

John Hunter Excellence in Plotting Contest 2020 **submissions are open!** Entries are due June 1, 2020.



Fork me on GitHub

Version 3.2.1

[Installation](#) [Documentation](#) [Examples](#) [Tutorials](#) [Contributing](#)

Search

[home](#) | [contents](#) »

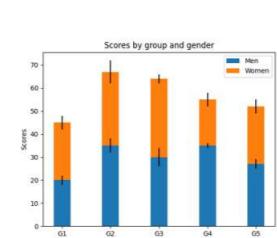
[modules](#) | [index](#)

## Gallery

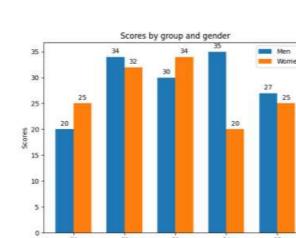
This gallery contains examples of the many things you can do with Matplotlib. Click on any image to see the full image and source code.

For longer tutorials, see our [tutorials page](#). You can also find [external resources](#) and a [FAQ](#) in our [user guide](#).

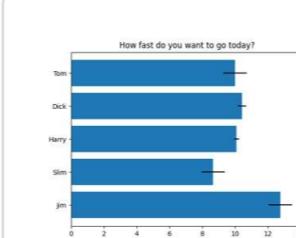
### Lines, bars and markers



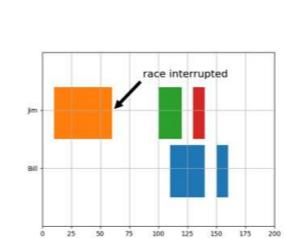
Stacked bar chart



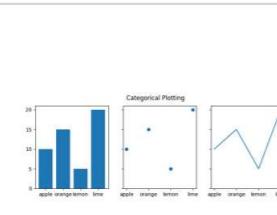
Grouped bar chart with labels



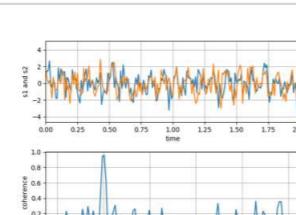
Horizontal bar chart



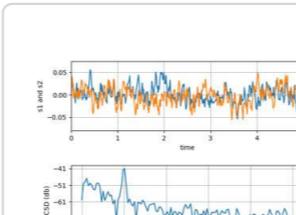
Broken Barh



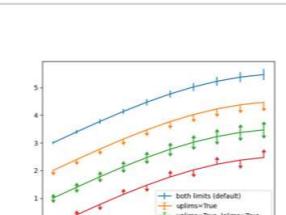
Plotting categorical variables



Plotting the coherence of two signals



CSD Demo

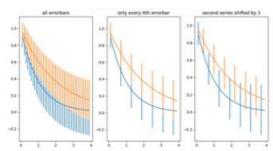


Errorbar limit selection

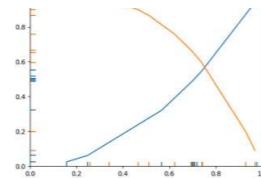
### Table of Contents

#### Gallery

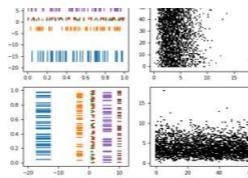
- [Lines, bars and markers](#)
- [Images, contours and fields](#)
- [Subplots, axes and figures](#)
- [Statistics](#)
- [Pie and polar charts](#)
- [Text, labels and annotations](#)
- [Pyplot](#)
- [Color](#)
- [Shapes and collections](#)
- [Style sheets](#)
- [Axes Grid](#)
- [Axis Artist](#)
- [Showcase](#)
- [Animation](#)
- [Event handling](#)
- [Front Page](#)
- [Miscellaneous](#)
- [3D plotting](#)
- [Our Favorite Recipes](#)
- [Scales](#)
- [Specialty Plots](#)
- [Ticks and spines](#)
- [Units](#)
- [Embedding Matplotlib in graphical user interfaces](#)
- [Userdemo](#)



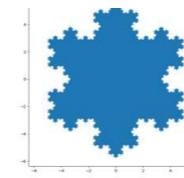
Errorbar Subsample



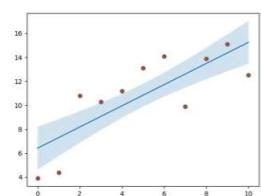
EventCollection Demo



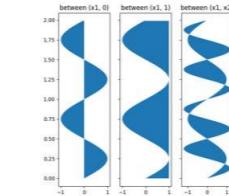
Eventplot Demo



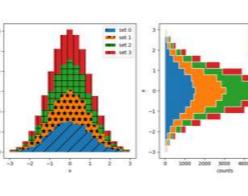
Filled polygon



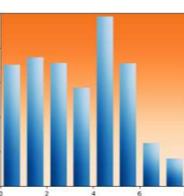
Filling the area between lines



Fill Betweenx Demo



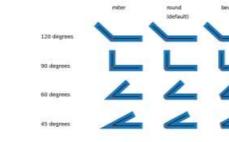
Hatch-filled histograms



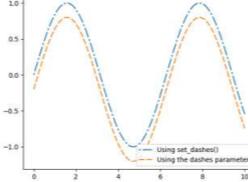
Bar chart with gradients



Discrete distribution as horizontal bar chart



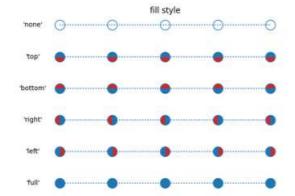
Join styles and cap styles



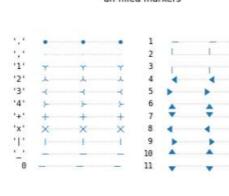
Customizing dashed line styles



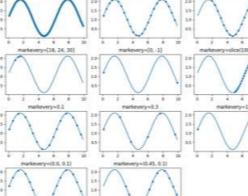
Linestyles



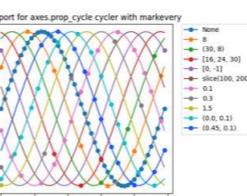
Marker filling-styles



Marker Reference



Markevery Demo

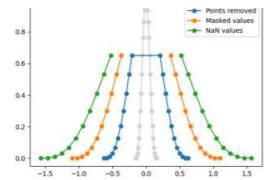


prop\_cycle property  
markevery in rcParams

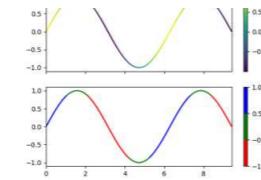
Related topics

[Documentation overview](#)

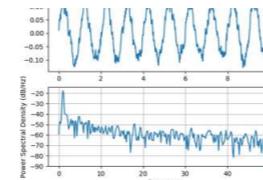
[Show Page Source](#)



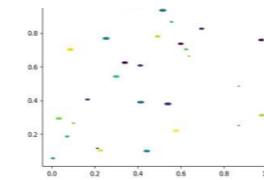
Plotting masked and  
NaN values



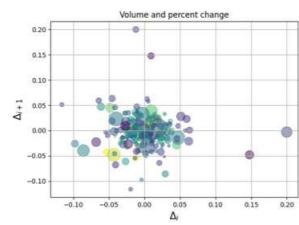
Multicolored lines



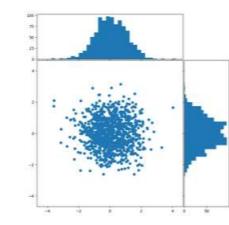
Psd Demo



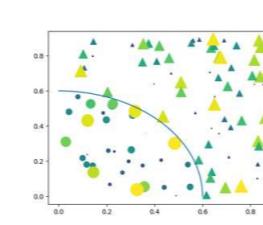
Scatter Custom  
Symbol



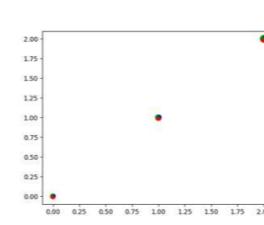
Scatter Demo2



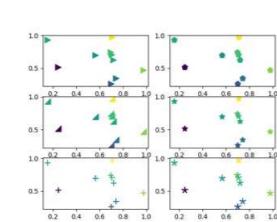
Scatter plot with  
histograms



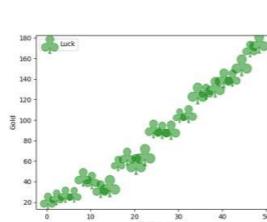
Scatter Masked



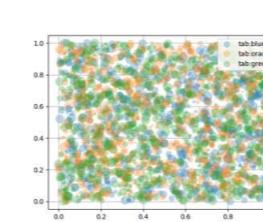
Scatter plot with pie  
chart markers



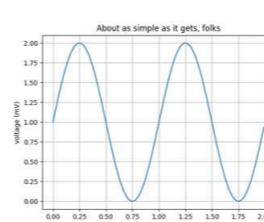
Scatter Star Poly



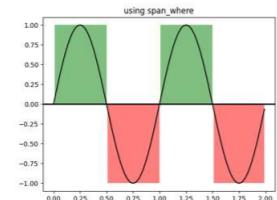
Scatter Symbol



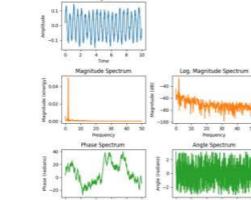
Scatter plots with a  
legend



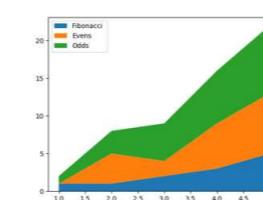
Simple Plot



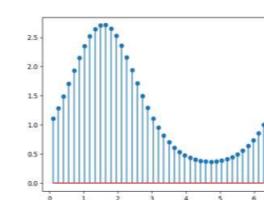
Using `span_where`



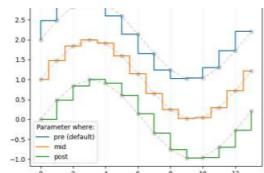
Spectrum  
Representations



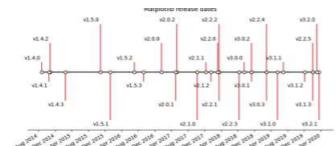
Stackplot Demo



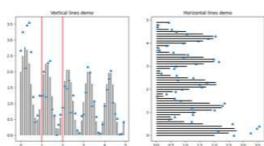
Stem Plot



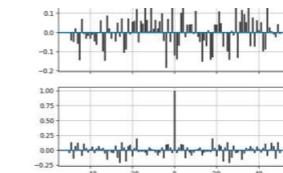
Step Demo



Creating a timeline  
with lines, dates, and  
text

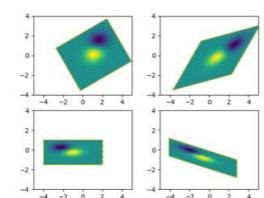


hlines and vlines

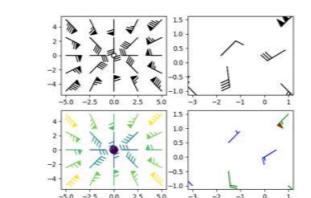


Cross- and Auto-  
Correlation Demo

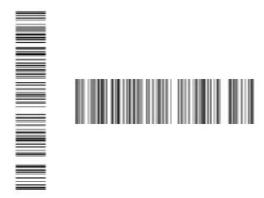
## Images, contours and fields



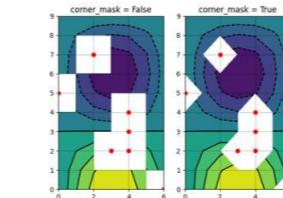
Affine transform of  
an image



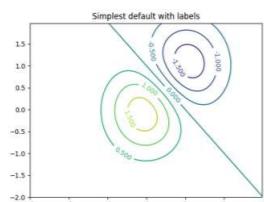
Barb Demo



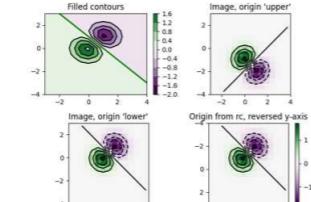
Barcode Demo



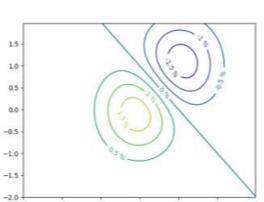
Contour Corner  
Mask



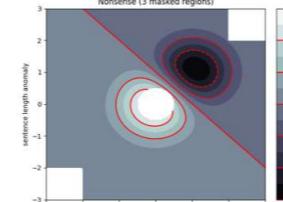
Contour Demo



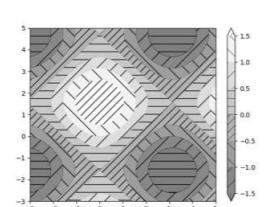
Contour Image



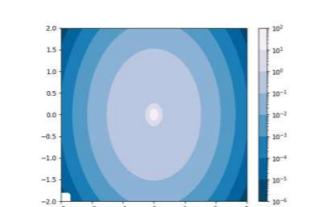
Contour Label Demo



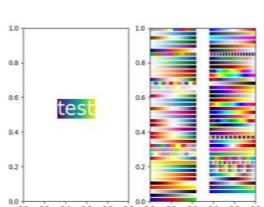
Contourf Demo



Contour Hatching



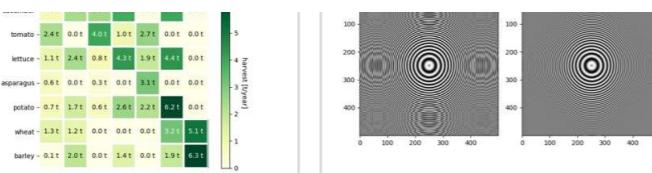
Contour and log  
color scale



BboxImage Demo



Figimage Demo



Creating annotated  
heatmaps

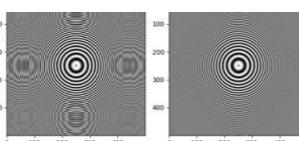


Image antialiasing



Clipping images with  
patches

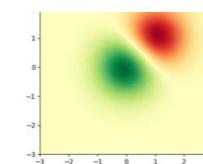


Image Demo

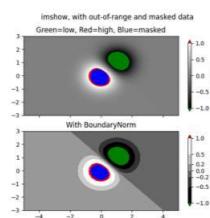


Image Masked

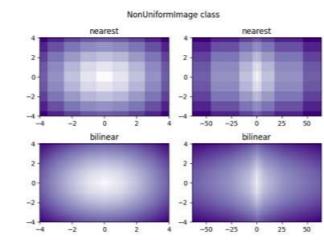
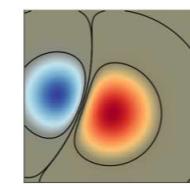
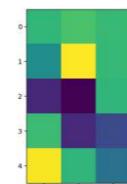


