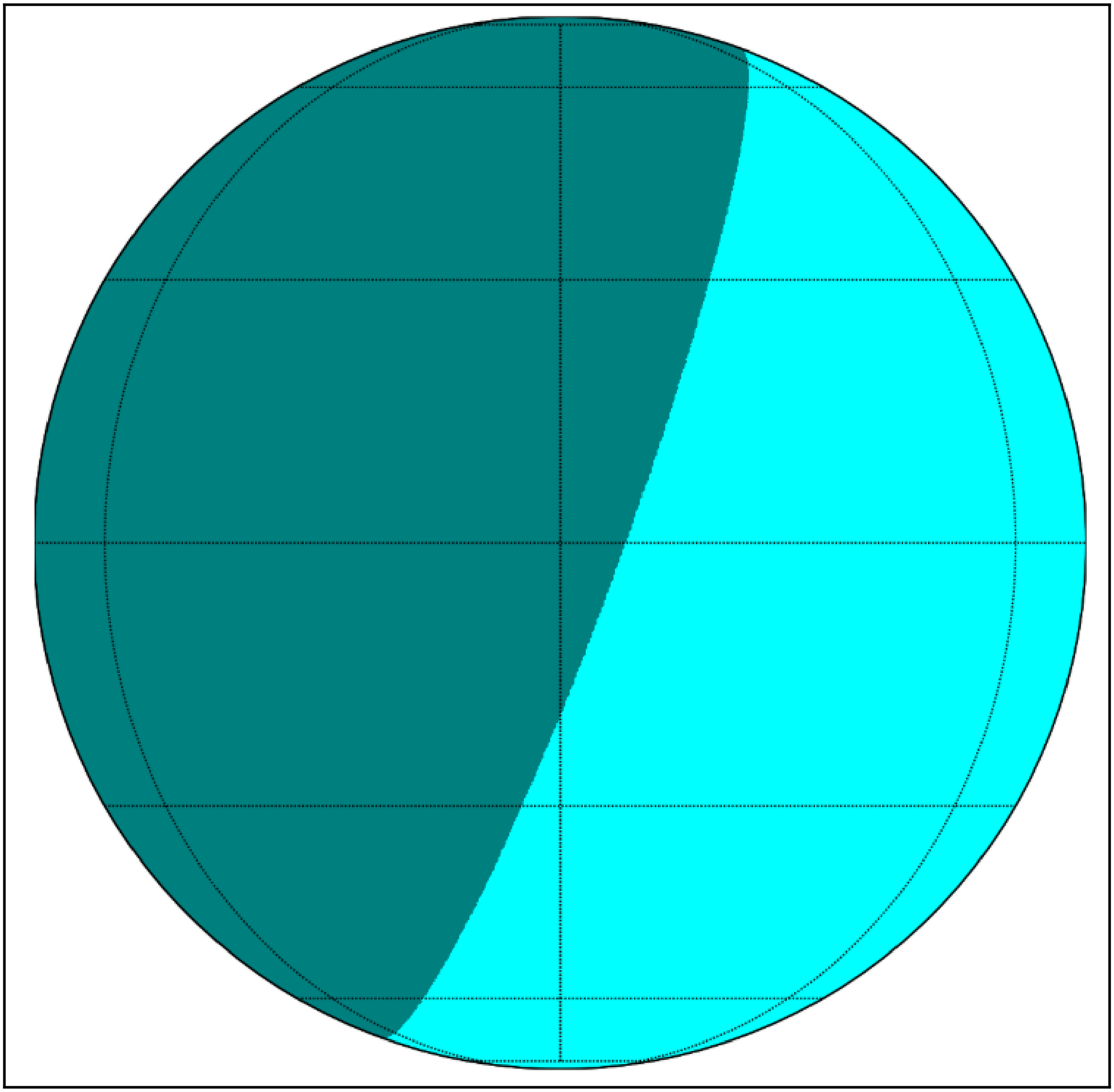


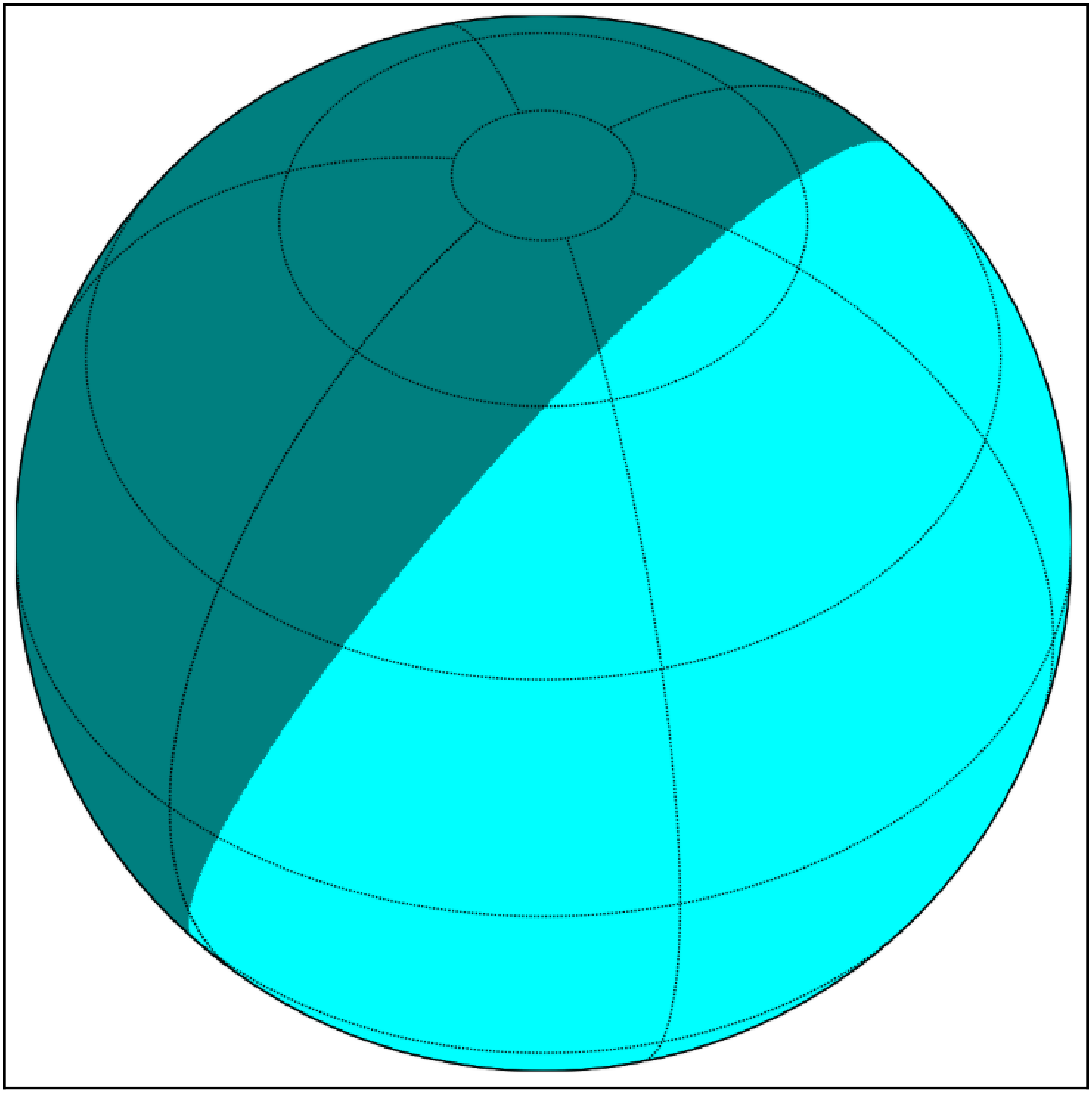


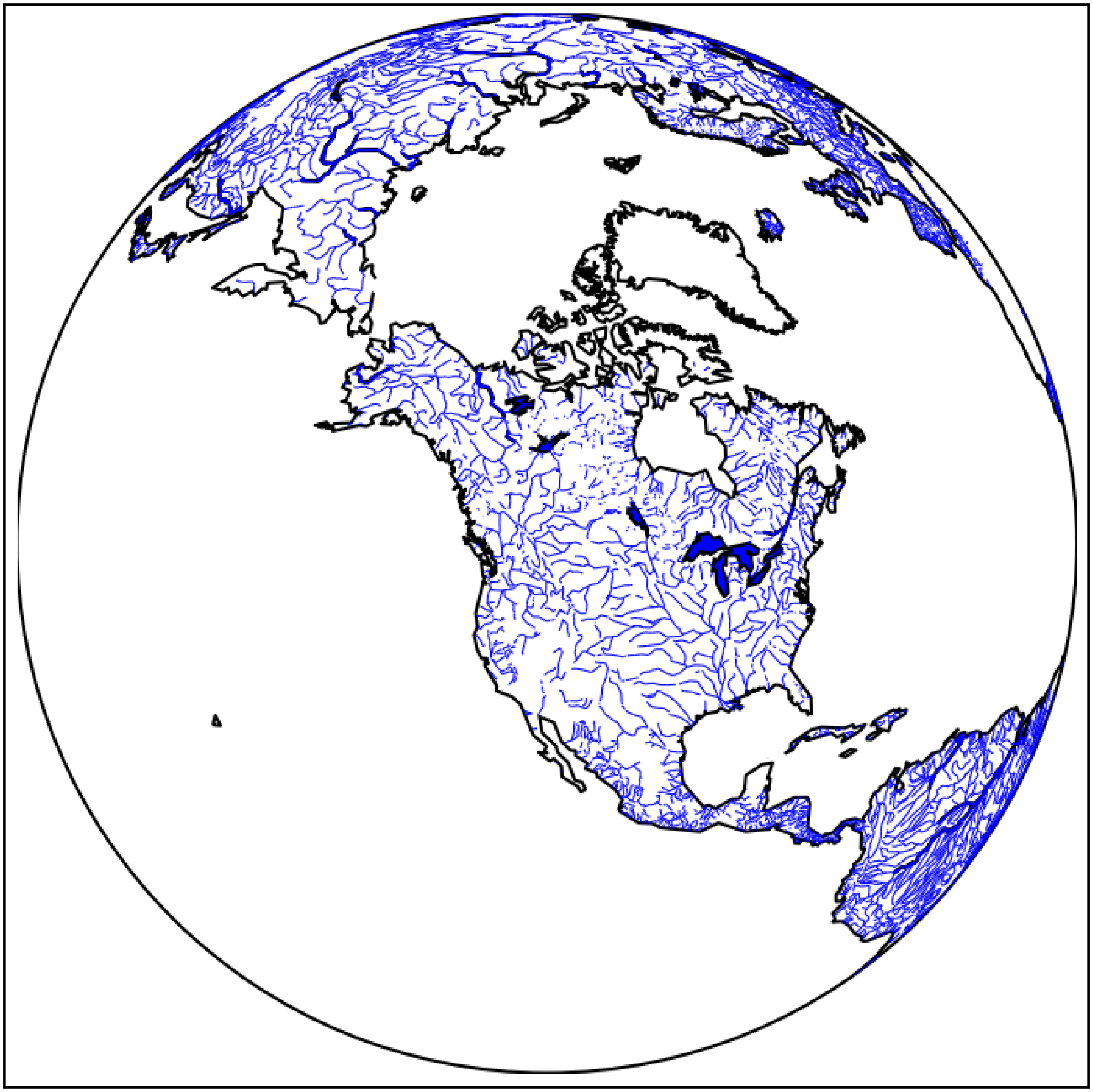


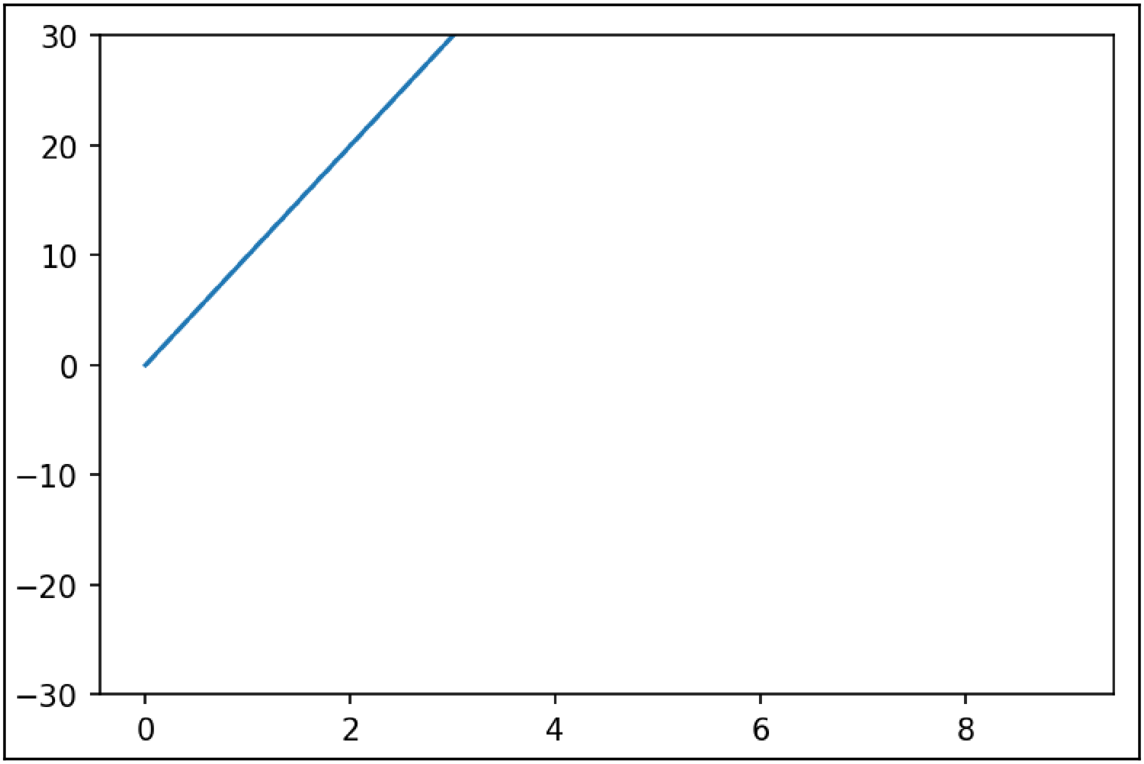


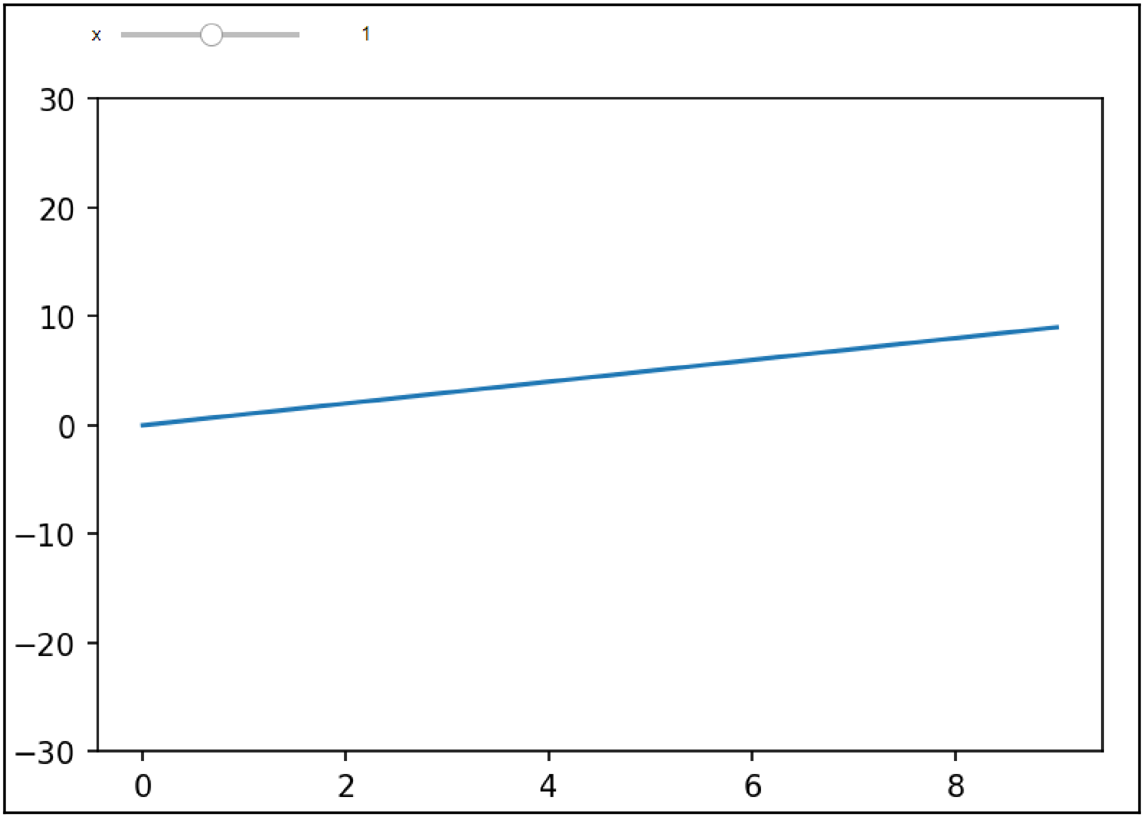


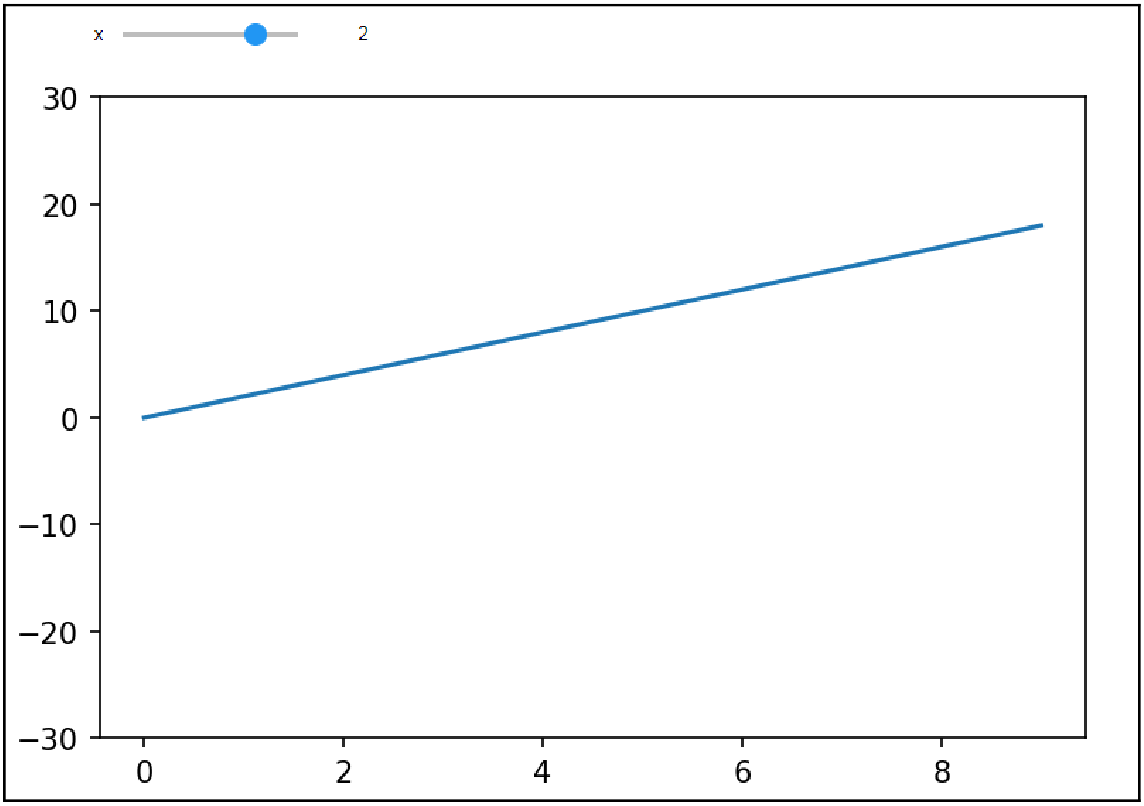




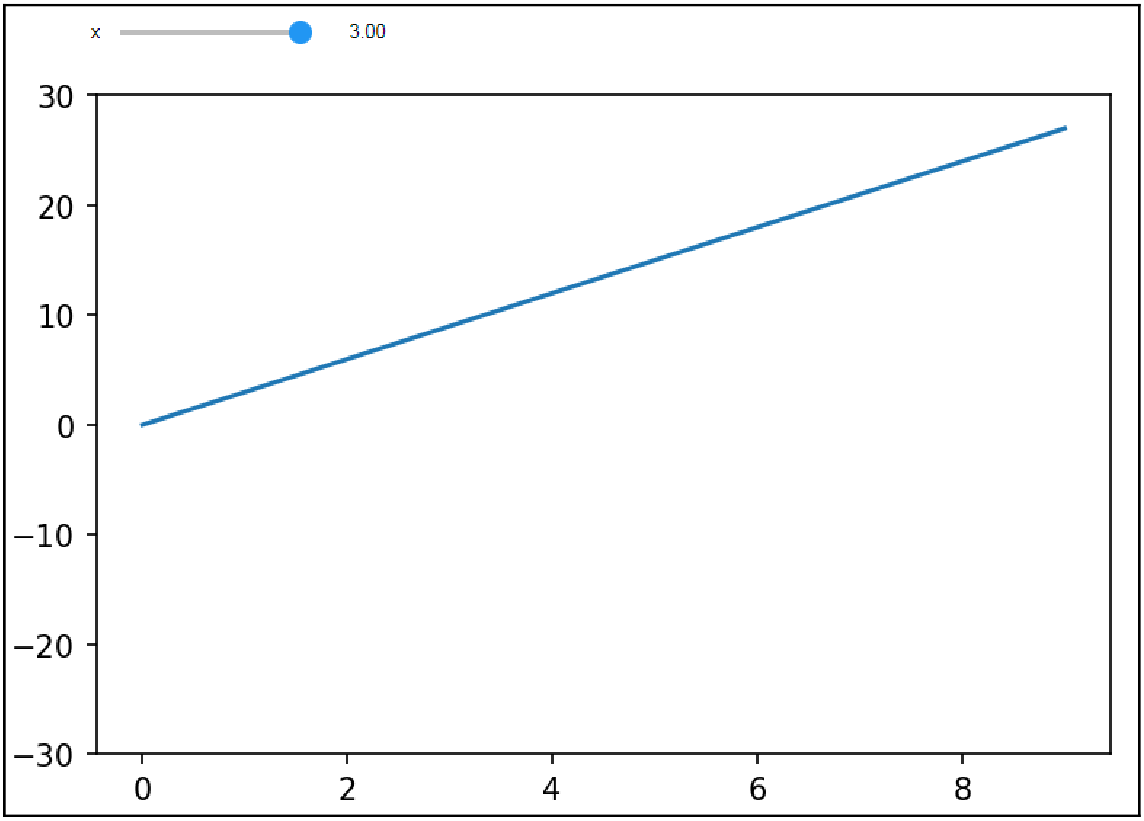