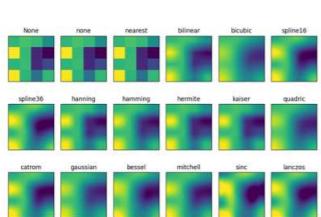
Image Nonuniform



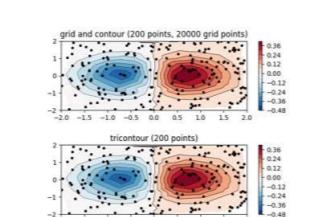
Blend transparency  
with color in 2-D  
images



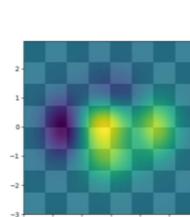
Modifying the  
coordinate formatter



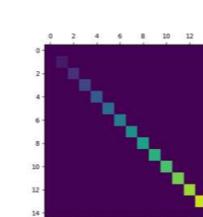
Interpolations for  
imshow



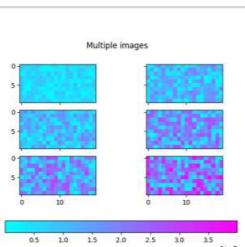
Contour plot of  
irregularly spaced  
data



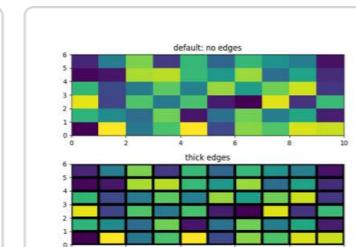
Layer Images



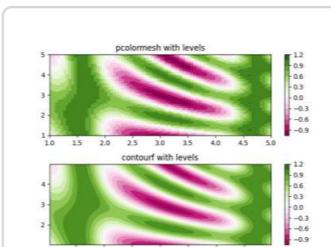
Matshow



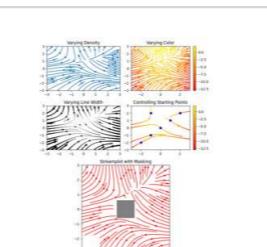
Multi Image



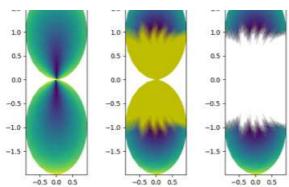
Pcolor Demo



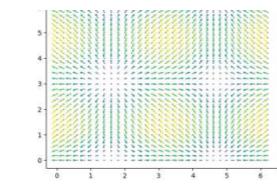
pcolormesh



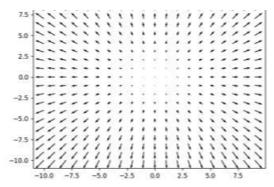
Streamplot



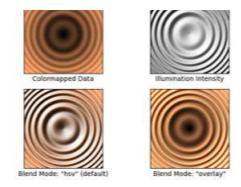
QuadMesh Demo



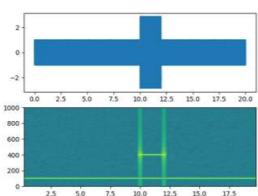
Advanced quiver and  
quiverkey functions



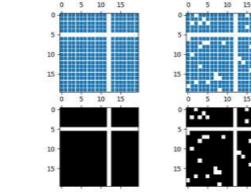
Quiver Simple Demo



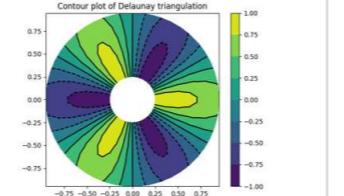
Shading example



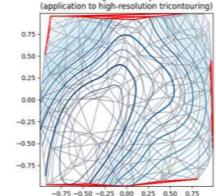
Spectrogram Demo



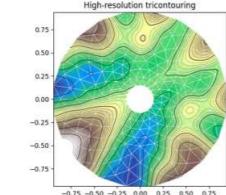
Spy Demos



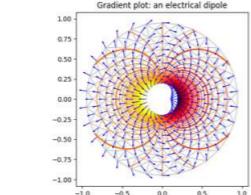
Tricontour Demo



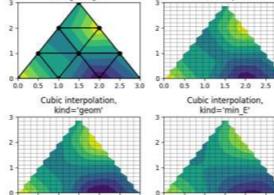
Tricontour Smooth  
Delaunay



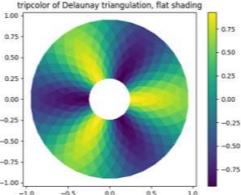
Tricontour Smooth  
User



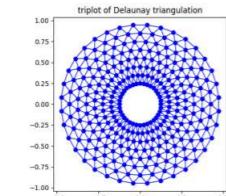
Trigradient Demo



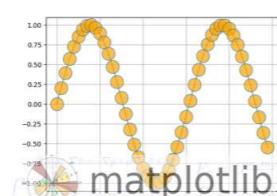
Triinterp Demo



Tripcolor Demo

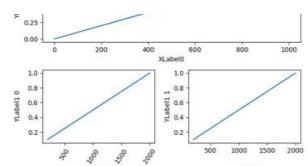


Triplot Demo

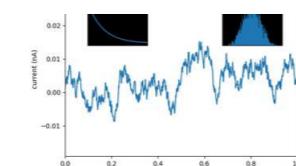


Watermark image

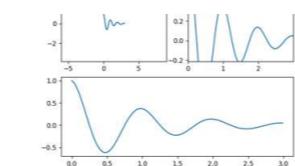
## Subplots, axes and figures



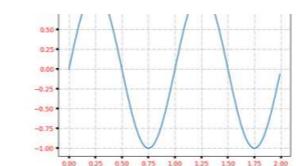
Aligning Labels



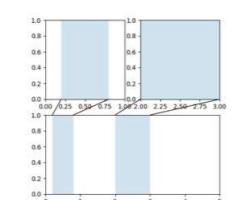
Axes Demo



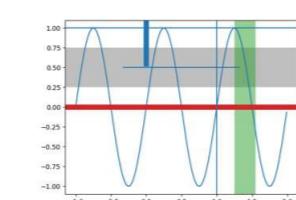
Controlling view limits using margins and sticky\_edges



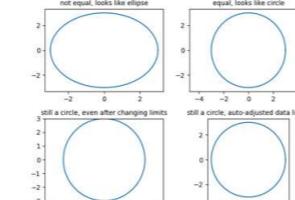
Axes Props



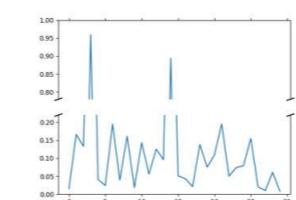
Axes Zoom Effect



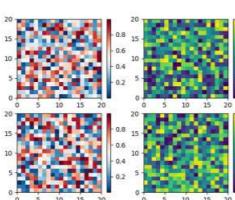
axhspan Demo



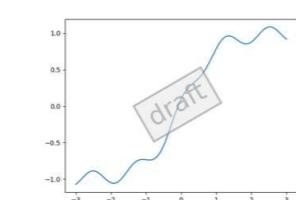
Axis Equal Demo



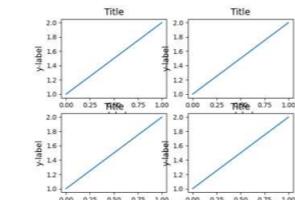
Broken Axis



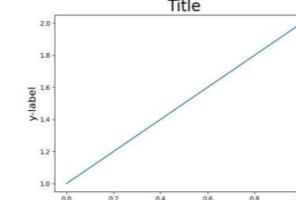
Placing Colorbars



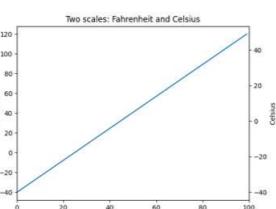
Custom Figure subclasses



Resizing axes with constrained layout



Resizing axes with tight layout



Different scales on the same axes

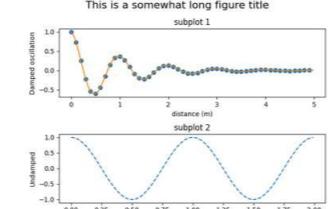
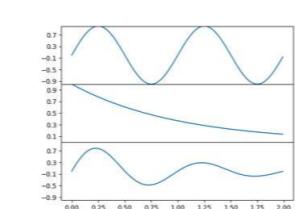
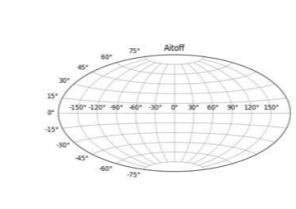


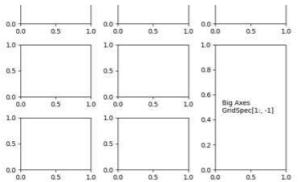
Figure Title



Creating adjacent subplots



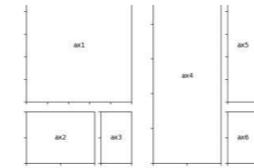
Geographic Projections



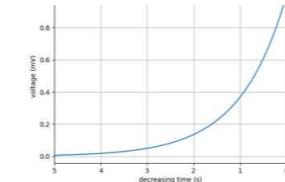
Combining two subplots using subplots and GridSpec



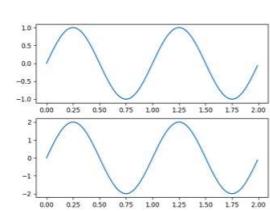
Using Gridspec to make multi-column/row subplot layouts