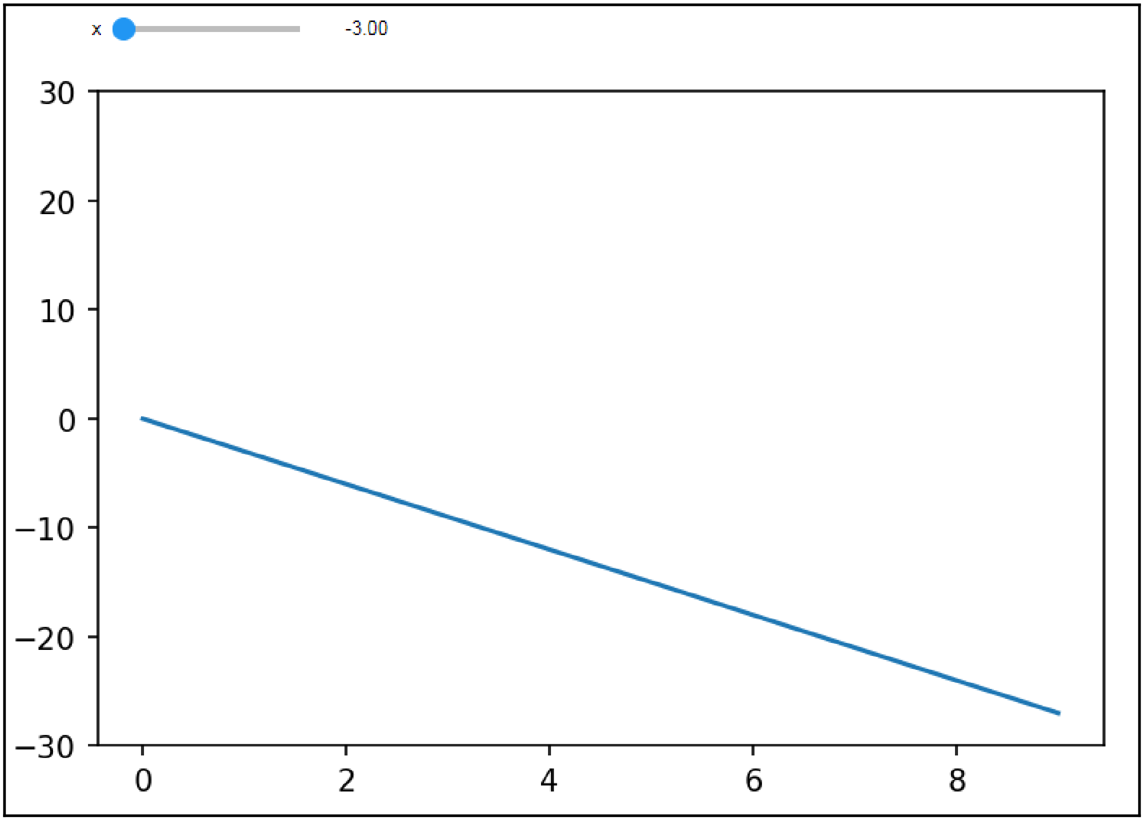

30
20
10
0
−10
−20
−30
0
2
4
6
8


x
1
30
20
10
0
−10
−20
−30
0
2
4
6
8

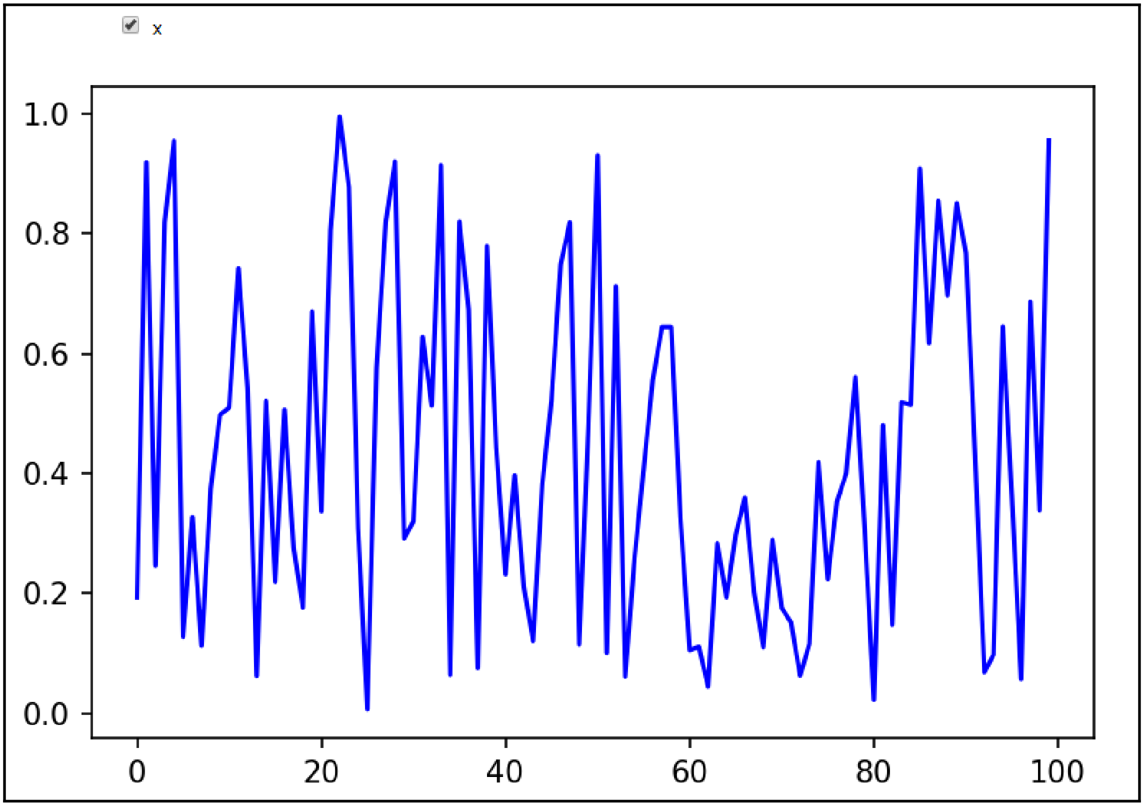


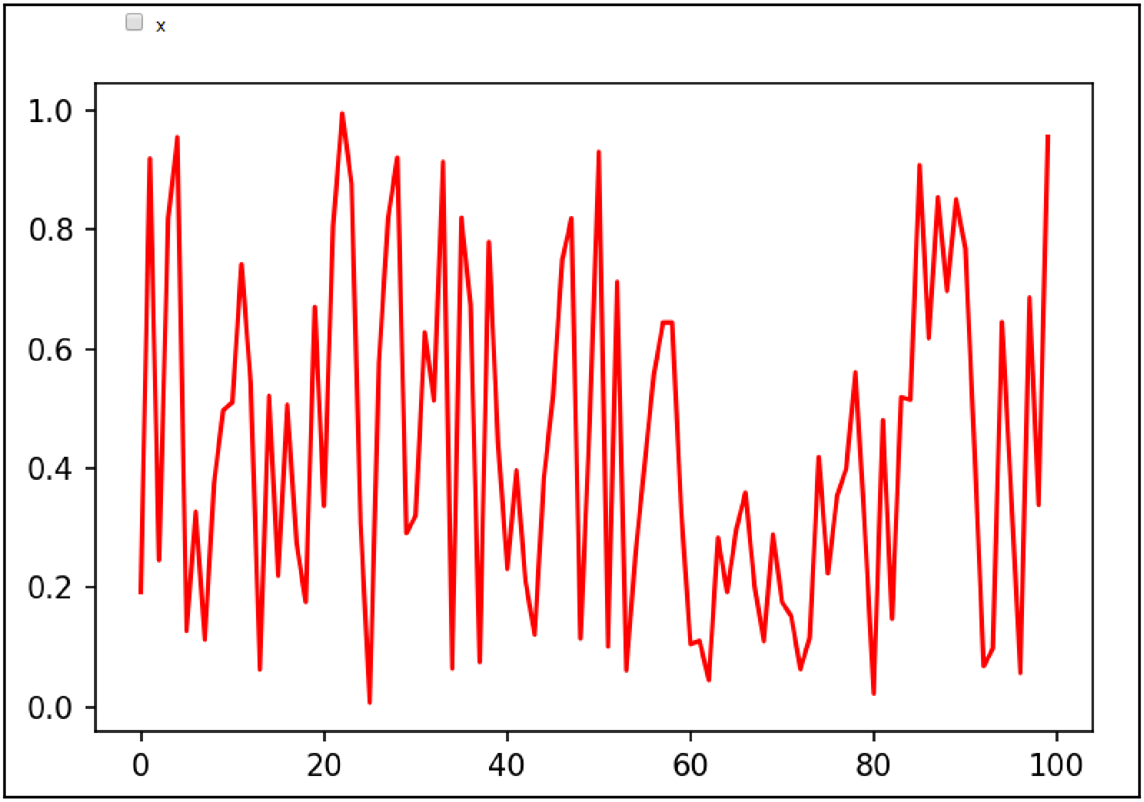
x 2

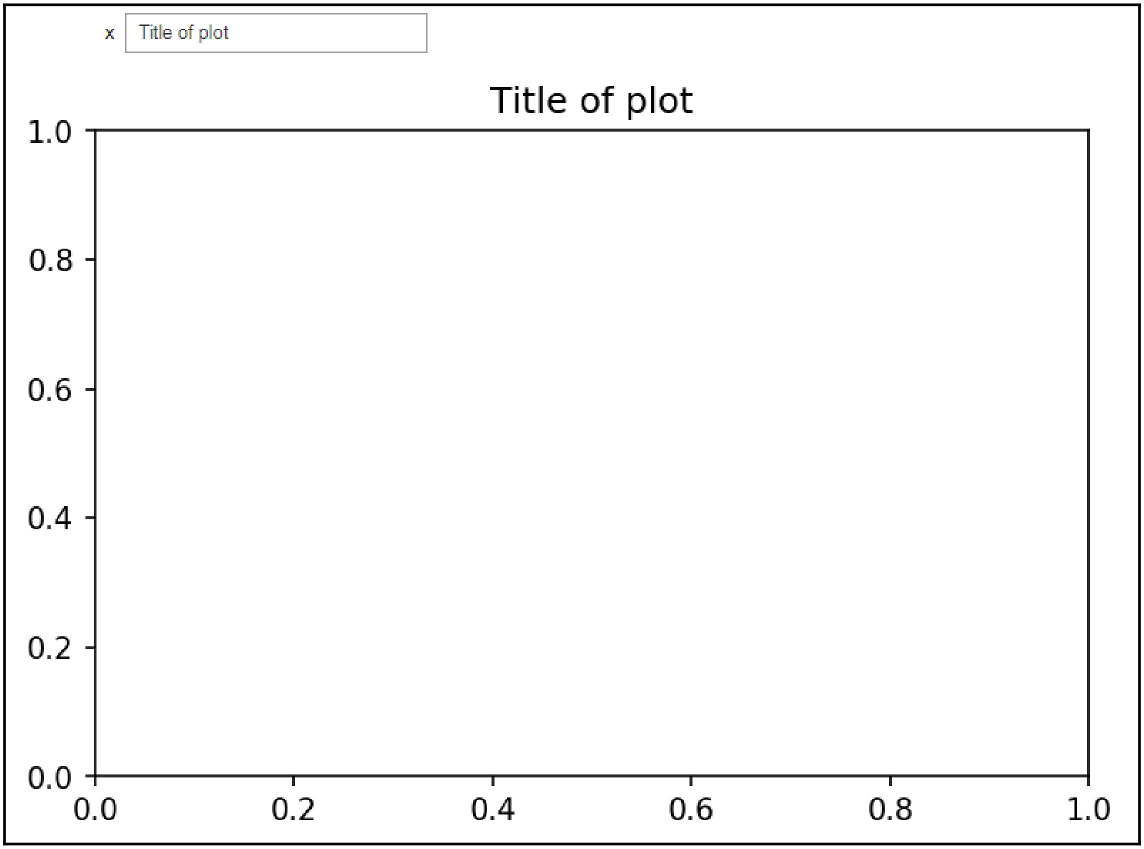

x
3.00
30
20
10
0
−10
−20
−30
0
2
4
6
8