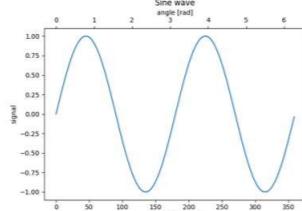
Nested Gridspecs



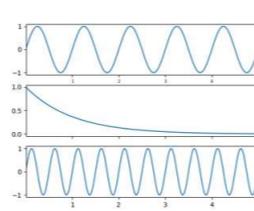
Invert Axes



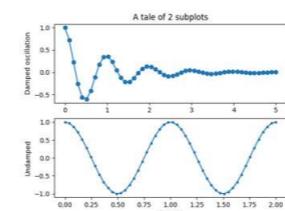
Multiple Figs Demo



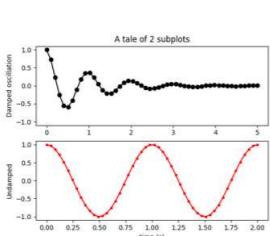
Secondary Axis



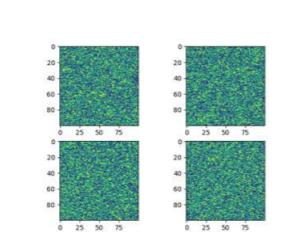
Shared Axis Demo



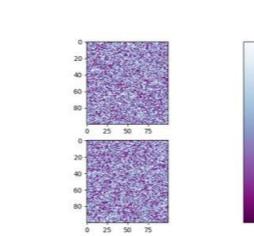
Multiple subplots



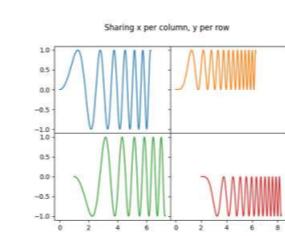
Basic Subplot Demo



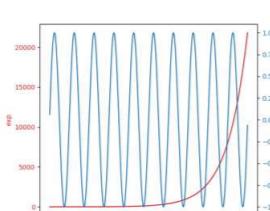
Subplot Toolbar



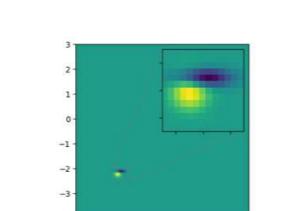
Subplots Adjust



Creating multiple subplots using plt.subplots

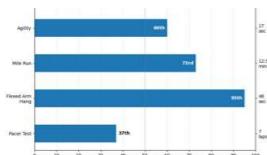


Plots with different scales

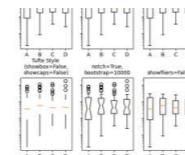


Zoom region inset axes

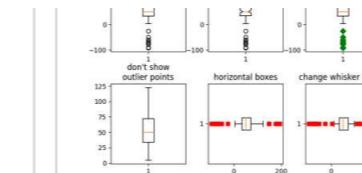
## Statistics



Percentiles as horizontal bar chart

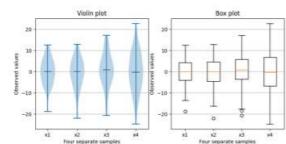


Artist customization in box plots

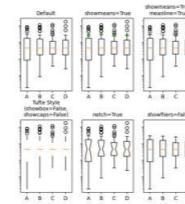


Box plots with custom fill colors

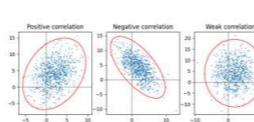
Boxplots



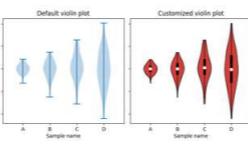
Box plot vs. violin plot comparison



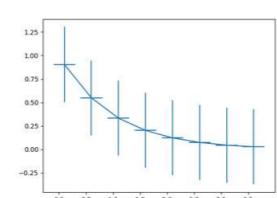
Boxplot drawer function



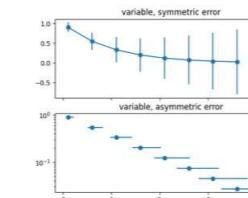
Plot a confidence ellipse of a two-dimensional dataset



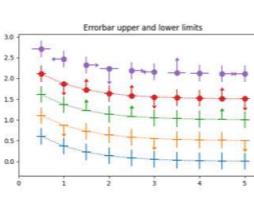
Violin plot customization



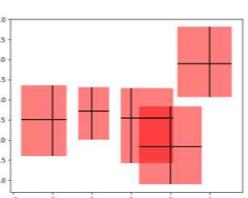
Errorbar function



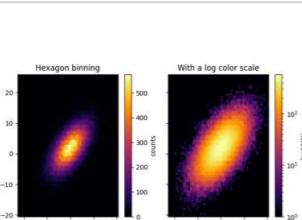
Different ways of specifying error bars



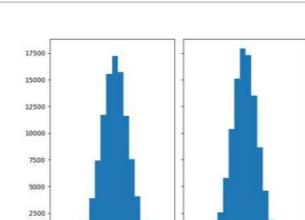
Including upper and lower limits in error bars



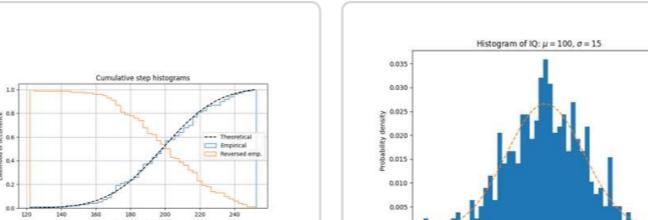
Creating boxes from error bars using PatchCollection



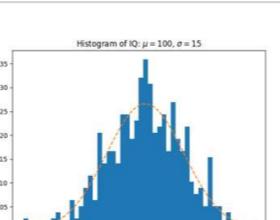
Hexbin Demo



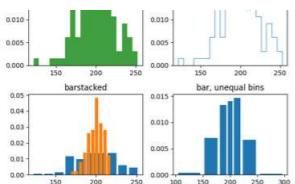
Histograms



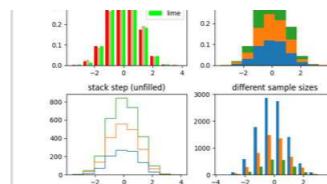
Using histograms to plot a cumulative distribution



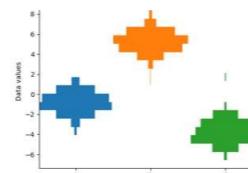
Demo of the histogram (hist) function with a few features



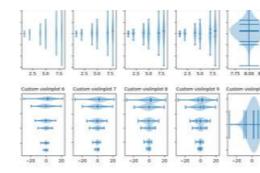
Demo of the histogram function's different histtype settings



The histogram (hist) function with multiple data sets

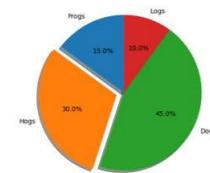


Producing multiple histograms side by side

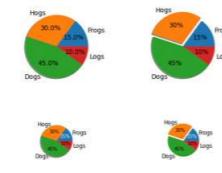


Violin plot basics

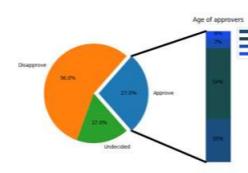
## Pie and polar charts



Basic pie chart



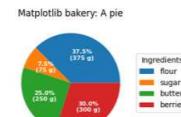
Pie Demo2



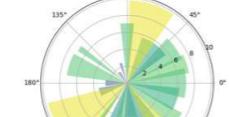
Bar of pie



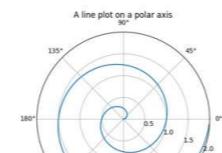
Nested pie charts



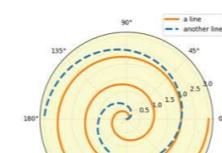
Labeling a pie and a donut



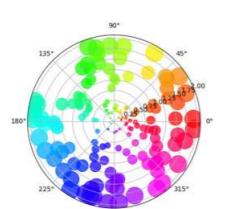
Bar chart on polar axis



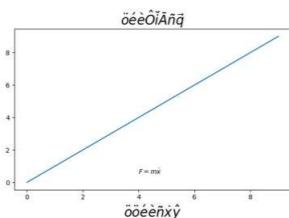
Polar Demo



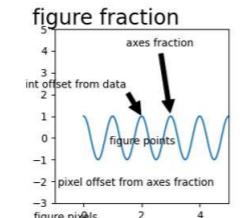
Polar Legend



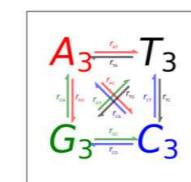
Scatter plot on polar axis



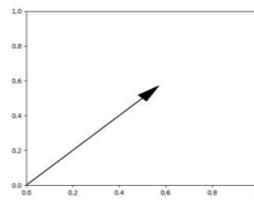
Using accented text  
in matplotlib



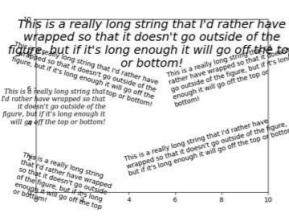
Annotating Plots



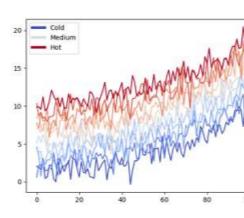
Arrow Demo



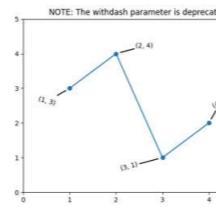
Arrow Simple Demo



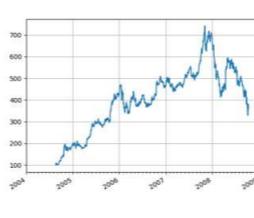
Auto-wrapping text



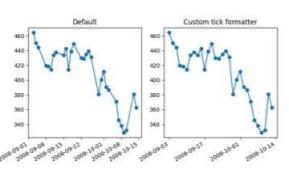
Composing Custom  
Legends



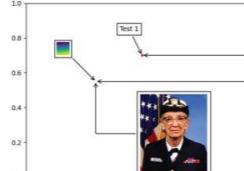
Dashpoint Label



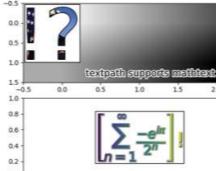
Date tick labels



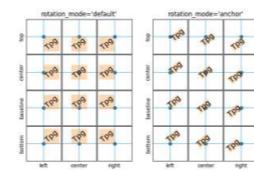
Custom tick formatter  
for time series



Demo Annotation  
Box



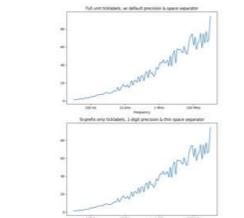
Demo Text Path



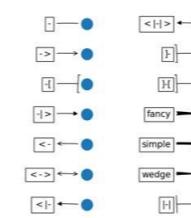
Demo Text Rotation  
Mode

$\frac{a}{b}$

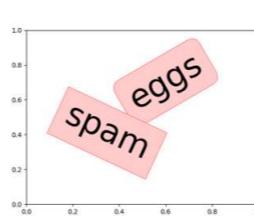
The difference  
between `\dfrac` and  
`\frac`



Labeling ticks using  
engineering notation



Fancyarrow Demo



Fancytextbox Demo

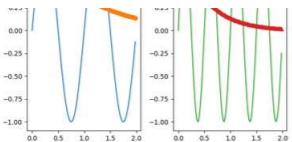
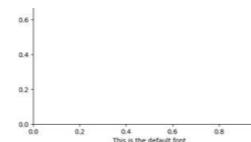


Figure legend demo



Configuring the font family



Using a ttf font file in Matplotlib



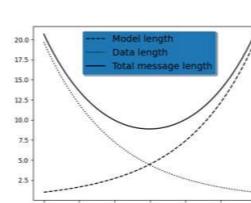
Font table

family	style	variant	weight	size
serif	normal	normal	light	x-small
sans-serif	italic	small caps	normal	x-small
script	oblique		medium	small
fantasy		semibold	medium	small
monospace		bold	large	medium
		heavy	x-large	x-large
	bold italic	black	xx-large	xx-large
<small>font style</small>				

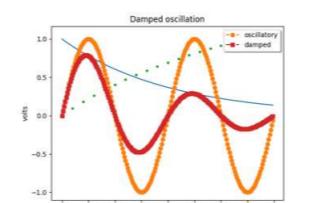
Fonts demo (object-oriented style)

family	style	variant	weight	size
serif	normal	normal	light	x-small
sans-serif	italic	small caps	normal	x-small
script	oblique		medium	small
fantasy		semibold	medium	small
monospace		bold	large	medium
		heavy	x-large	x-large
	bold italic	black	xx-large	xx-large
<small>font style</small>				

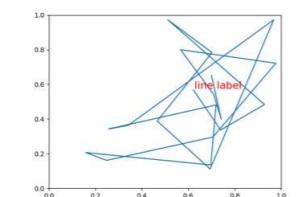
Fonts demo (kwargs)



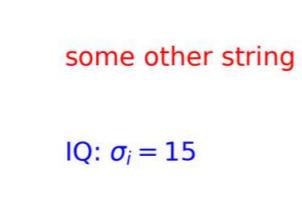
Legend using pre-defined labels



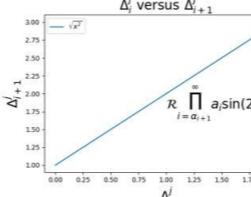
Legend Demo



Artist within an artist



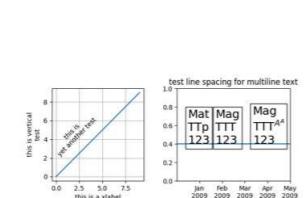
some other string  
IQ:  $\sigma_i = 15$



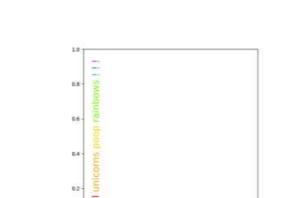
Mathtext Demo



Mathtext Examples



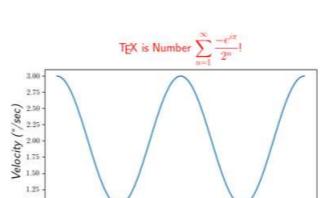
Multiline



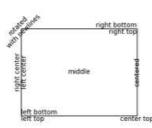
Rainbow text



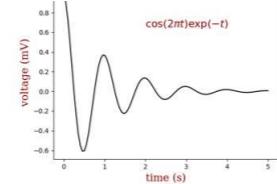
STIX Fonts Demo



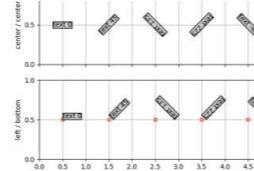
Rendering math equation using TeX



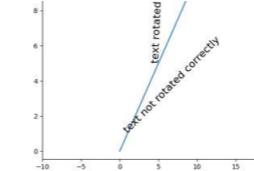
Precise text layout



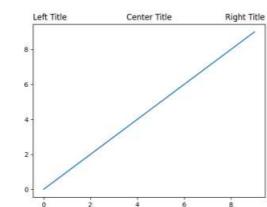
Controlling style of text and labels using a dictionary



Default text rotation demonstration



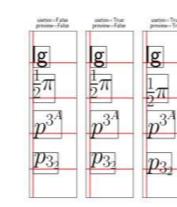
Text Rotation Relative To Line



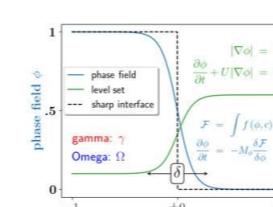
Titles Demo

Unicode minus: -1  
ASCII hyphen: -1

Unicode minus



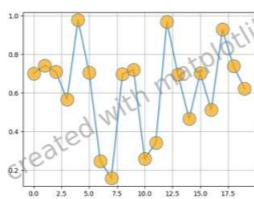
Usetex Baseline Test



Usetex Demo

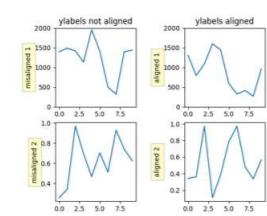
Usetex font effects  
Nimbus Roman No9 L (extended)  
Nimbus Roman No9 L (condensed)  
Nimbus Roman No9 L (slanted)  
Nimbus Roman No9 L Italics (real italics for comparison)  
Nimbus Roman No9 L

Usetex Fonteffects

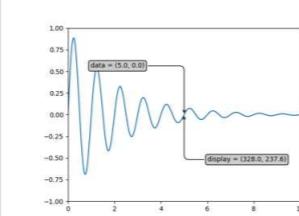


Text watermark

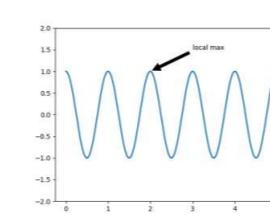
## Pyplot



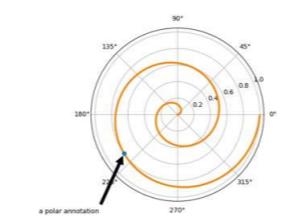
Align y-labels



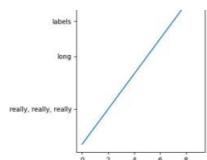
Annotate Transform



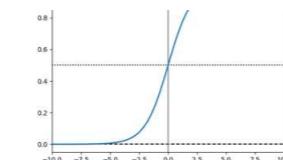
Annotating a plot



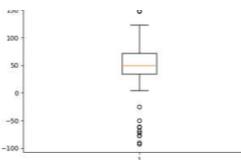
Annotation Polar



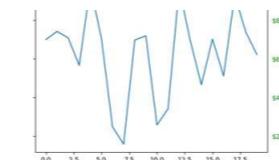
Auto Subplots Adjust



Infinite horizontal and vertical lines



Boxplot Demo



Dollar Ticks

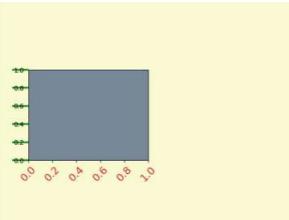
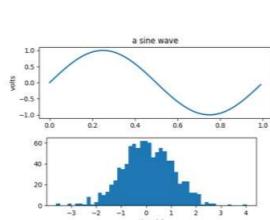
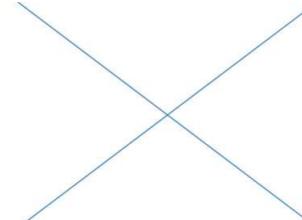


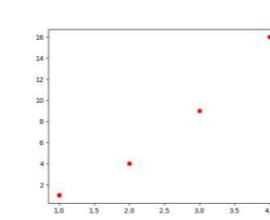
Fig Axes Customize Simple



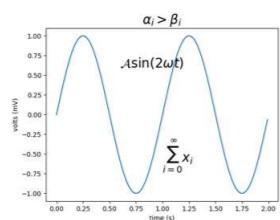
Simple axes labels



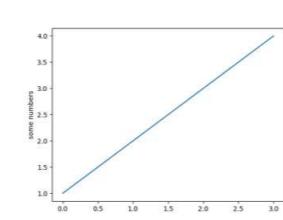
Adding lines to figures



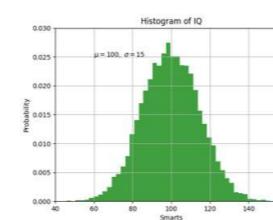
plot() format string



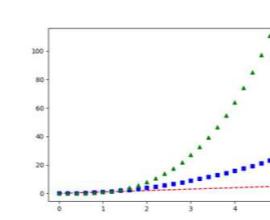
Pyplot Mathtext



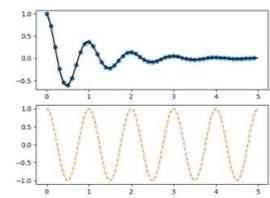
Pyplot Simple



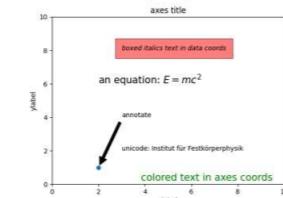
Pyplot Text



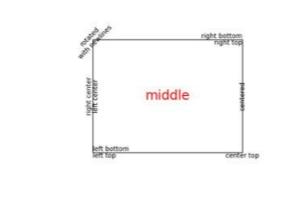
Pyplot Three



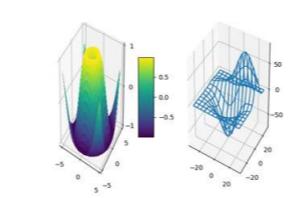
Pyplot Two Subplots



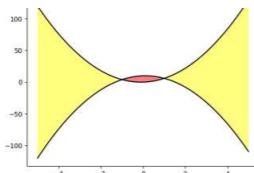
Text Commands



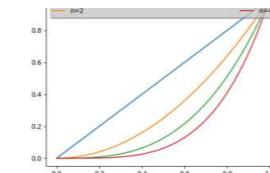
Text Layout



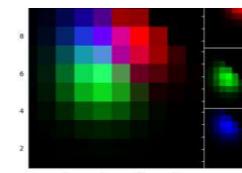
Whats New 1  
Subplot3d



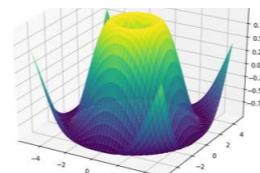
Fill Between



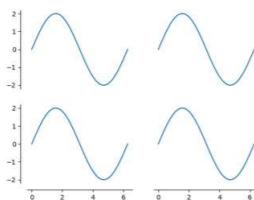
Whats New 0.98.4  
Legend



Whats New 0.99  
Axes Grid



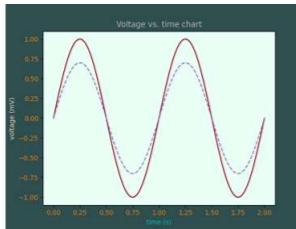
Whats New 0.99  
Mplot3d



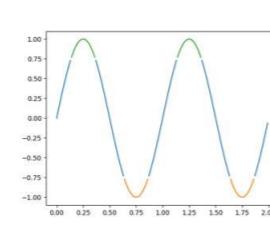
Whats New 0.99  
Spines

## Color

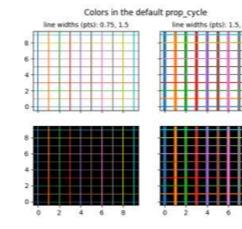
For more in-depth information about the colormaps available in matplotlib as well as a description of their properties, see the [colormaps tutorial](#).



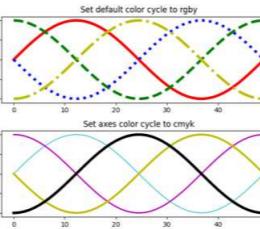
Color Demo



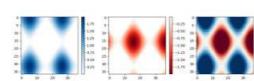
Color by y-value



Colors in the default  
property cycle



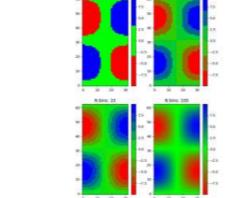
Styling with cycler



Colorbar



Colormap reference

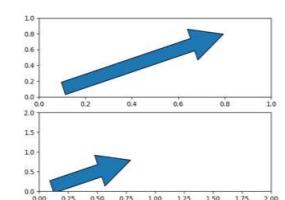


Creating a colormap  
from a list of colors



List of named colors

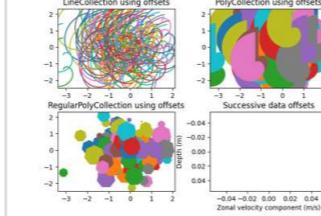
## Shapes and collections



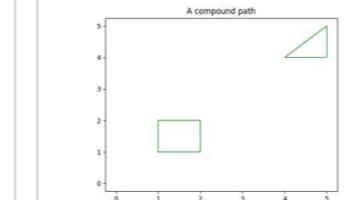
Arrow guide



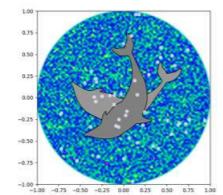
Reference for Matplotlib artists



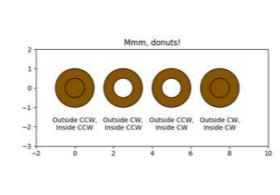
Line, Poly and RegularPoly Collection with autoscaling



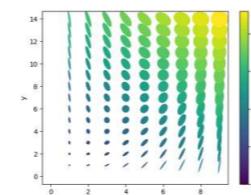
Compound path



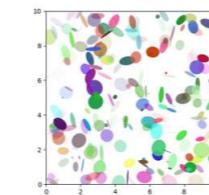
Dolphins



Mmh Donuts!!!



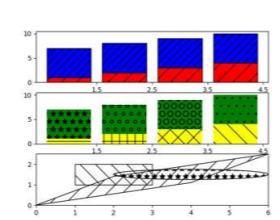
Ellipse Collection



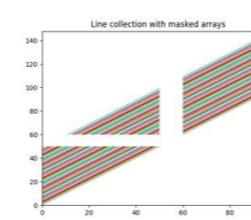
Ellipse Demo



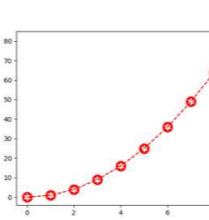
Drawing fancy boxes



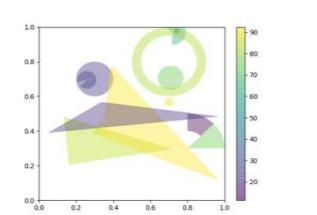
Hatch Demo



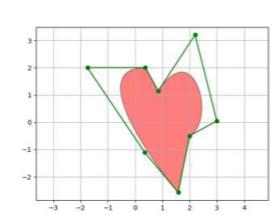
Line collection with masked arrays



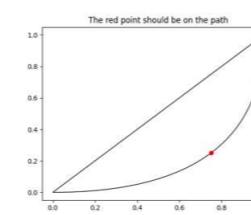
Marker Path



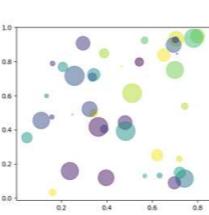
Circles, Wedges and Polygons



PathPatch object

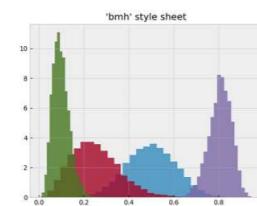


Bezier Curve

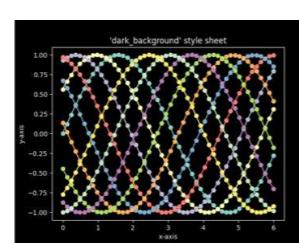


Scatter plot

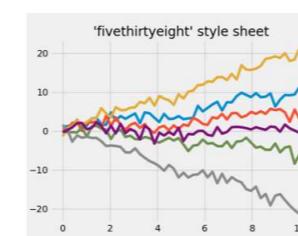
## Style sheets



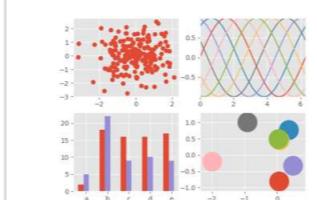
Bayesian Methods  
for Hackers style  
sheet