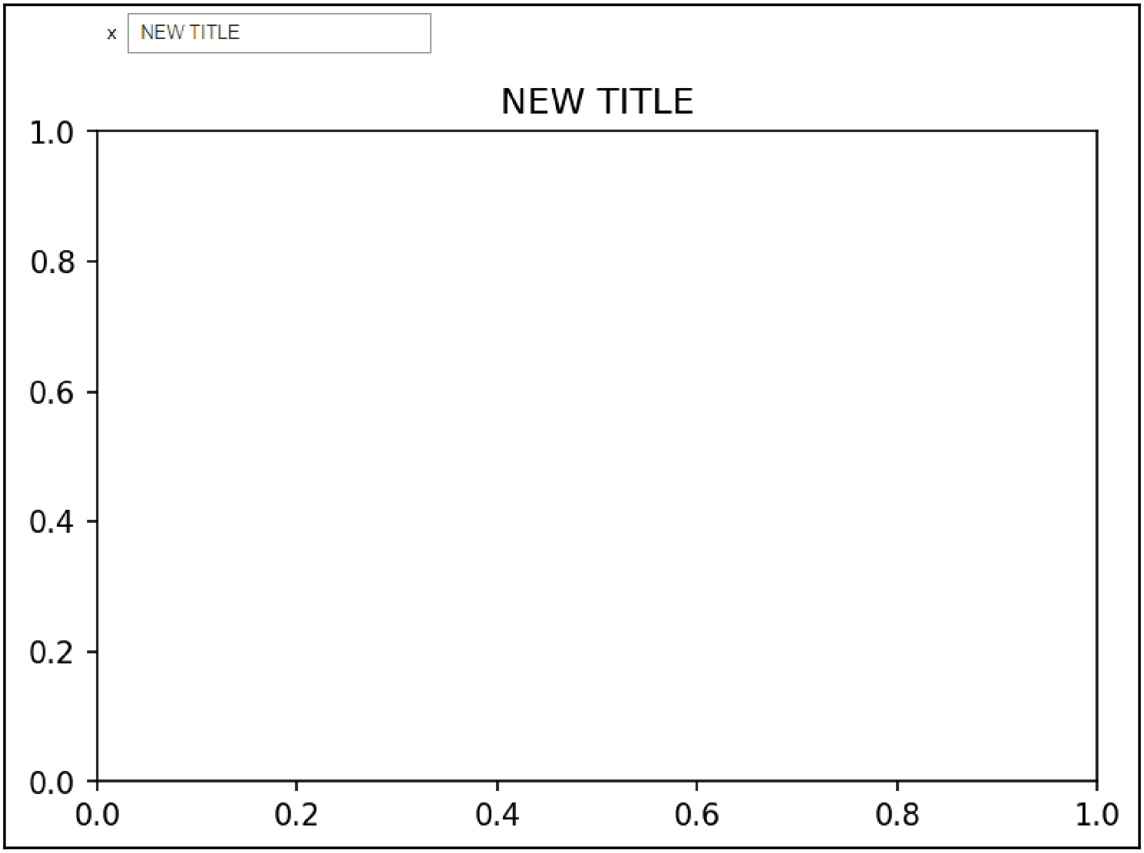
x -3.00


☑ x
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
100

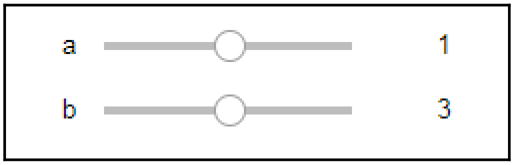

□ x
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
100



x Title of plot

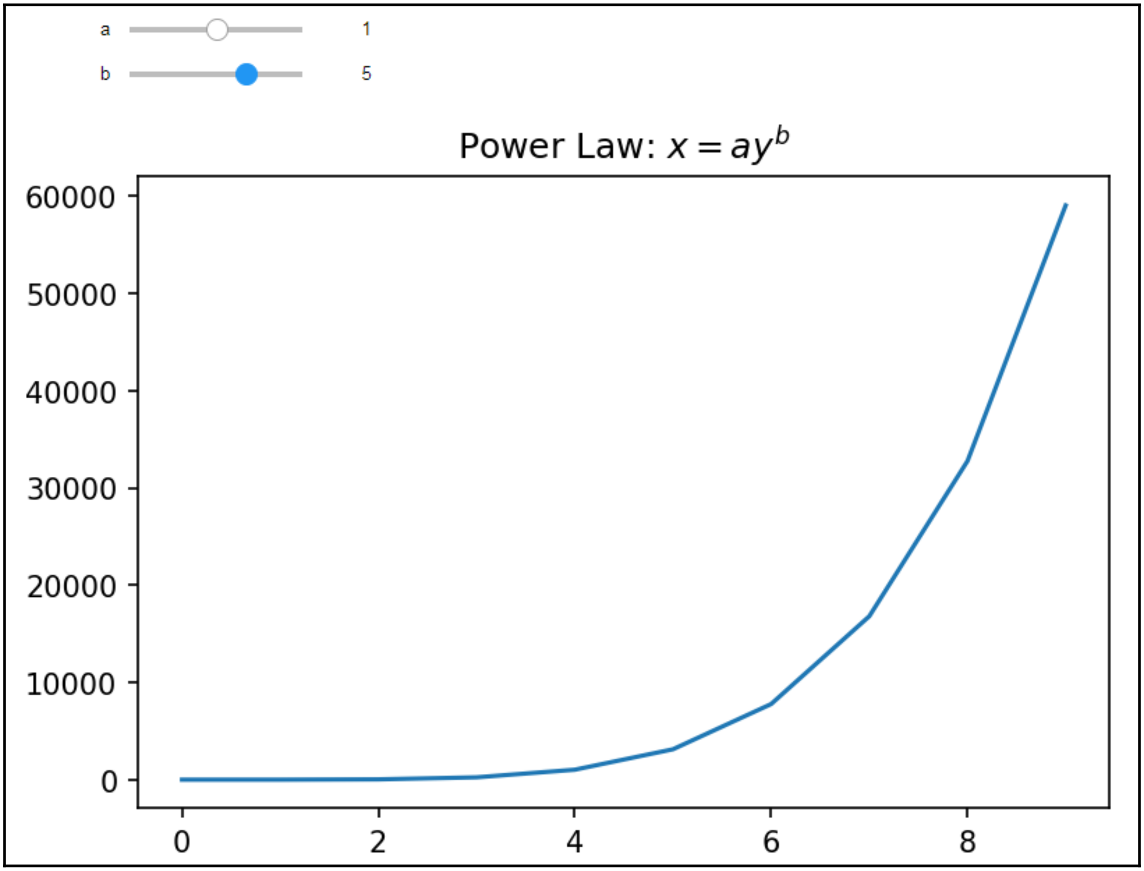


x NEW TITLE



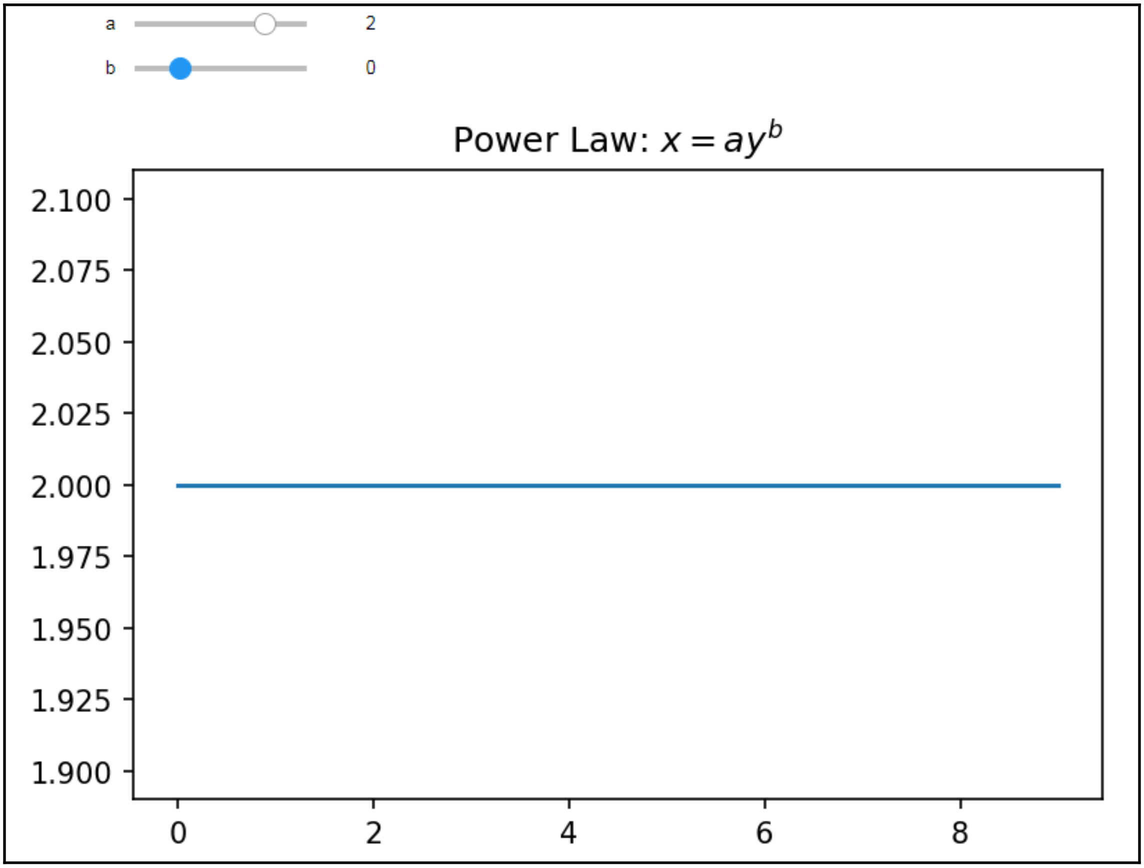