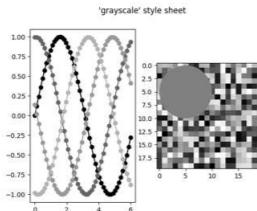
Dark background  
style sheet



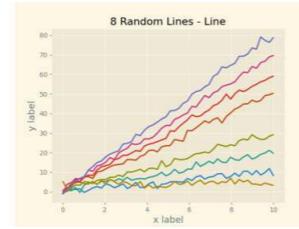
FiveThirtyEight style  
sheet



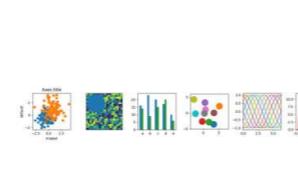
ggplot style sheet



Grayscale style  
sheet

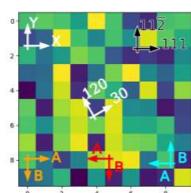


Solarized Light  
stylesheet

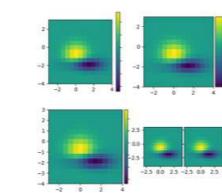


Style sheets  
reference

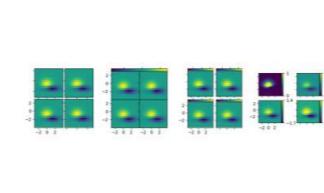
## Axes Grid



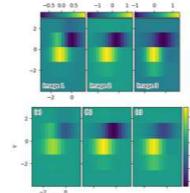
Demo Anchored  
Direction Arrow



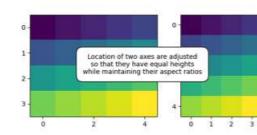
Demo Axes Divider



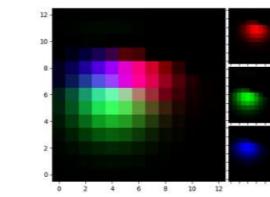
Demo Axes Grid



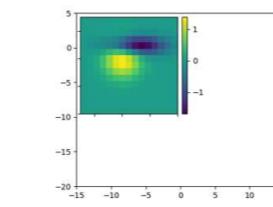
Demo Axes Grid2



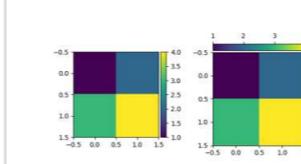
Demo Axes Hbox



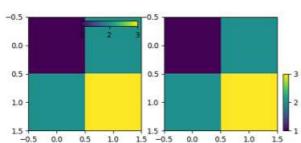
Demo Axes RGB



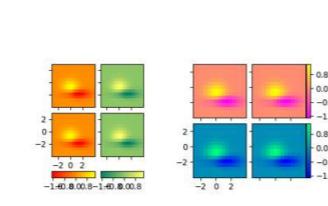
Demo Colorbar of



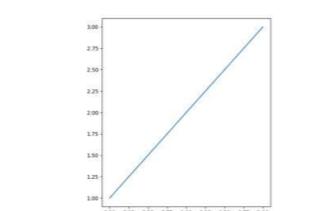
Demo Colorbar with



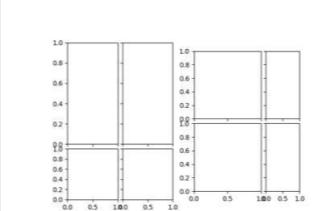
Controlling the  
position and size of  
colorbars with Inset  
Axes



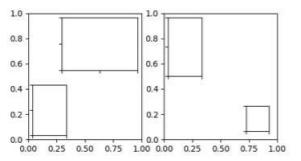
Demo Edge Colorbar



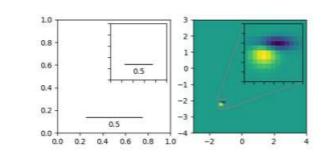
Demo Fixed Size  
Axes



Demo Imagegrid  
Aspect



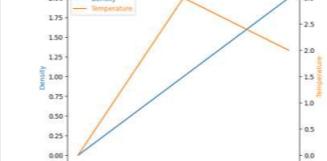
Inset Locator Demo



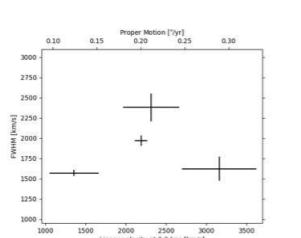
Inset Locator Demo2



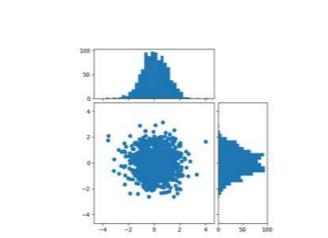
Make Room For  
Ylabel Using  
Axesgrid



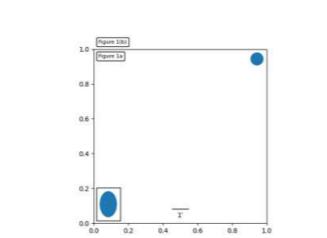
Parasite Simple



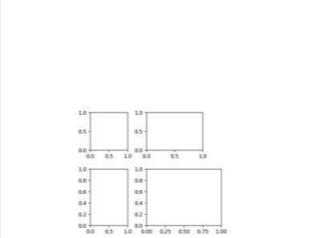
Parasite Simple2



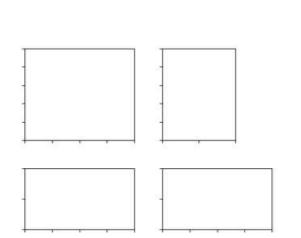
Scatter Histogram  
(Locatable Axes)



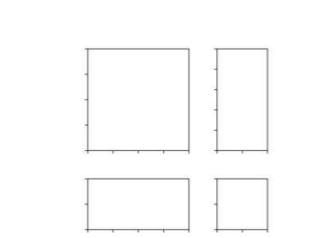
Simple Anchored  
Artists



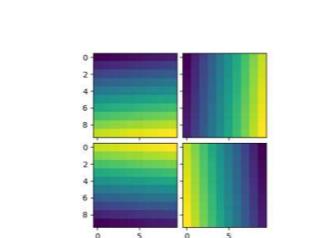
Simple Axes Divider  
1



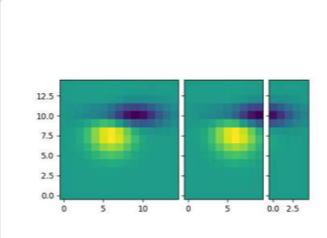
Simple Axes Divider  
2



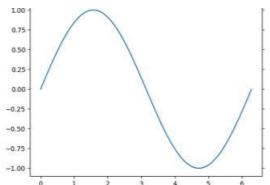
Simple Axes Divider  
3



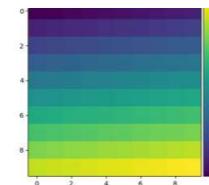
Simple ImageGrid



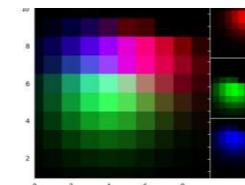
Simple ImageGrid 2



Simple Axisline4



Simple Colorbar

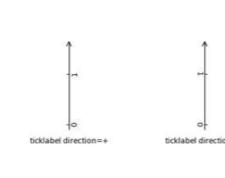


Simple RGB

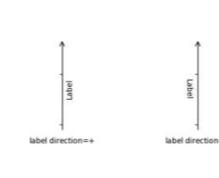
## Axis Artist



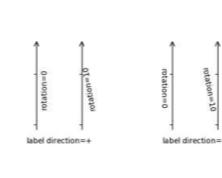
Axis Direction Demo  
Step01



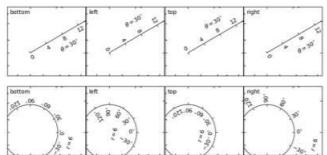
Axis Direction Demo  
Step02



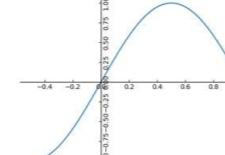
Axis Direction Demo  
Step03



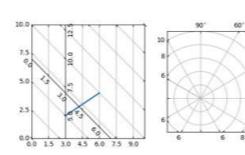
Axis Direction Demo  
Step04



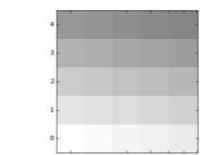
Demo Axis Direction



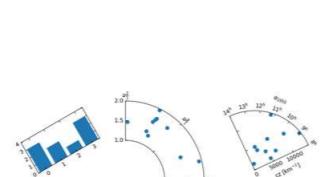
Axis line styles



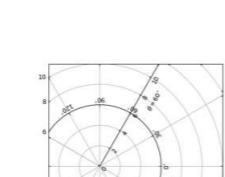
Curvilinear grid demo



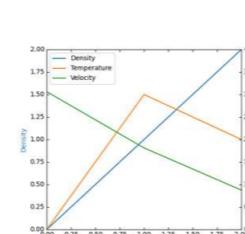
Demo Curvilinear  
Grid2



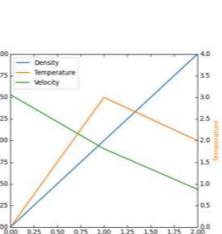
mpl\_toolkits.axisartist.floating\_axis.  
features



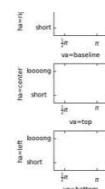
Demo Floating Axis



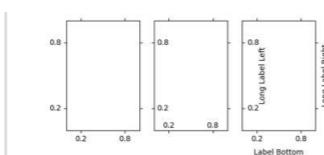
Parasite Axes demo



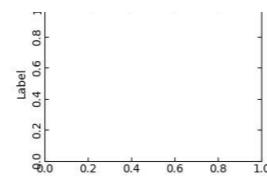
Demo Parasite  
Axes2



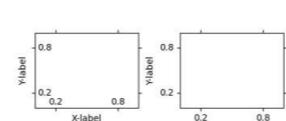
Demo Ticklabel Alignment



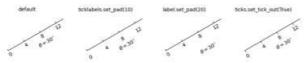
Demo Ticklabel Direction



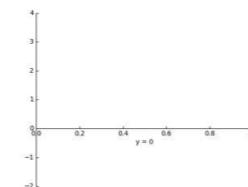
Simple Axis Direction01



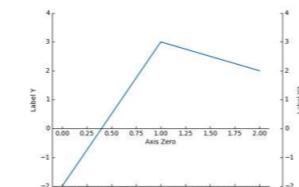
Simple Axis Direction03



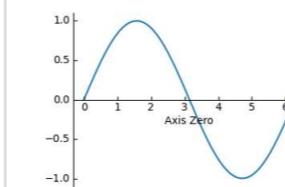
Simple Axis Pad



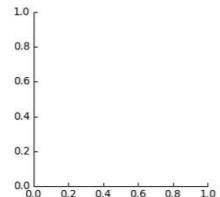
Simple Axisartist1



Simple Axisline1

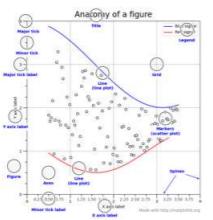


Simple Axisline2

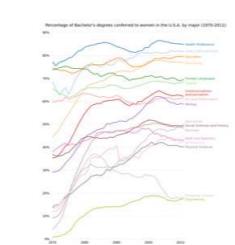


Simple Axisline3

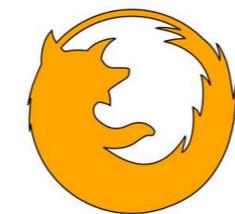
## Showcase



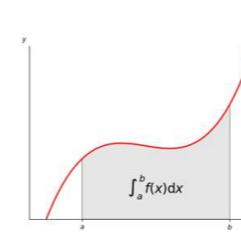
Anatomy of a figure



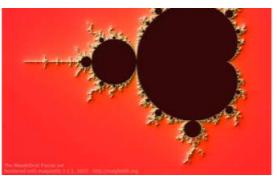
Bachelor's degrees by gender



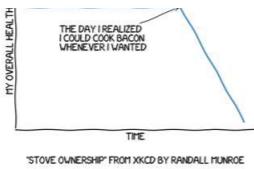
Firefox



Integral as the area under a curve

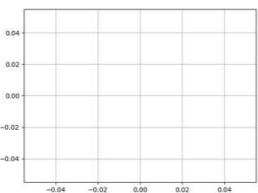


Shaded & power  
normalized rendering

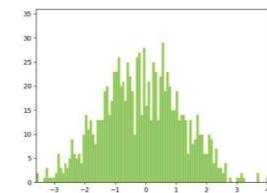


XKCD

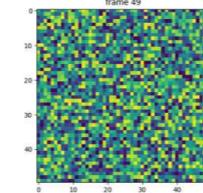
## Animation



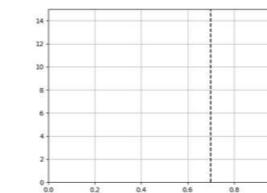
Decay



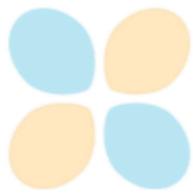
Animated histogram



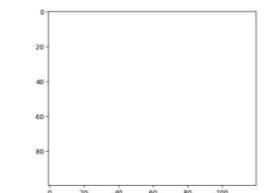
pyplot animation



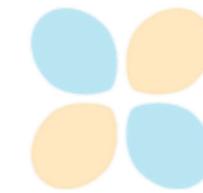
The Bayes update



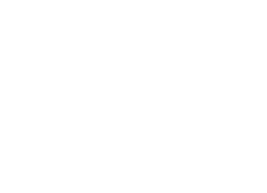
The double  
pendulum problem



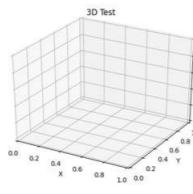
Animated image  
using a precomputed  
list of images



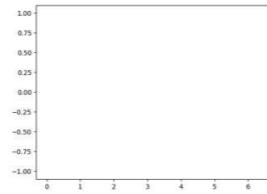
Frame grabbing



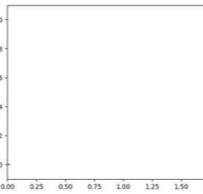
Rain simulation



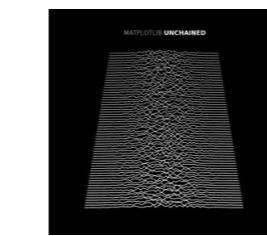
Animated 3D random  
walk



Animated line plot

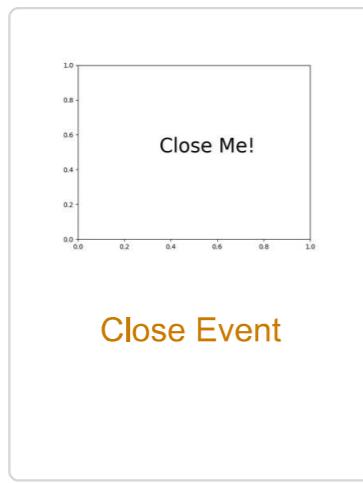


Oscilloscope

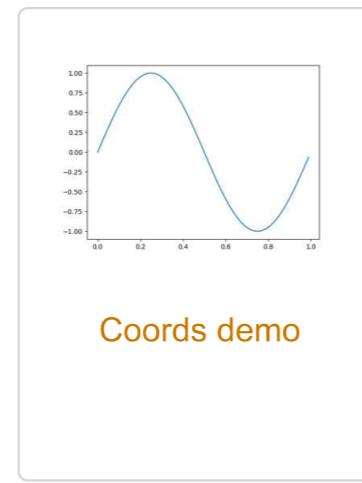


MATPLOTLIB  
UNCHAINED

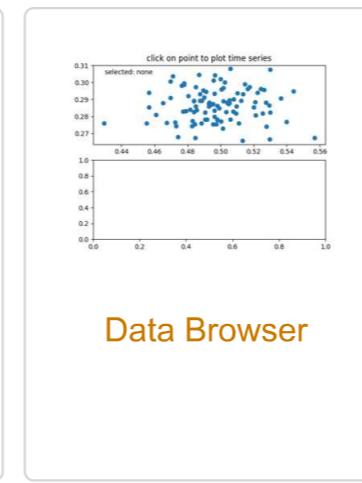
Matplotlib supports [event handling](#) with a GUI neutral event model, so you can connect to Matplotlib events without knowledge of what user interface Matplotlib will ultimately be plugged in to. This has two advantages: the code you write will be more portable, and Matplotlib events are aware of things like data coordinate space and which axes the event occurs in so you don't have to mess with low level transformation details to go from canvas space to data space. Object picking examples are also included.



Close Event



Coords demo



Data Browser

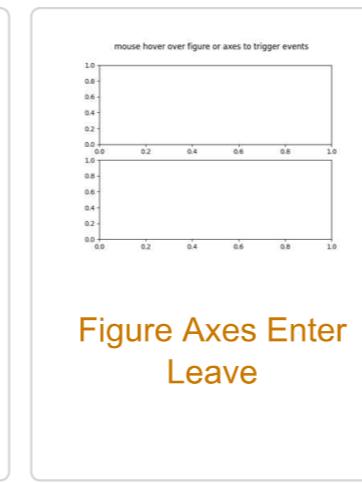
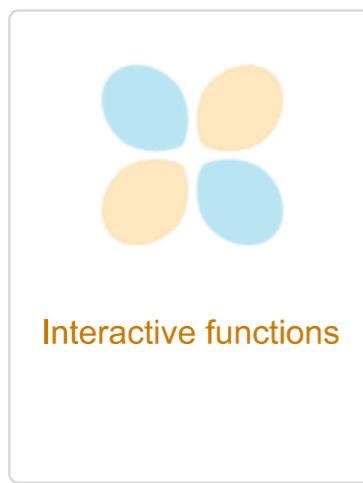


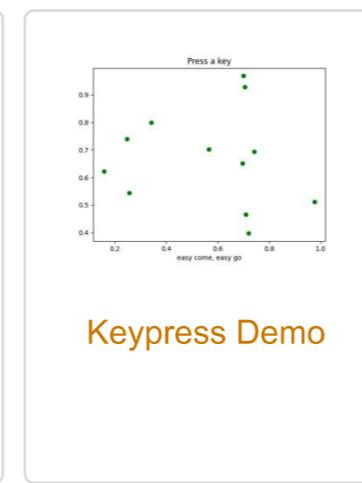
Figure Axes Enter  
Leave



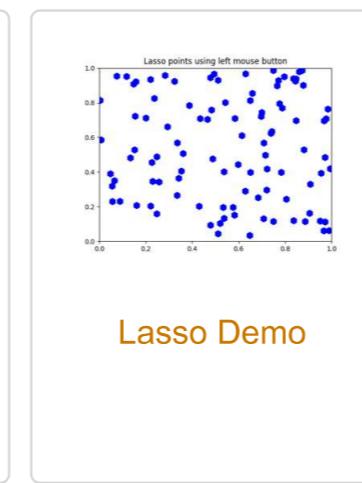
Interactive functions



Image Slices Viewer



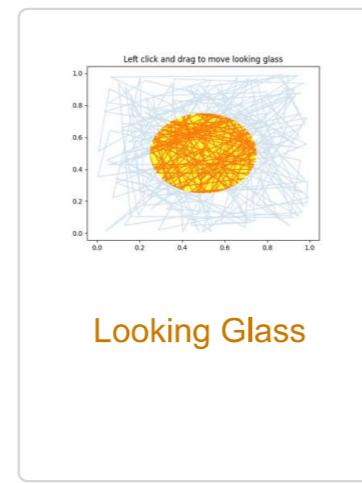
Keypress Demo



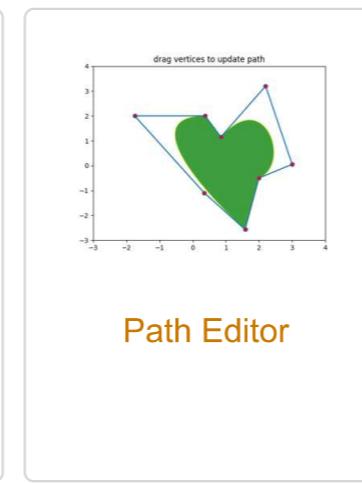
Lasso Demo



Legend Picking



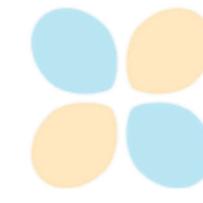
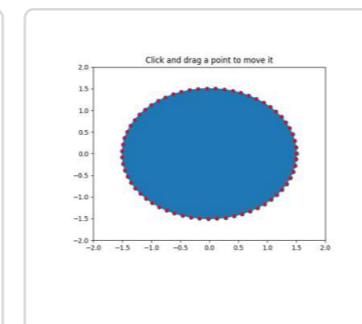
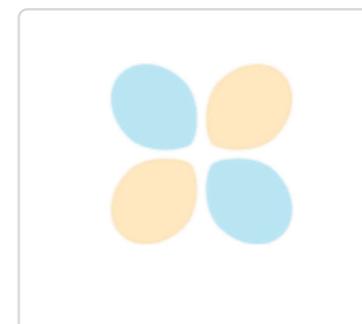
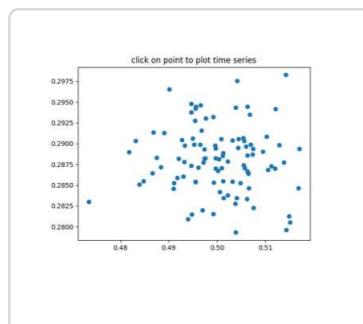
Looking Glass

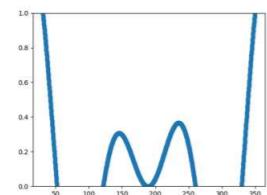


Path Editor

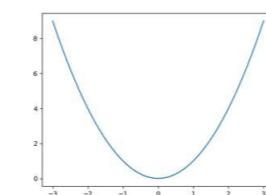


Pick Event Demo

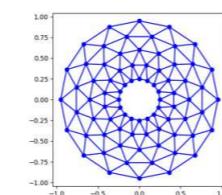




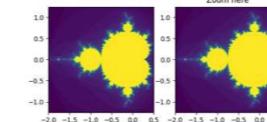
Resampling Data



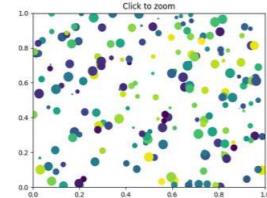
Timers



Trifinder Event Demo

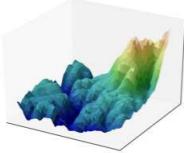


Viewlims

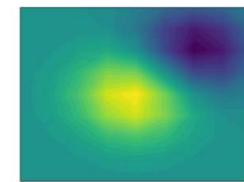


Zoom Window

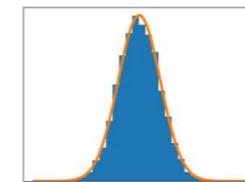
## Front Page



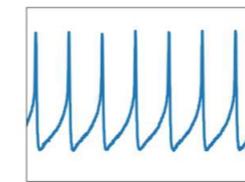
Frontpage 3D example



Frontpage contour example

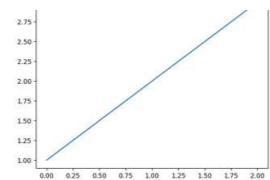


Frontpage histogram example

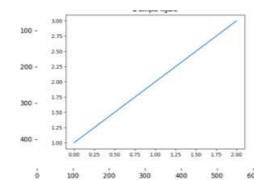


Frontpage plot example

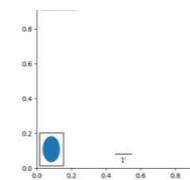
## Miscellaneous



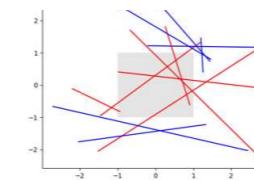
Agg Buffer



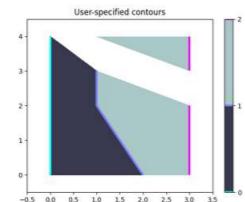
Agg Buffer To Array



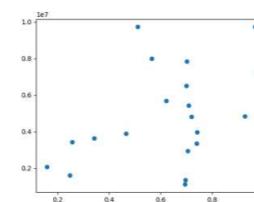
Anchored Artists



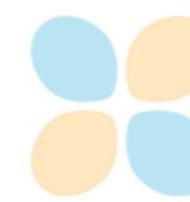
Changing colors of  
lines intersecting a  
box



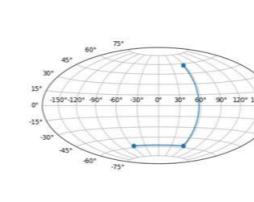
Manual Contour



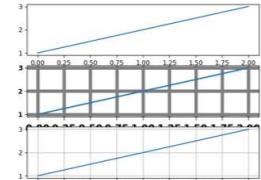
Coords Report



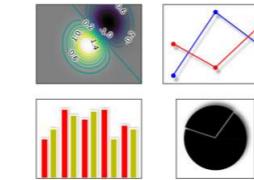
Cursor Demo



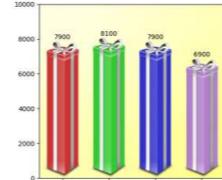
Custom projection



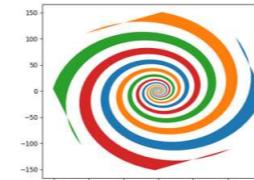
Customize Rc



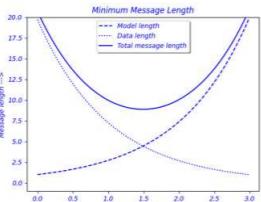
Demo Agg Filter



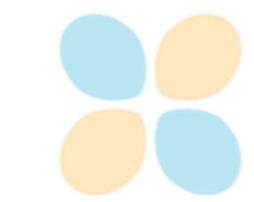
Ribbon Box



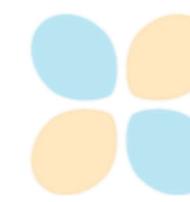
Fill Spiral



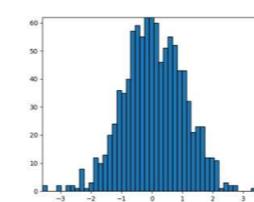
Findobj Demo



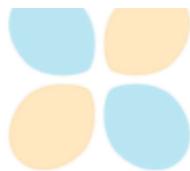
Font indexing



Font properties



Building histograms  
using Rectangles  
and PolyCollections



Hyperlinks

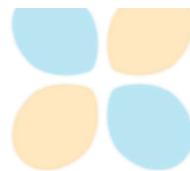
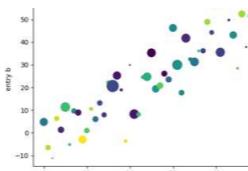
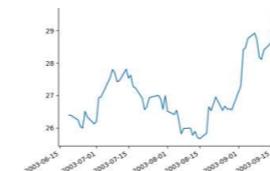