a 1

b 3



a 1

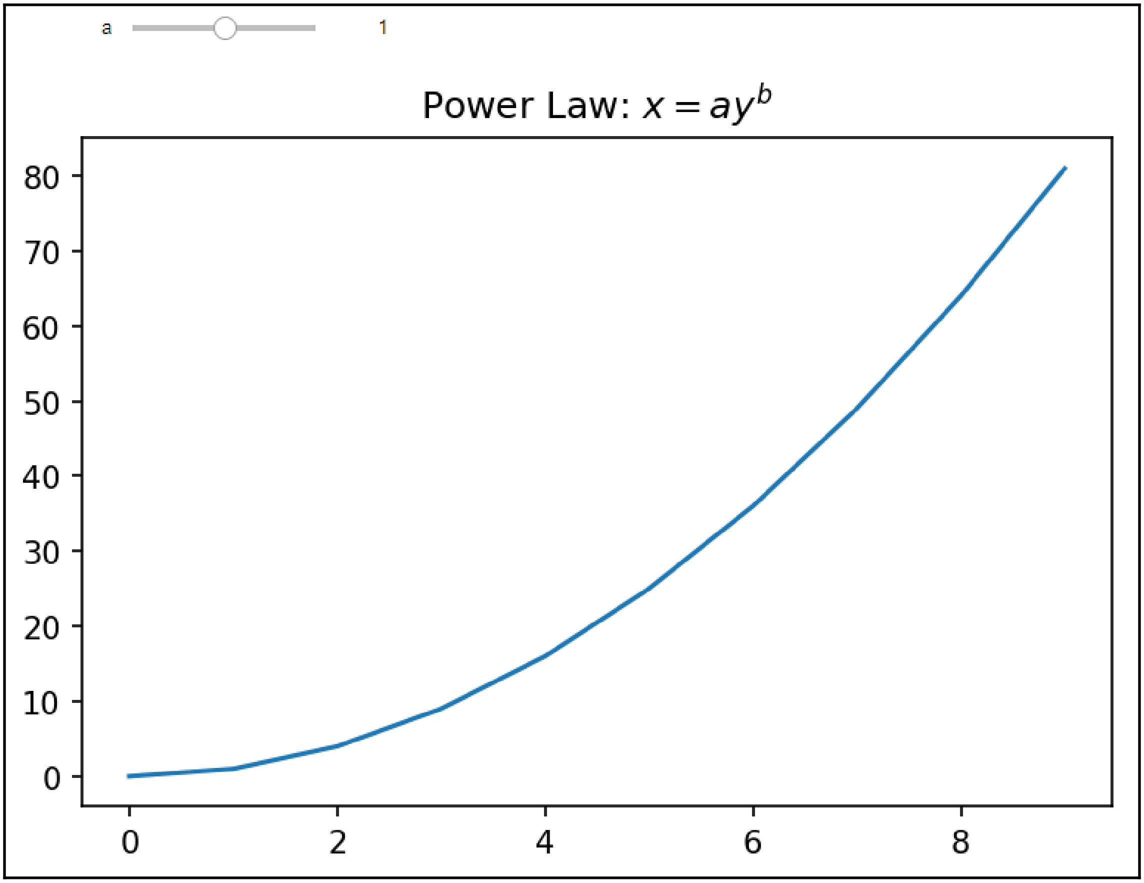
b 5

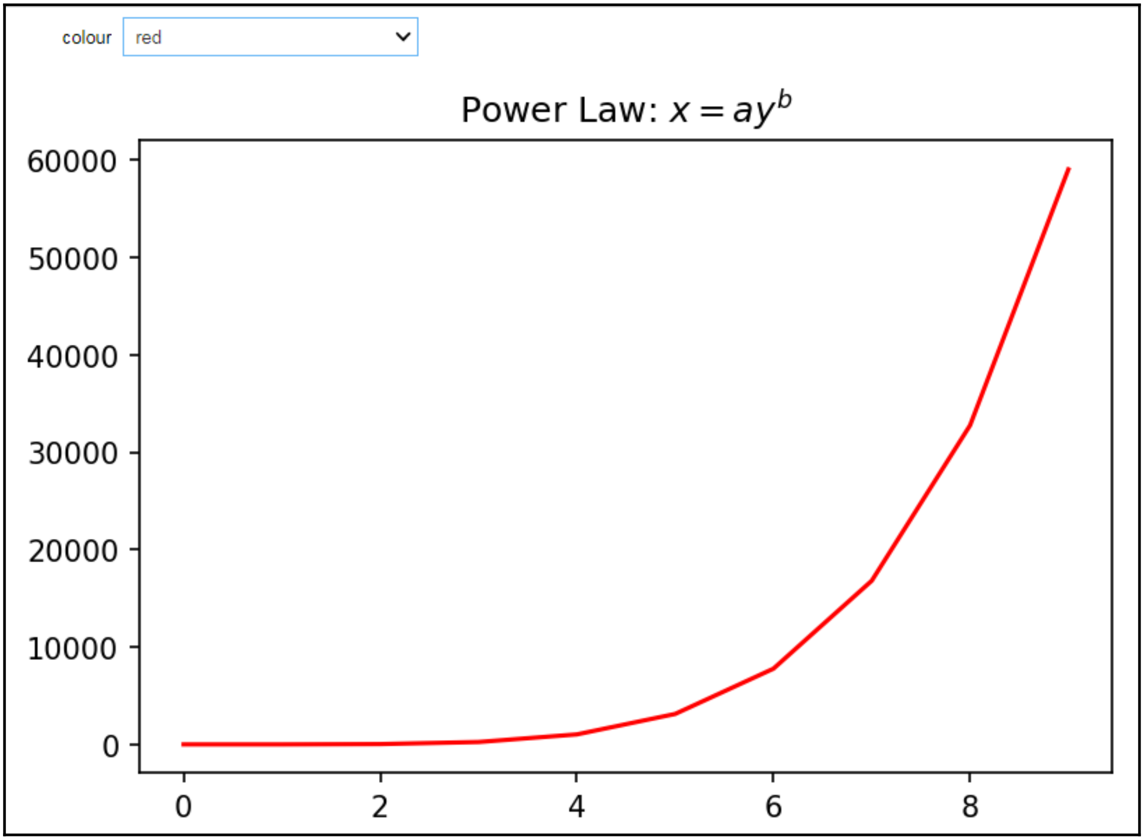


a 2

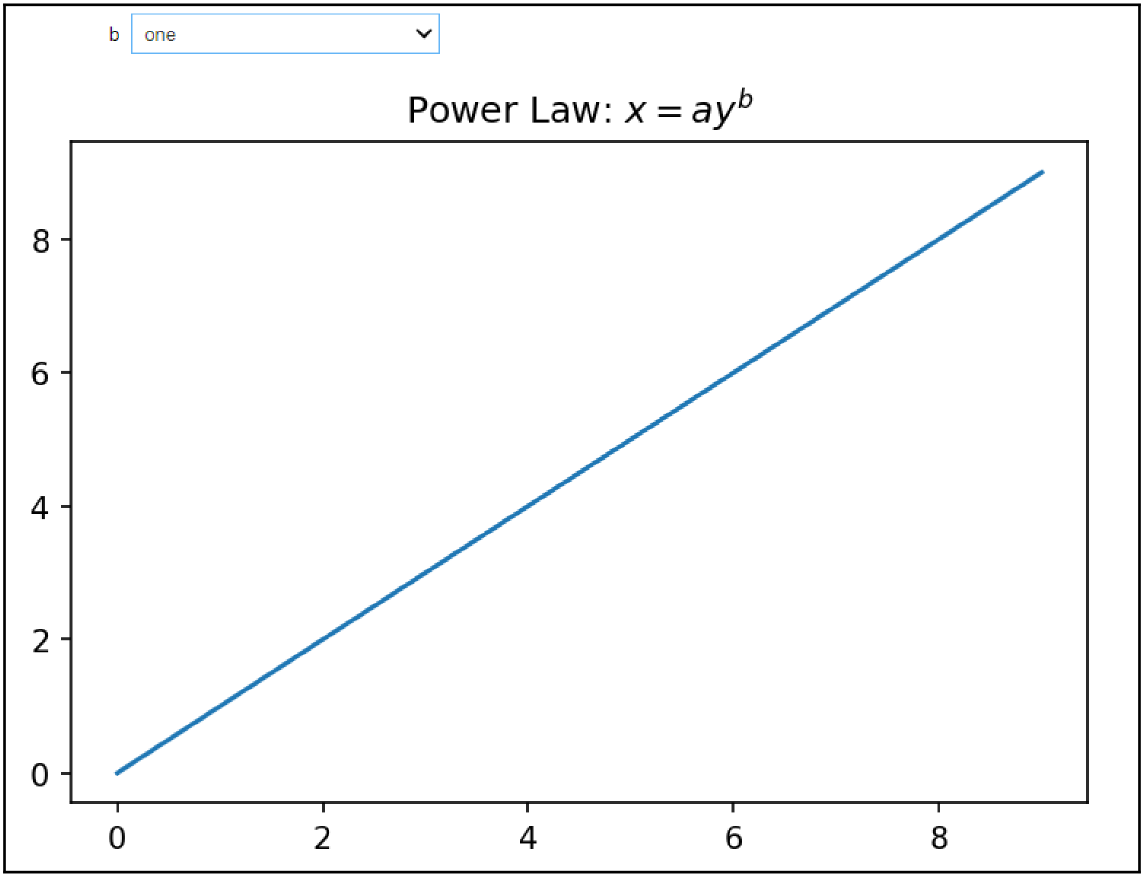
b 0

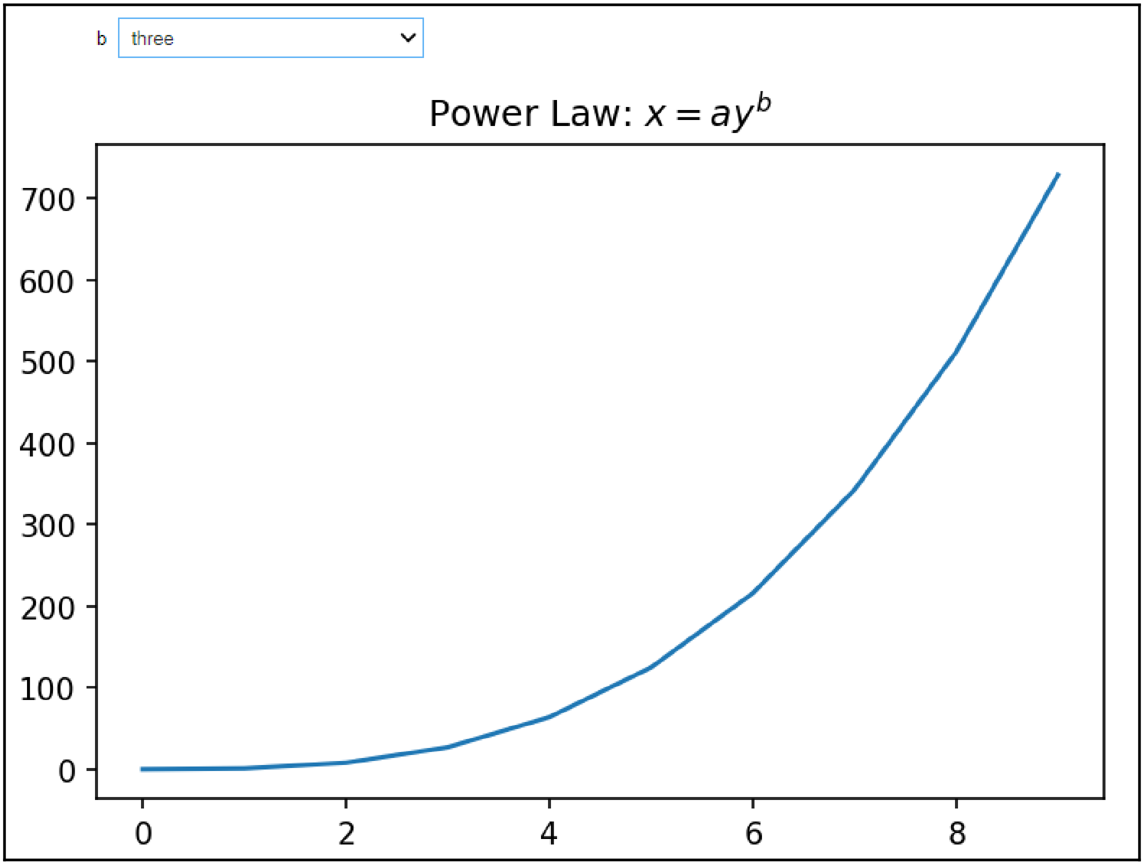
Power Law: $x = ay^b$
2.100
2.075
2.050
2.025
2.000
1.975
1.950
1.925
1.900
0
2
4
6
8


a
1
Power Law: $x = ay^b$
80
70
60
50
40
30
20
10
0
0
2
4
6
8



colour: red


b
one
Power Law: $x = ay^b$
8
6
4
2
0
0
2
4
6
8



b three

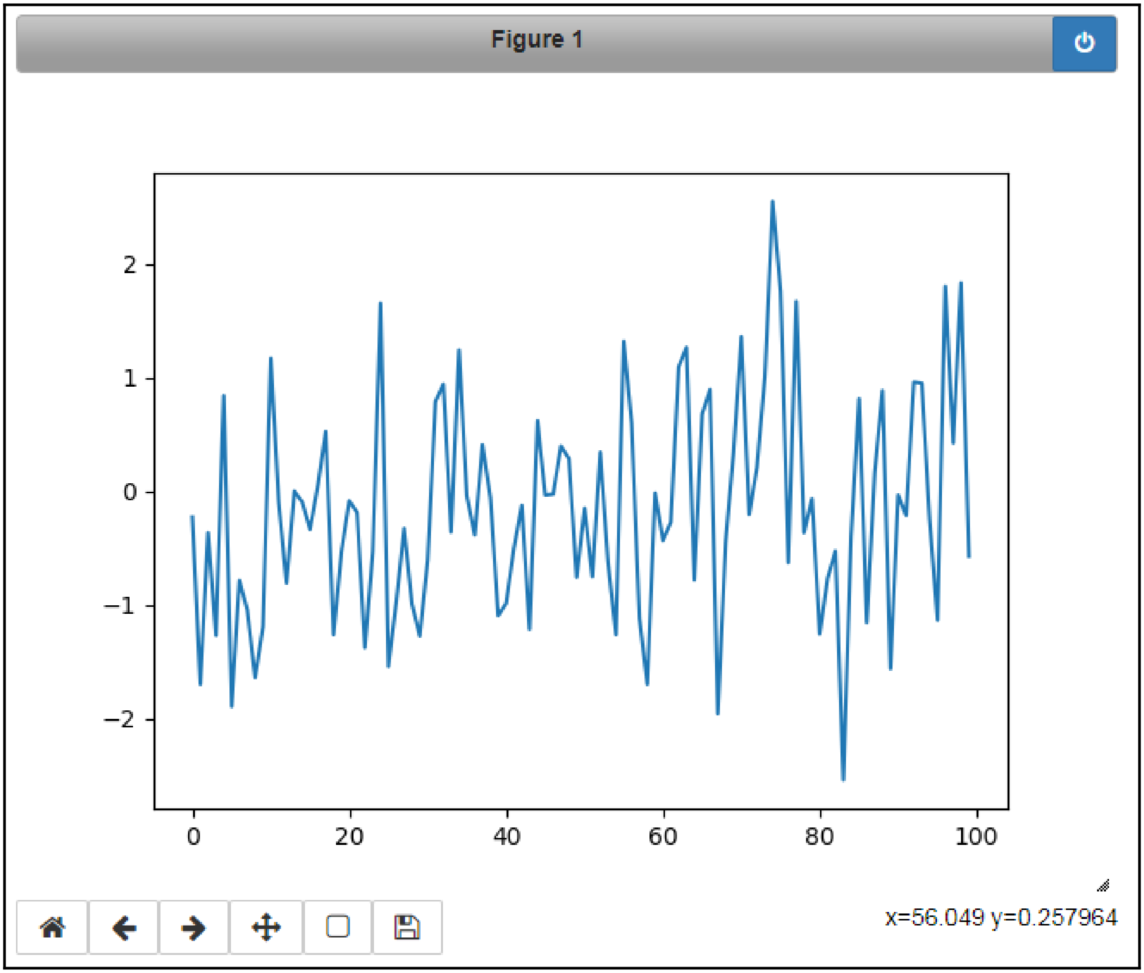


Figure 1
2
1
0
−1
−2
0
20
40
60
80
100
x=56.049 y=0.257964

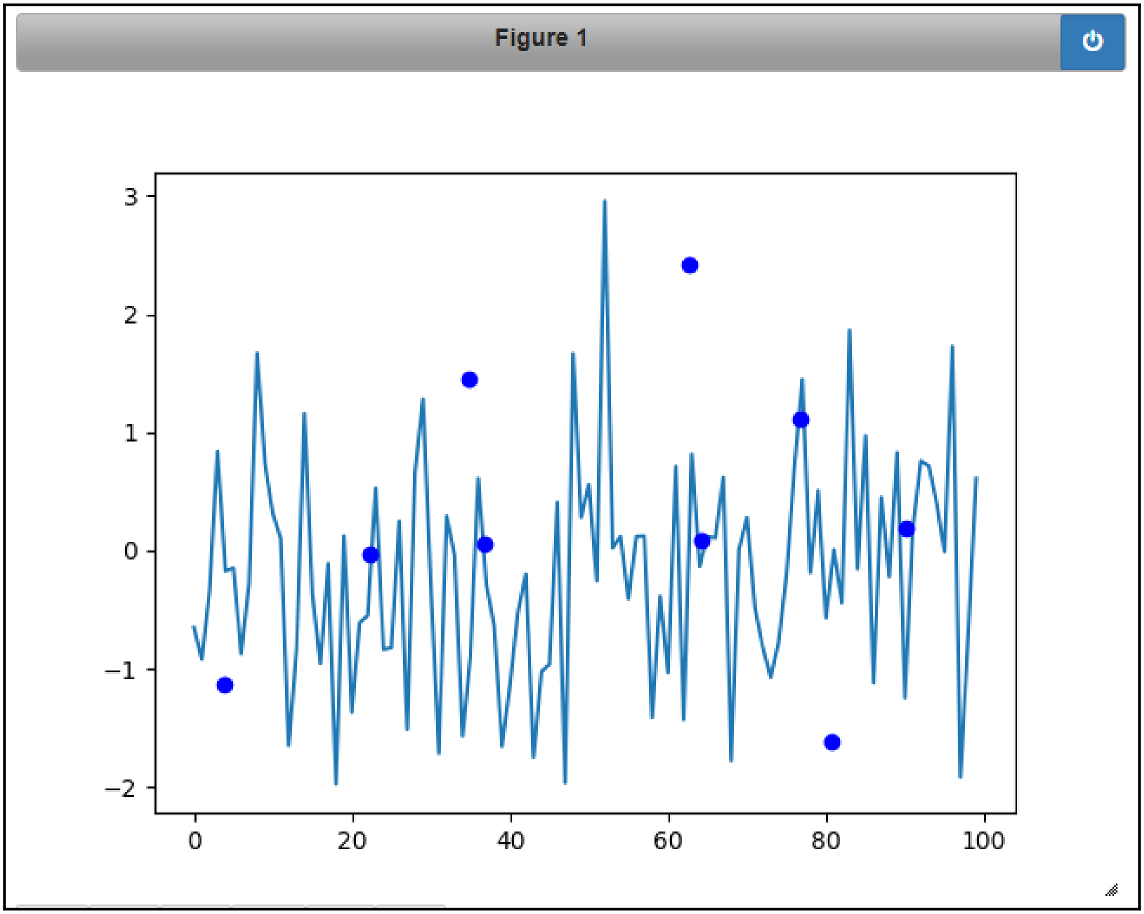


Figure 1
3
2
1
0
−1
−2
0
20
40
60
80
100

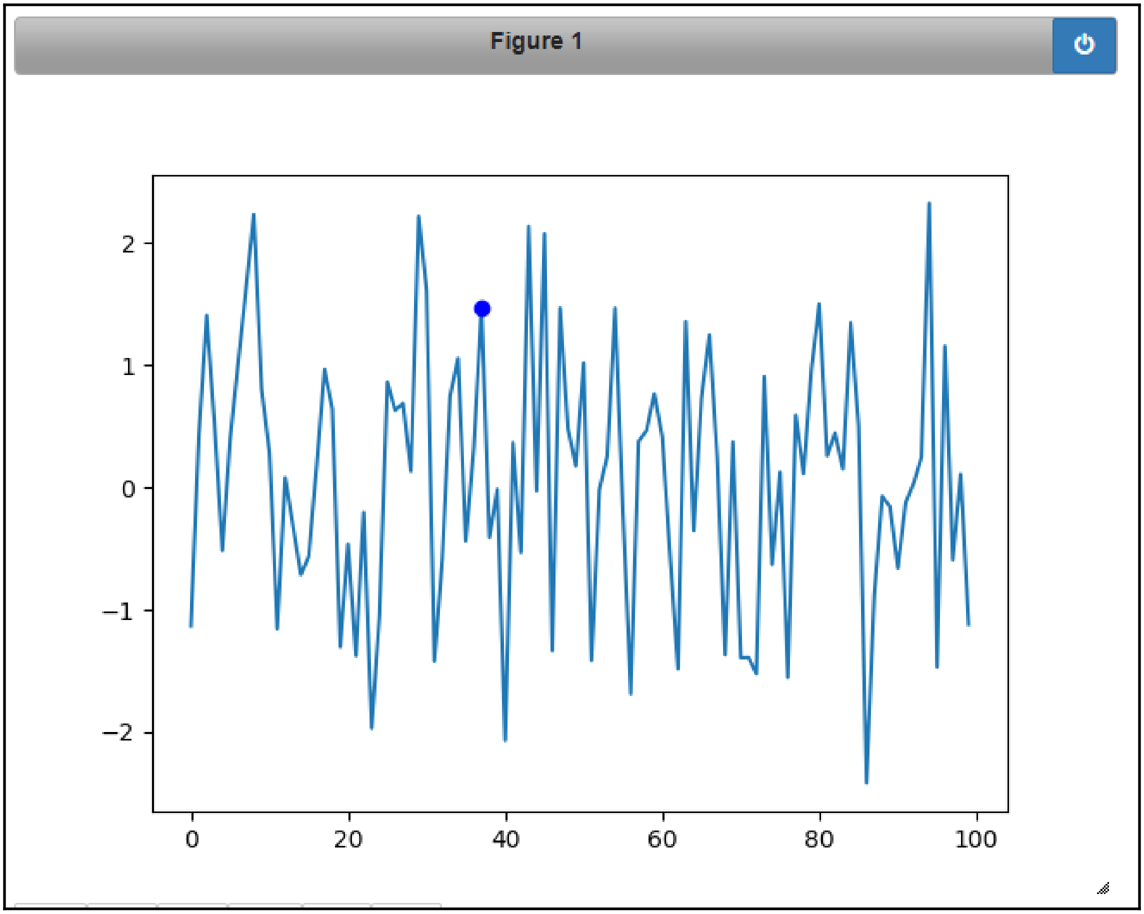