Image Thumbnail



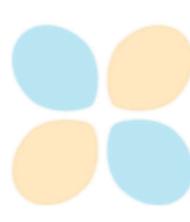
Plotting with keywords



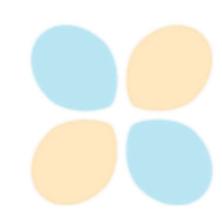
Load converter



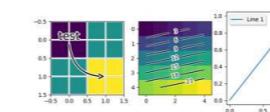
Matplotlib logo



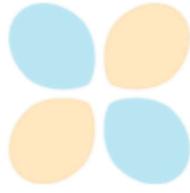
Multipage PDF



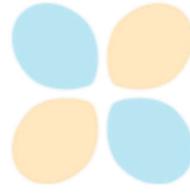
Multiprocess



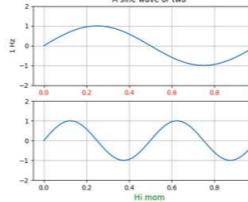
Patheffect Demo



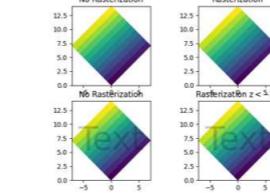
Plotting data from a file



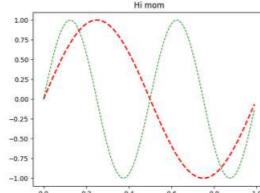
Print Stdout



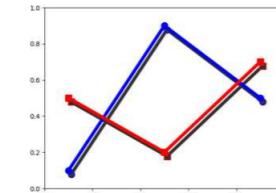
Pythonic Matplotlib



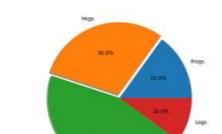
Rasterization Demo



Set And Get



SVG Filter Line



SVG Filter Pie

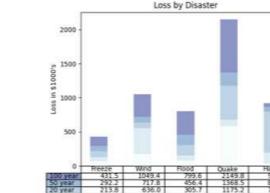
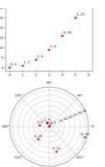
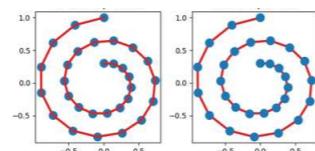


Table Demo

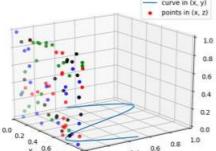


Transoffset

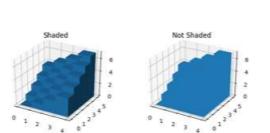


Zorder Demo

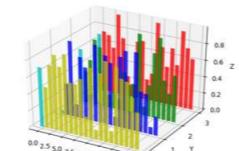
## 3D plotting



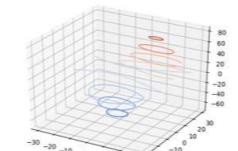
Plot 2D data on 3D plot



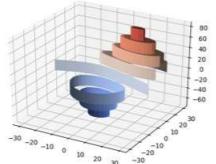
Demo of 3D bar charts



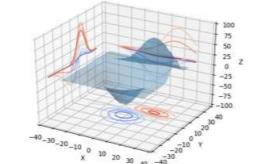
Create 2D bar graphs in different planes



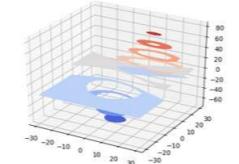
Demonstrates plotting contour (level) curves in 3D



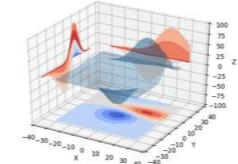
Demonstrates plotting contour (level) curves in 3D using the `extend3d` option



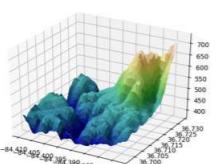
Projecting contour profiles onto a graph



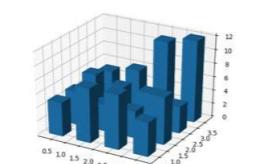
Filled contours



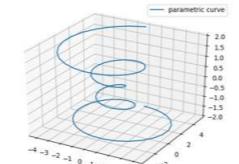
Projecting filled contour onto a graph



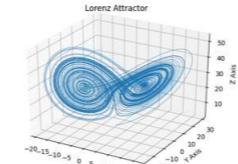
Custom hillshading in a 3D surface plot



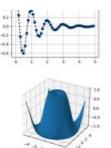
Create 3D histogram of 2D data



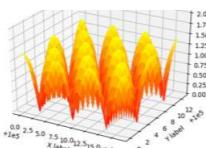
Parametric Curve



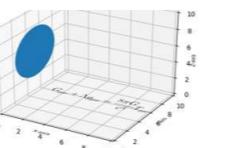
Lorenz Attractor



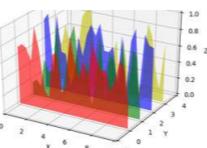
2D and 3D Axes in same Figure



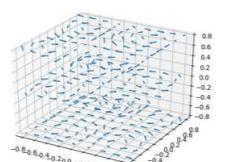
Automatic Text Offsetting



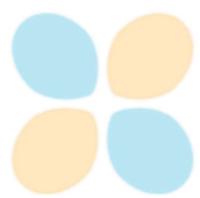
Draw flat objects in 3D plot



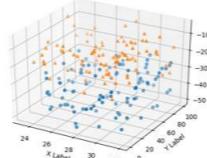
Generate polygons to fill under 3D line graph



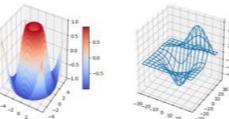
3D quiver plot



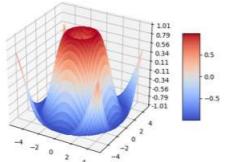
Rotating a 3D plot



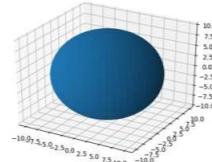
3D scatterplot



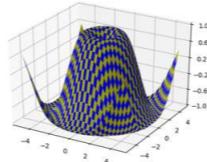
3D plots as subplots



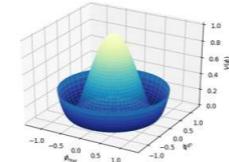
3D surface (color map)



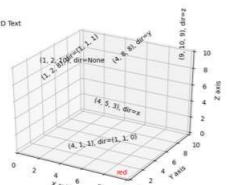
3D surface (solid color)



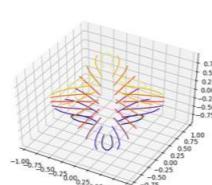
3D surface (checkerboard)



3D surface with polar coordinates



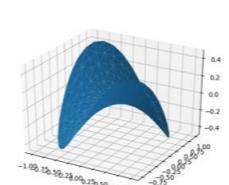
Text annotations in 3D



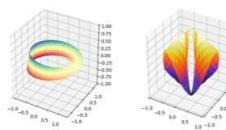
Triangular 3D contour plot



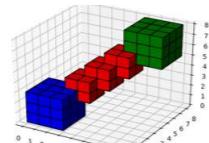
Triangular 3D filled contour plot



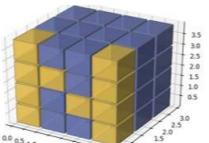
Triangular 3D surfaces



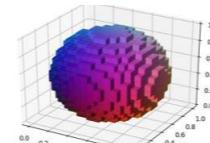
More triangular 3D surfaces



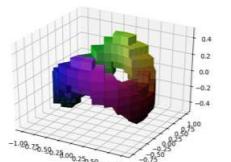
3D voxel / volumetric plot



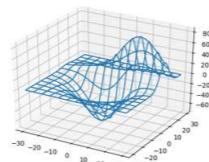
3D voxel plot of the numpy logo



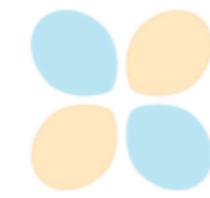
3D voxel / volumetric plot with rgb colors



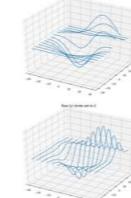
3D voxel / volumetric plot with cylindrical coordinates



3D wireframe plot



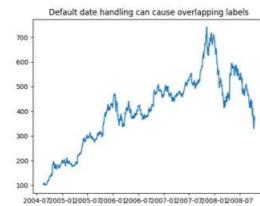
Rotating 3D wireframe plot



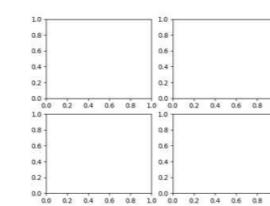
3D wireframe plots in one direction

## Our Favorite Recipes

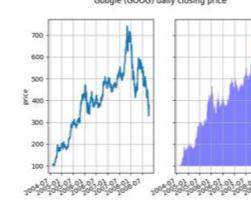
Here is a collection of short tutorials, examples and code snippets that illustrate some of the useful idioms and tricks to make snazzier figures and overcome some matplotlib warts.



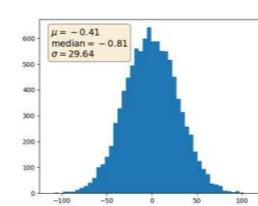
Fixing common date annoyances



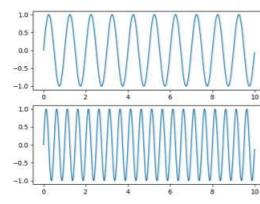
Easily creating subplots



Fill Between and Alpha



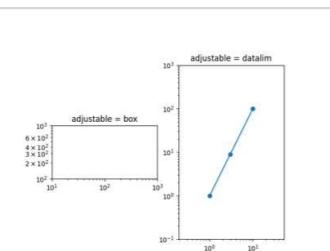
Placing text boxes



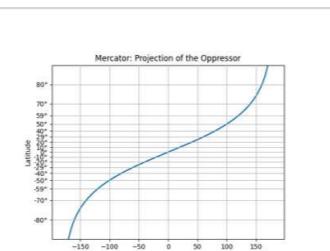
Sharing axis limits

## Scales

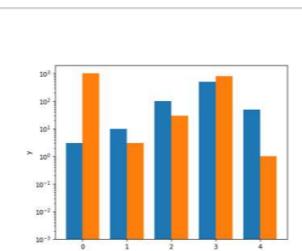
These examples cover how different scales are handled in Matplotlib.



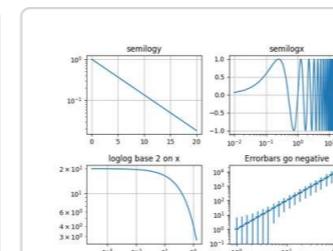
Loglog Aspect



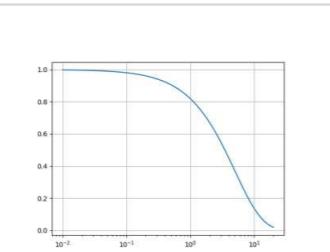
Custom scale



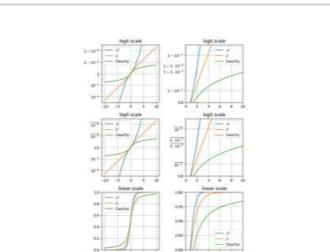
Log Bar



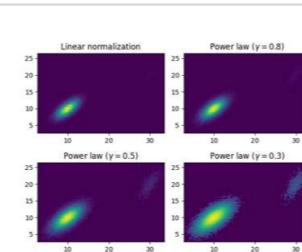
Log Demo



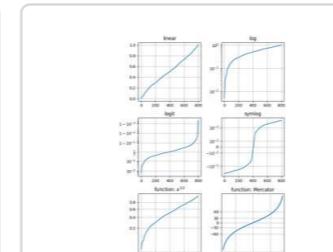
Log Axis



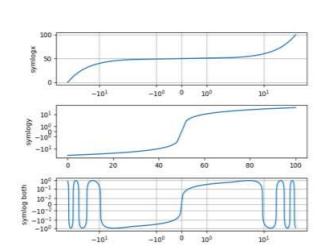
Logit Demo



Exploring  
normalizations

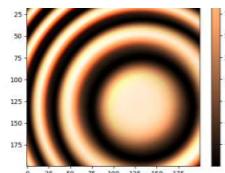


Scales

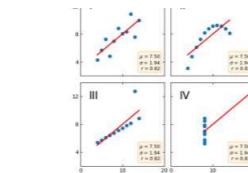


Symlog Demo

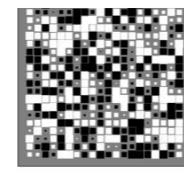
## Specialty Plots



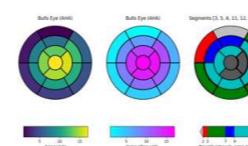
Hillshading



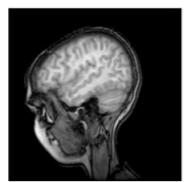
Anscombe's quartet



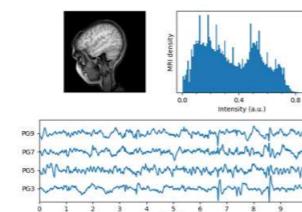
Hinton diagrams



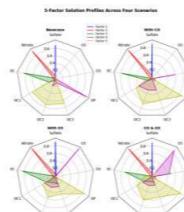
Left ventricle  
bullseye



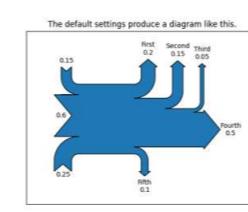
MRI



MRI With EEG



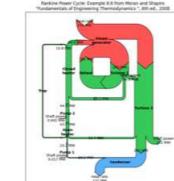
Radar chart (aka  
spider or star chart)