Figure 1
2
1
0
−1
−2
0
20
40
60
80
100

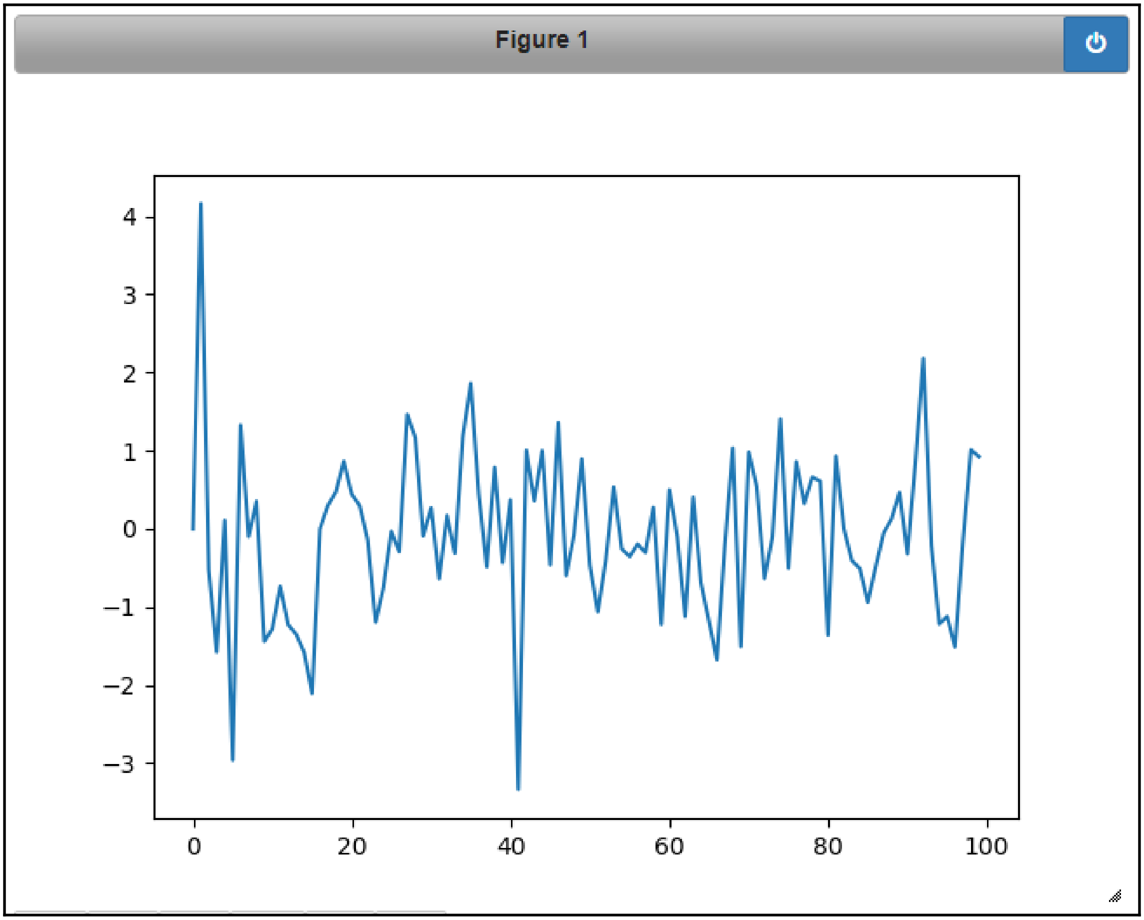
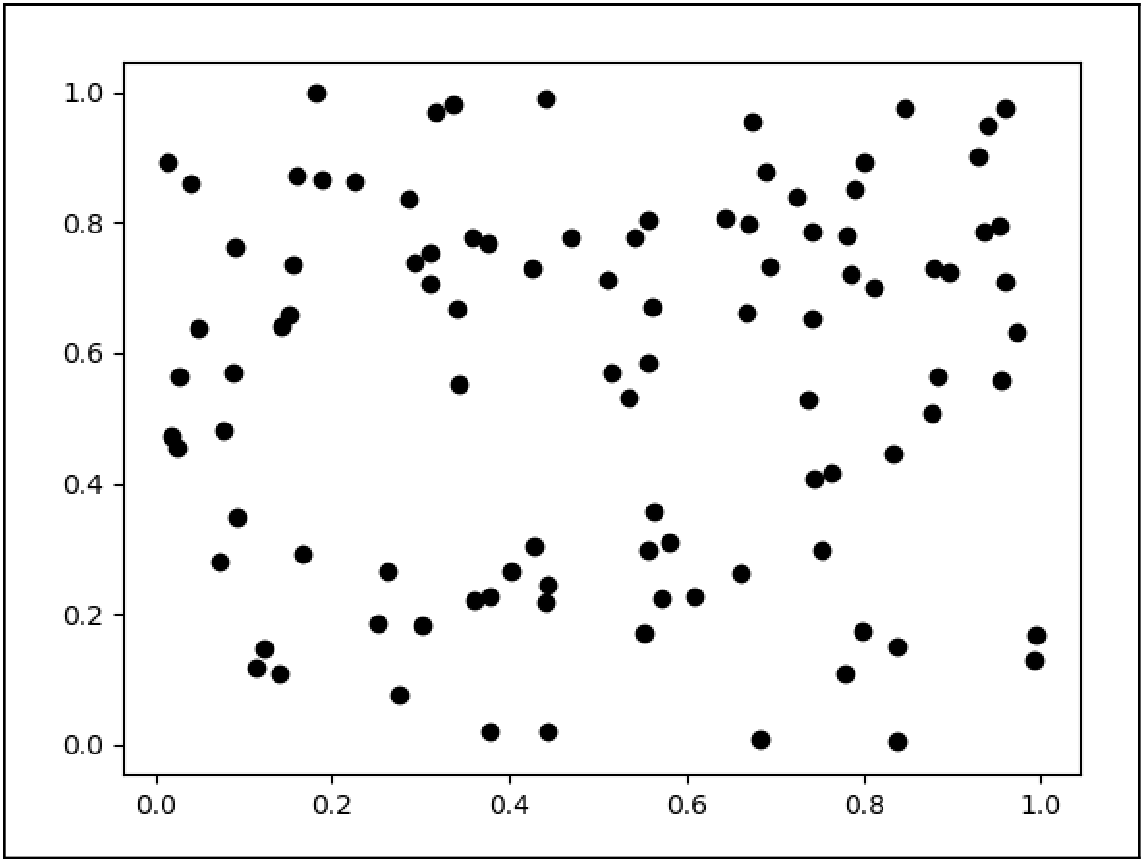
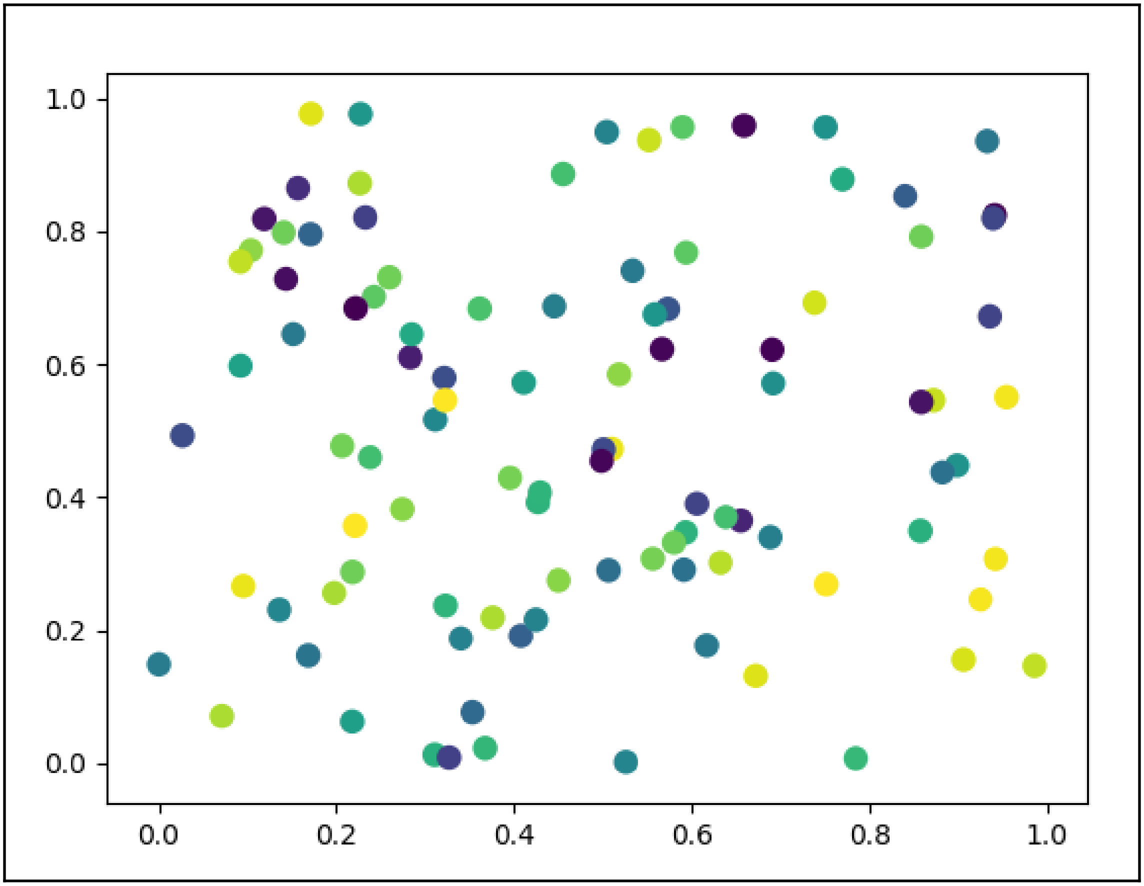
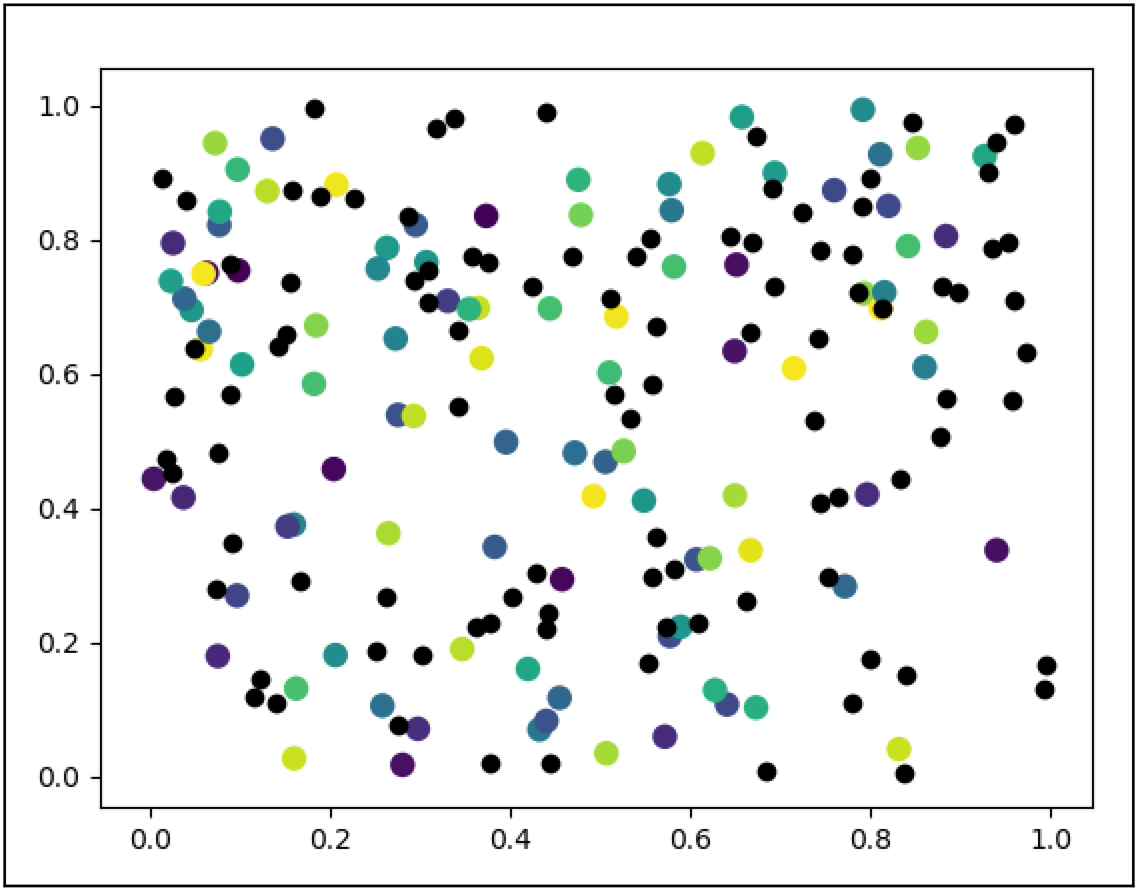
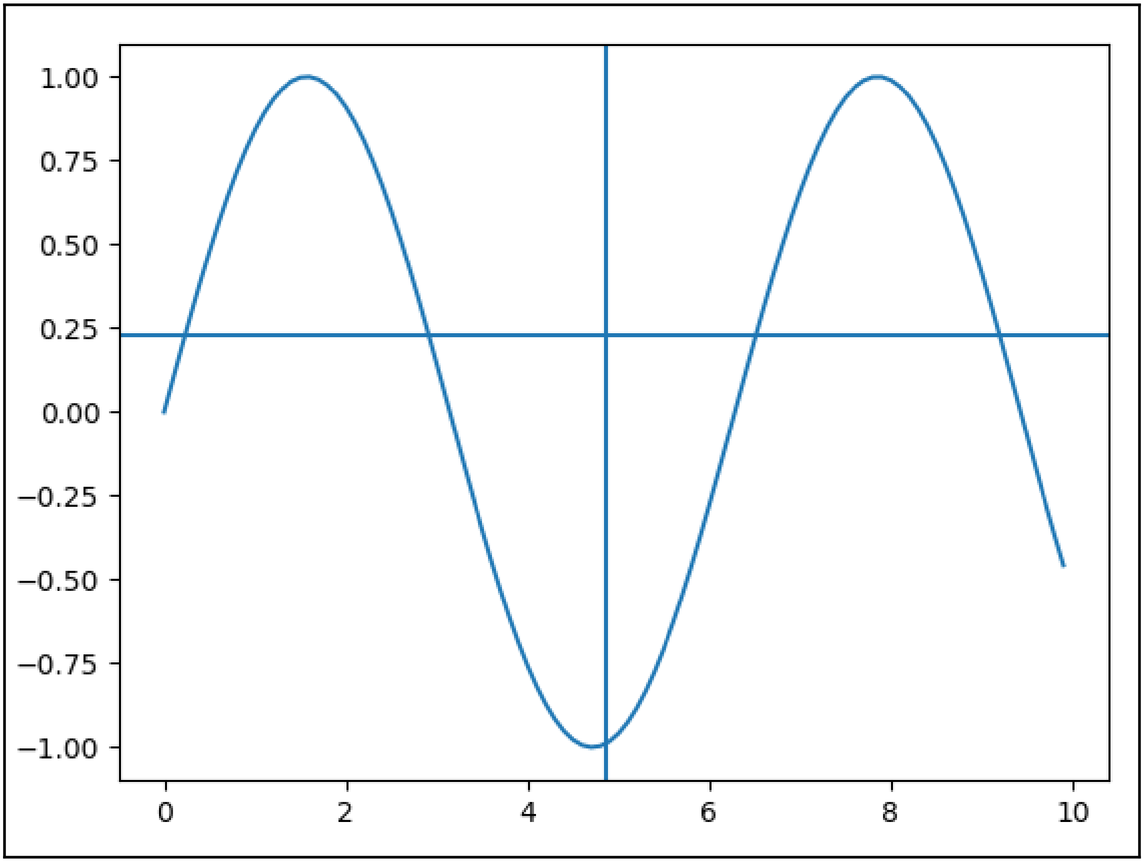


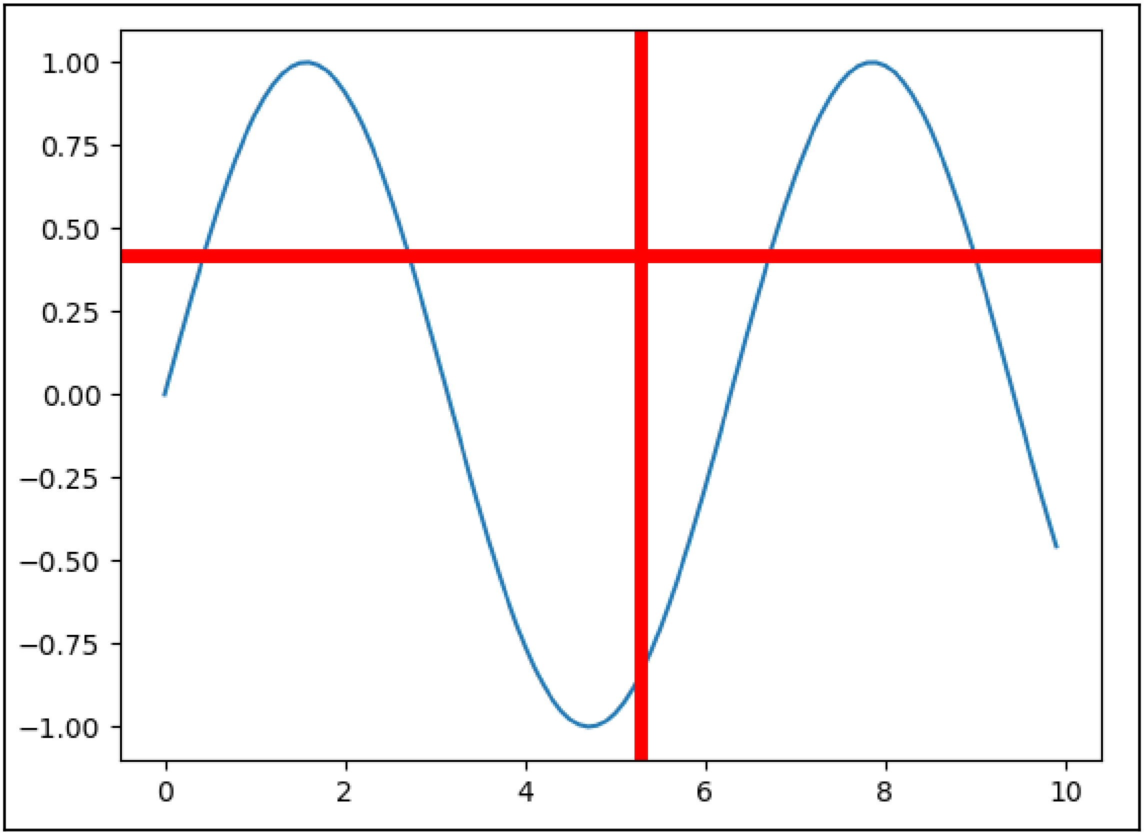
Figure 1
4
3
2
1
0
−1
−2
−3
0
20
40
60
80
100

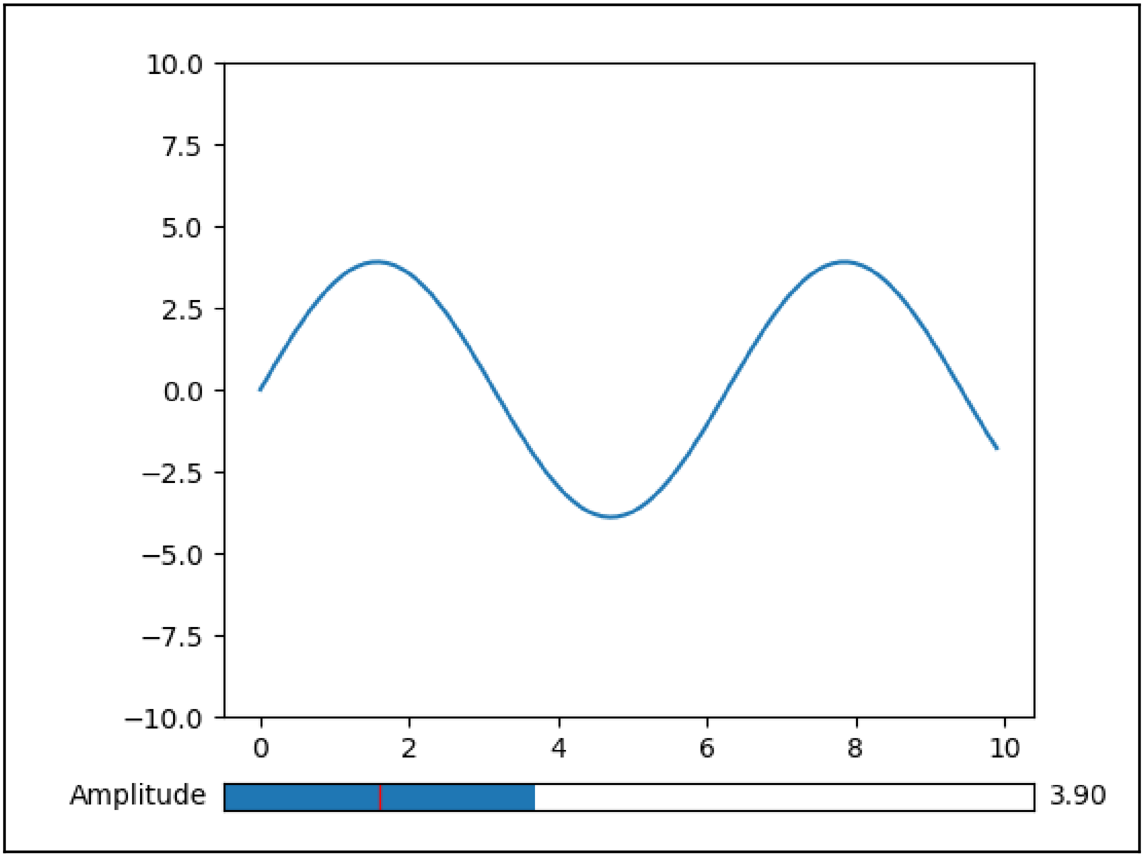

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

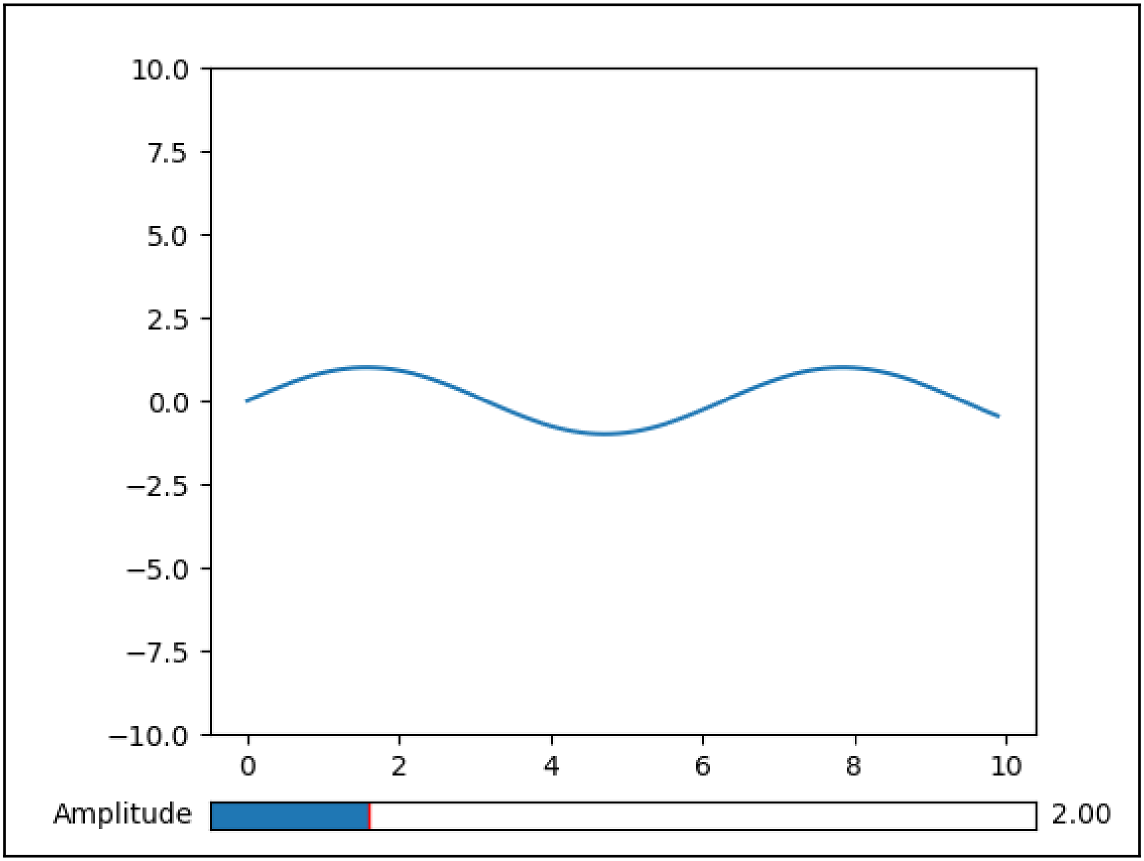

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

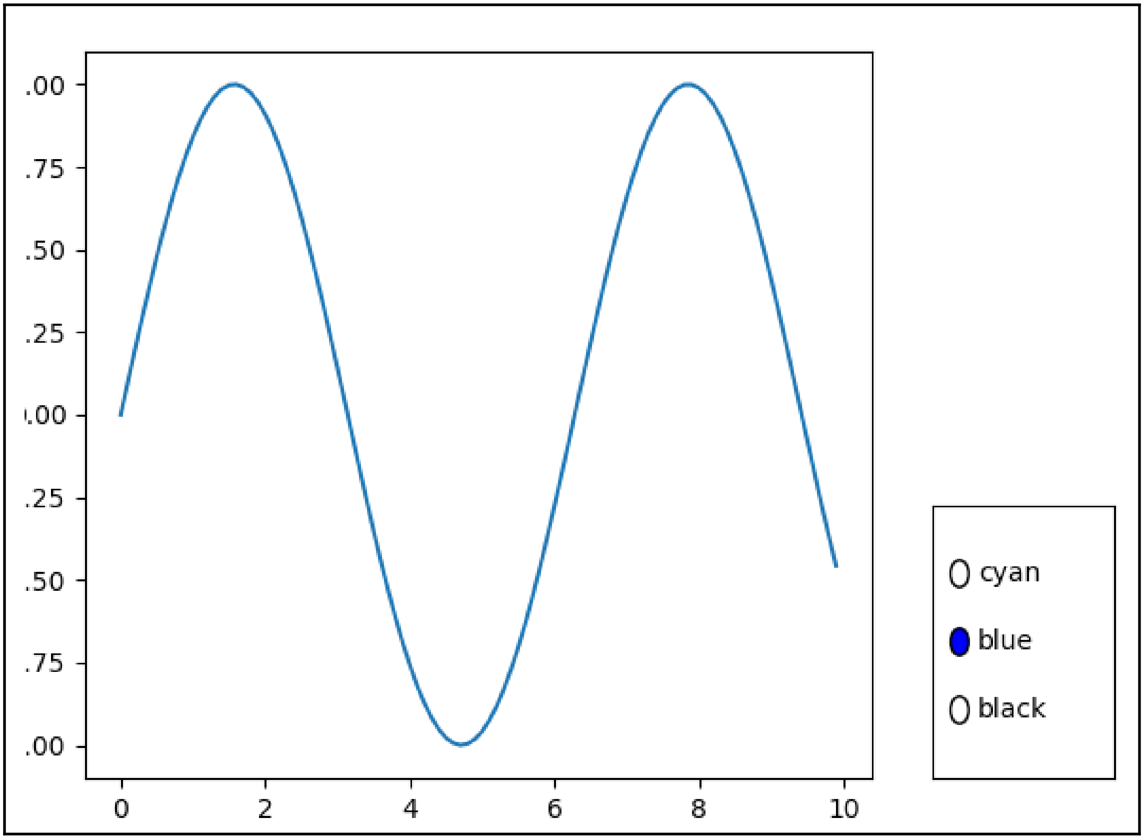

1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

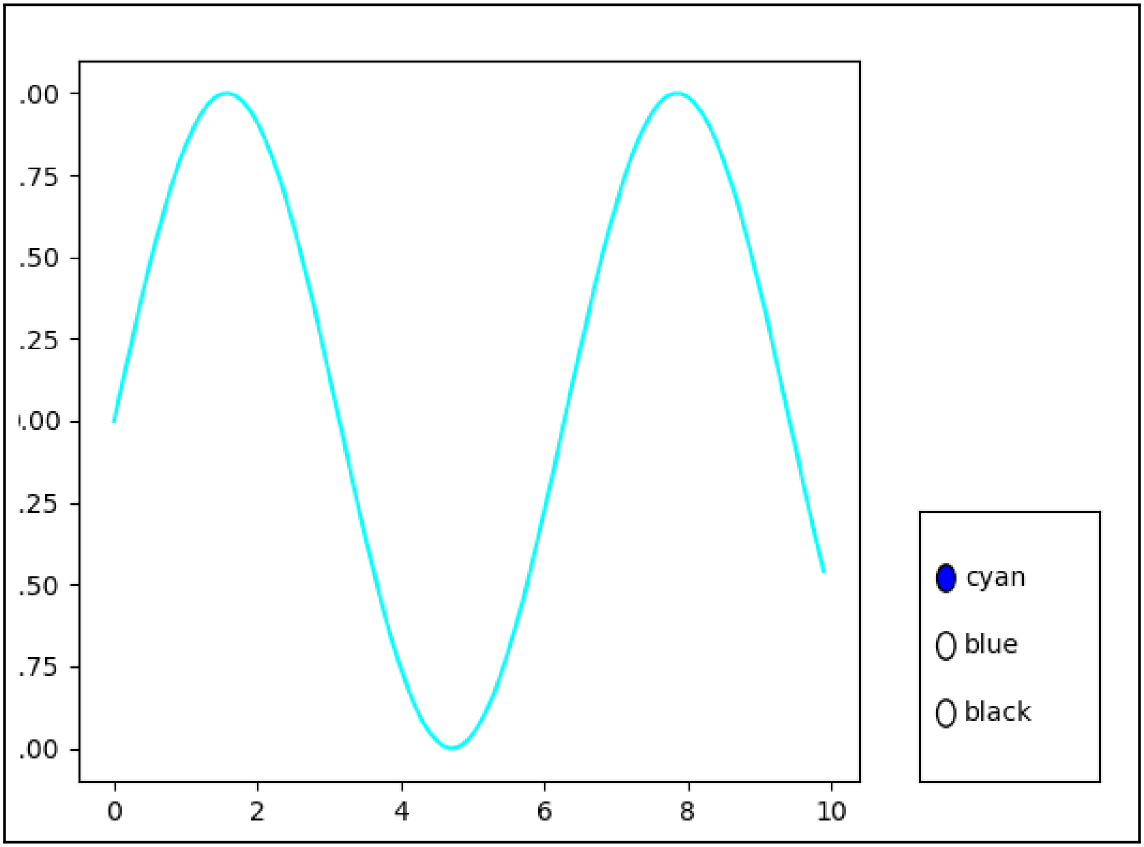

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

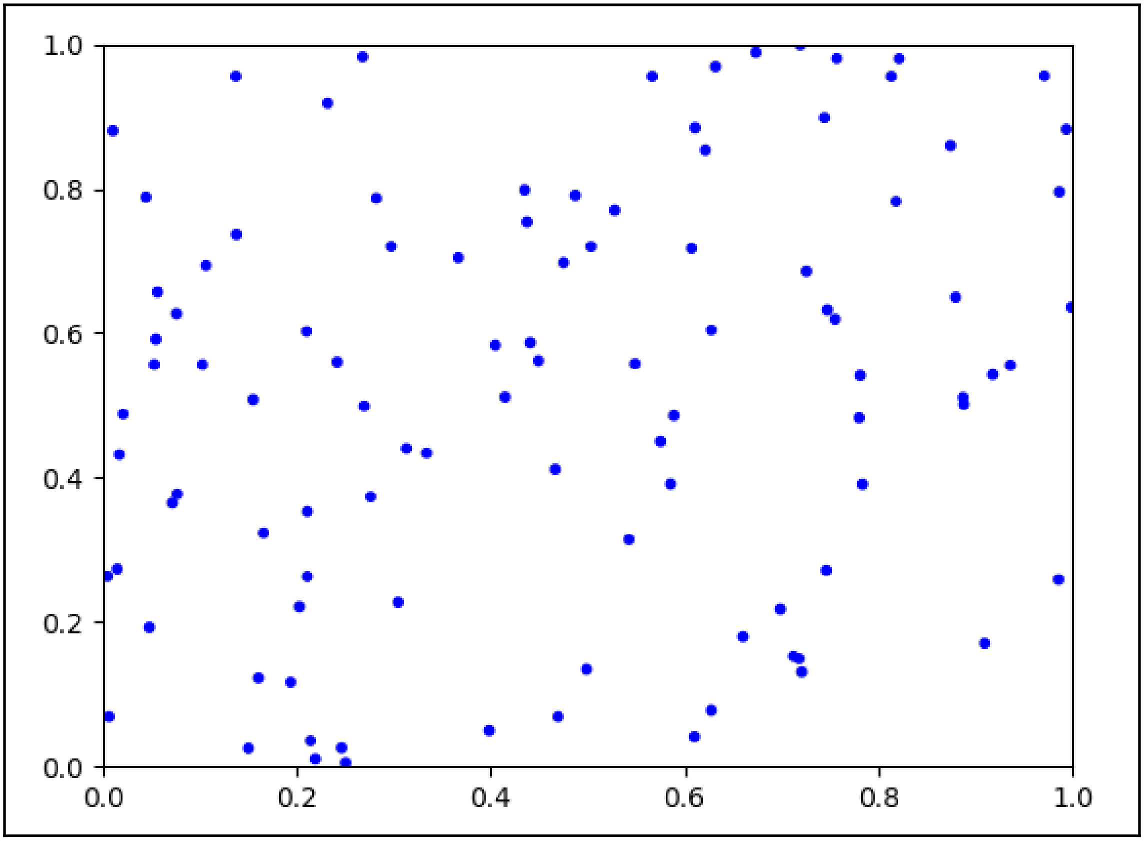

1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

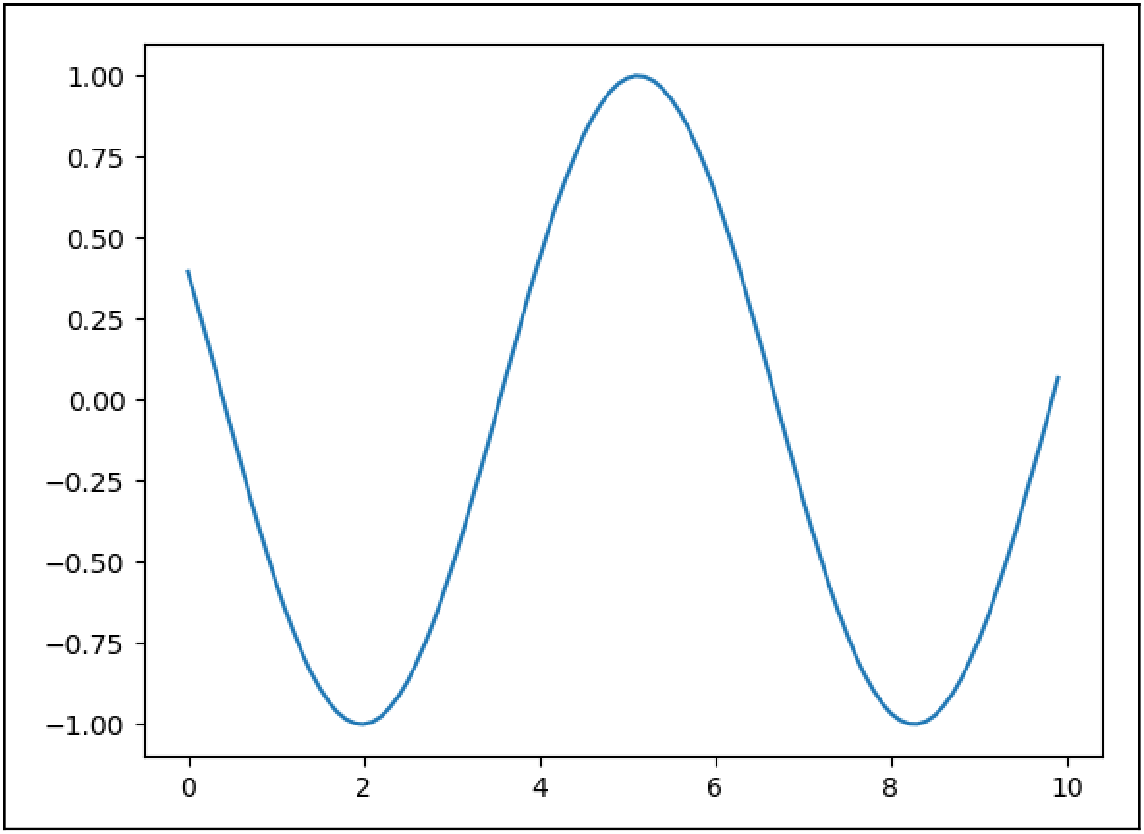

10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
2
4
6
8
10
Amplitude
3.90

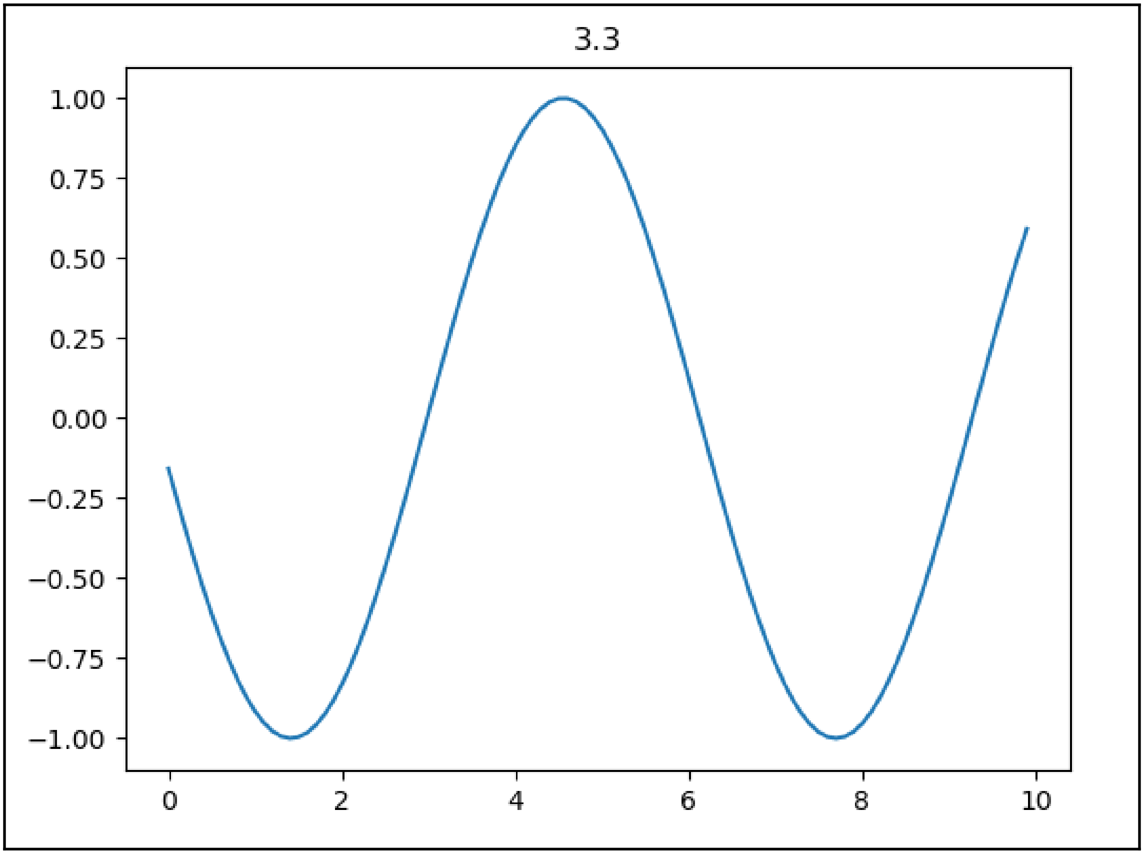

10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
−10.0
0
2
4
6
8
10
Amplitude
2.00

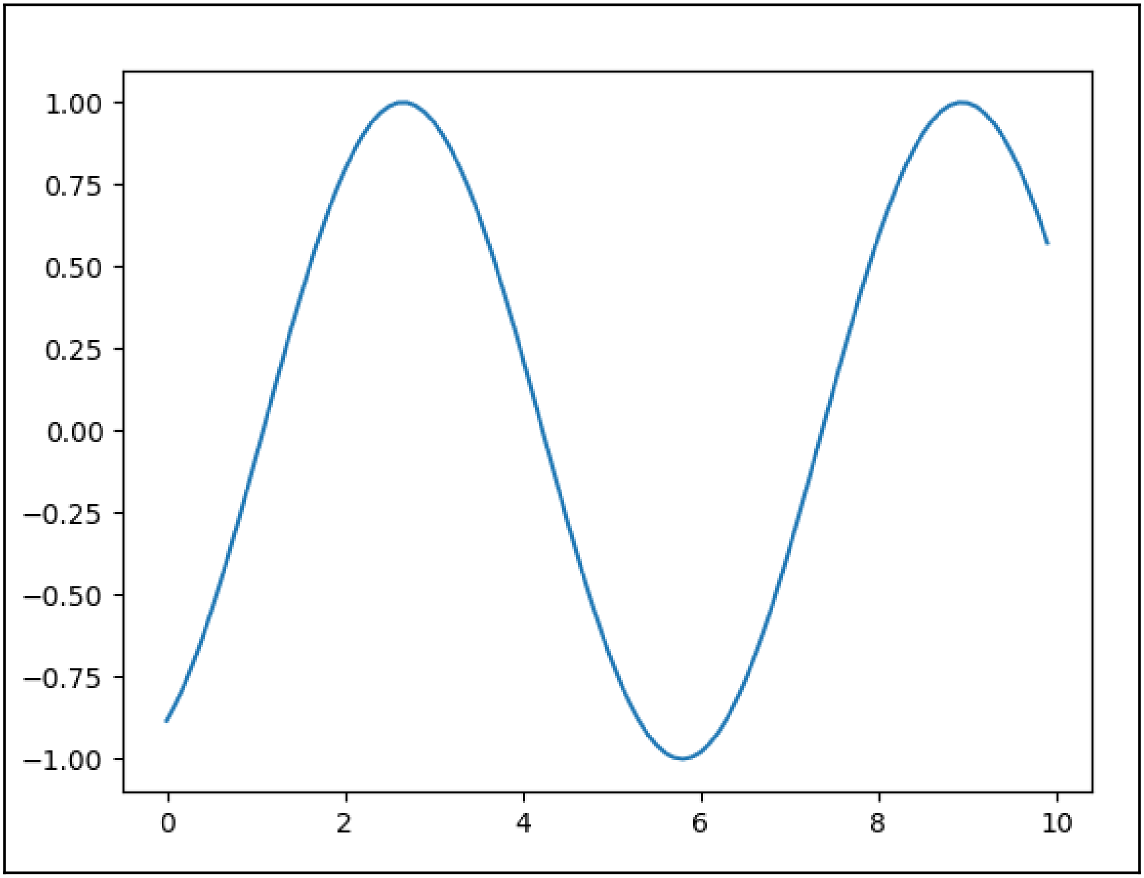

.00
.75
.50
.25
.00
.25
.50
.75
.00
0
2
4
6
8
10
○ cyan
● blue
○ black

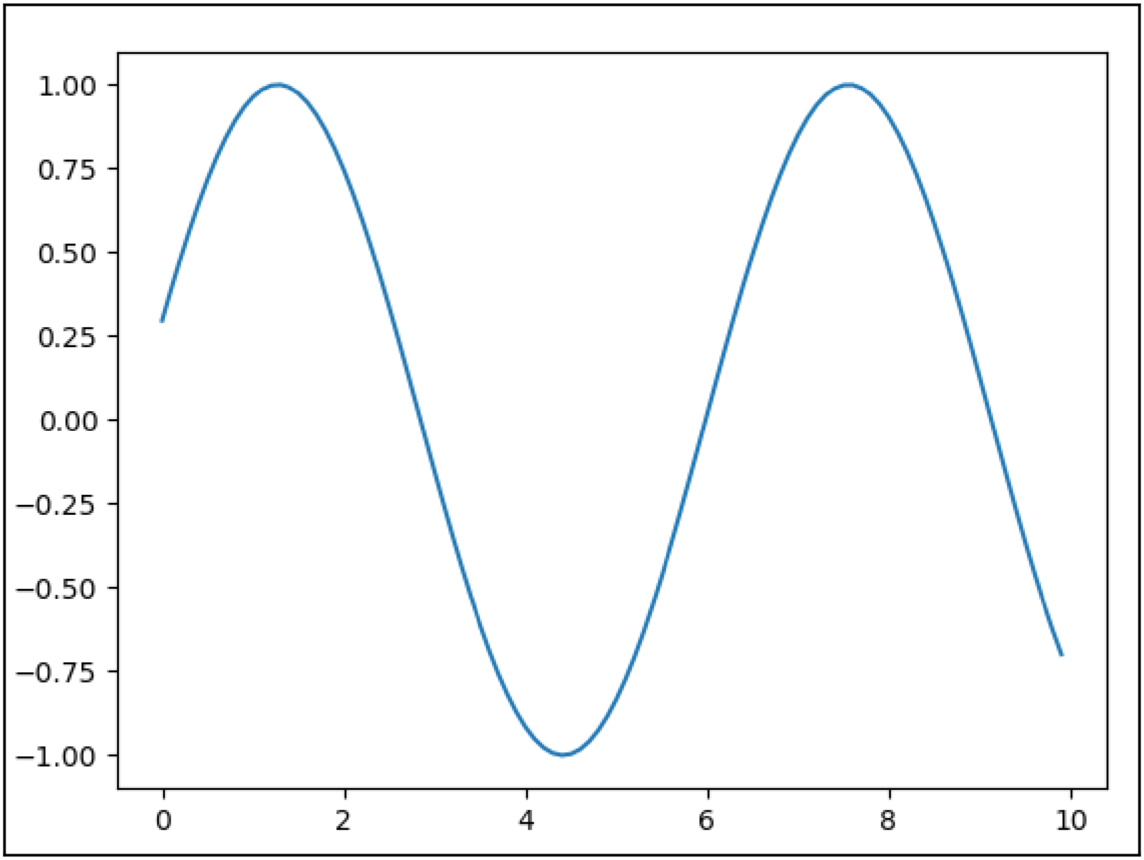

.00
.75
.50
.25
.00
.25
.50
.75
.00
0
2
4
6
8
10
● cyan
○ blue
○ black


1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10


3.3
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10