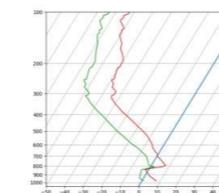
The Sankey class



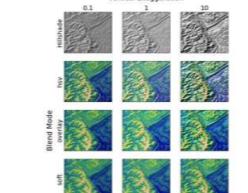
Long chain of  
connections using  
Sankey



Rankine power cycle

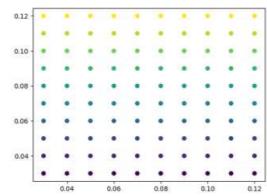


SkewT-logP diagram:  
using transforms and  
custom projections

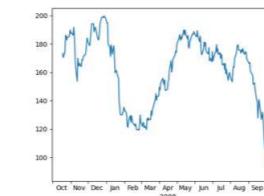


Topographic  
hillshading

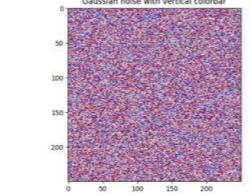
## Ticks and spines



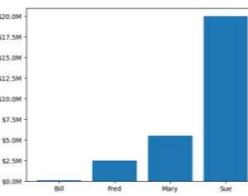
Automatically setting  
tick labels



Centering labels  
between ticks



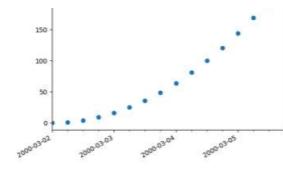
Colorbar Tick  
Labelling Demo



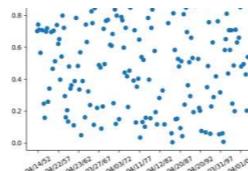
Custom Ticker1



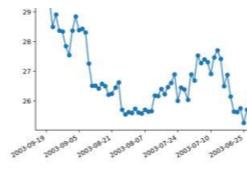
Formatting date ticks  
using  
ConciseDateFormatter



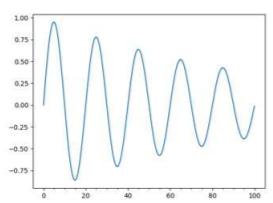
Date Demo Convert



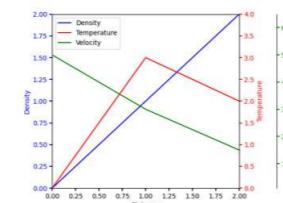
Date Demo Rule



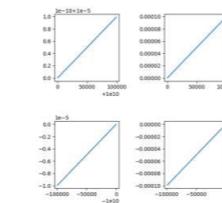
Date Index Formatter



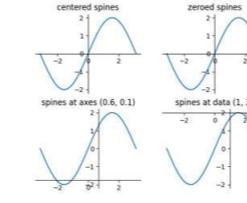
Major and minor ticks



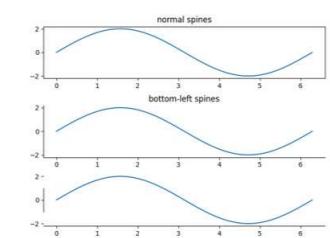
Multiple Yaxis With  
Spines



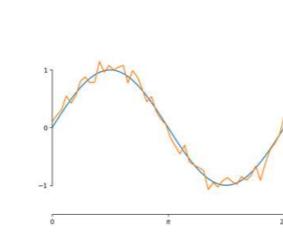
The default tick  
formatter



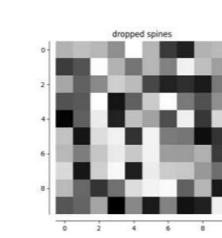
Spine Placement  
Demo



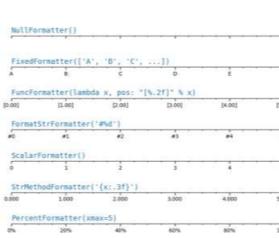
Spines



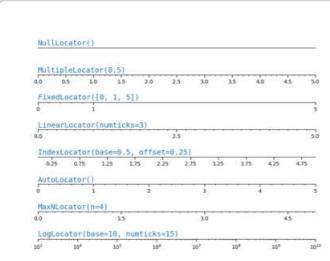
Custom spine  
bounds



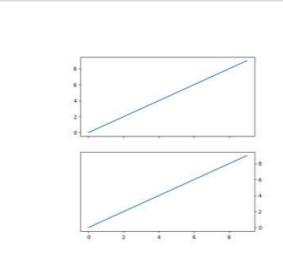
Dropped spines



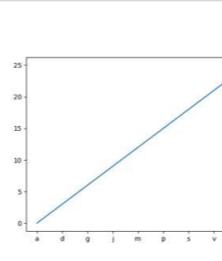
Tick formatters



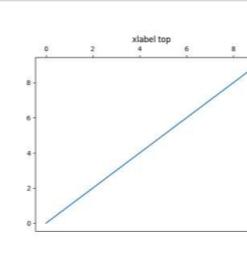
Tick locators



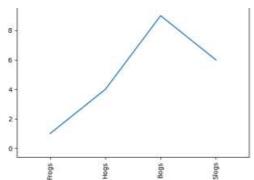
Set default y-axis tick  
labels on the right



Setting tick labels  
from a list of values



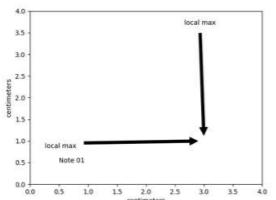
Set default x-axis tick  
labels on the top



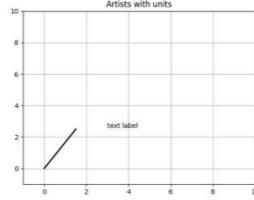
Rotating custom tick  
labels

## Units

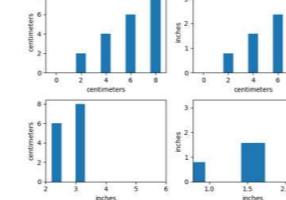
These examples cover the many representations of units in Matplotlib.



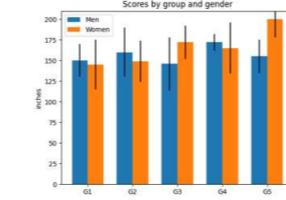
Annotation with units



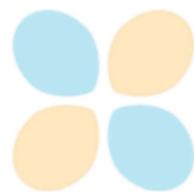
Artist tests



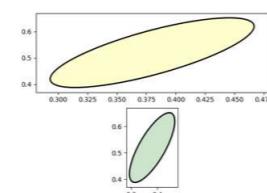
Bar demo with units



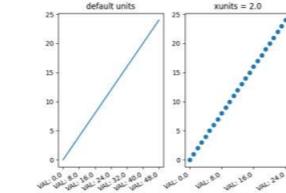
Group barchart with  
units



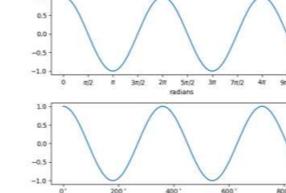
Basic Units



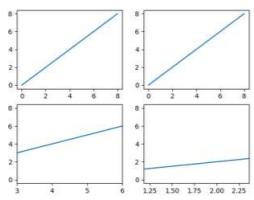
Ellipse With Units



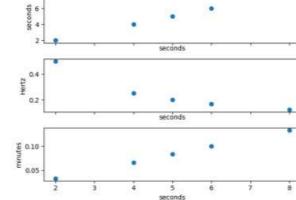
Evans test



Radian ticks



Inches and  
Centimeters

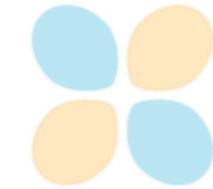


Unit handling

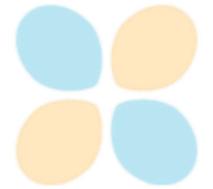
## Embedding Matplotlib in graphical user interfaces

You can embed Matplotlib directly into a user interface application by following the `embedding_in_SOMEGUI.py` examples here. Currently matplotlib supports wxpython, pygtk, tkinter and pyqt4/5.

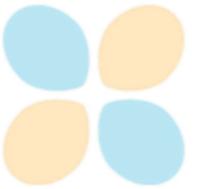
When embedding Matplotlib in a GUI, you must use the Matplotlib API directly rather than the pylab/pyplot procedural interface, so take a look at the `examples/api` directory for some example code working with the API.



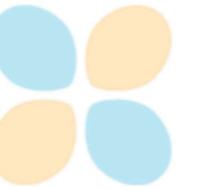
CanvasAgg demo



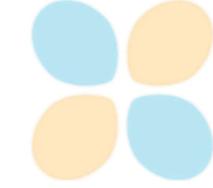
Embedding in GTK3  
with a navigation  
toolbar



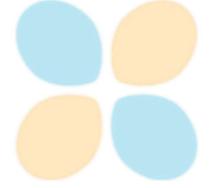
Embedding in GTK3



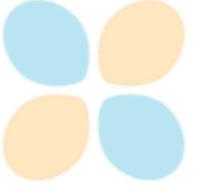
Embedding in Qt



Embedding in Tk



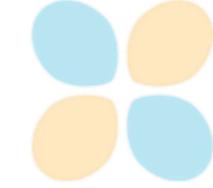
Embedding in wx #2



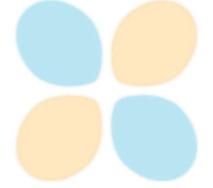
Embedding in wx #3



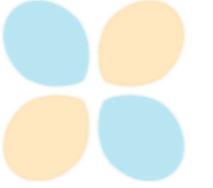
Embedding in wx #4



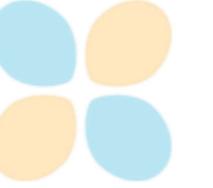
Embedding in wx #5



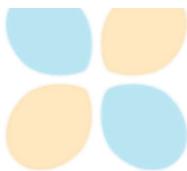
Embedding WebAgg



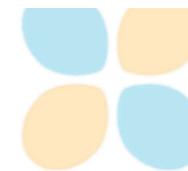
Fourier Demo WX



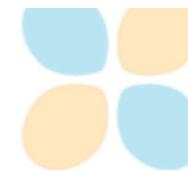
GTK Spreadsheet



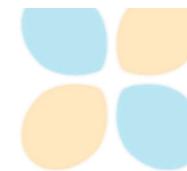
MathText WX



Matplotlib With Glade  
3



pyplot with GTK



SVG Histogram



SVG Tooltip

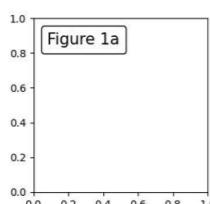


Tool Manager

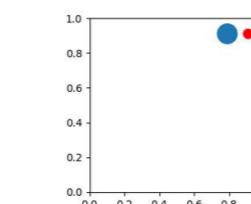


WXCursor Demo

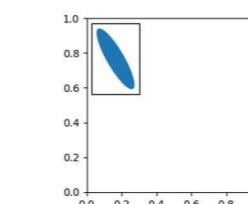
## Userdemo



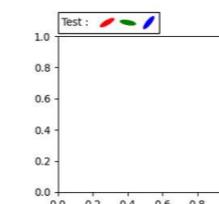
Anchored Box01



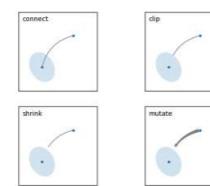
Anchored Box02



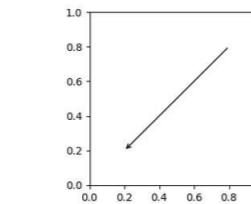
Anchored Box03



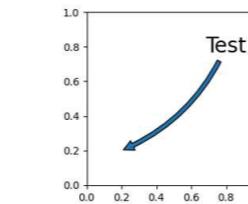
Anchored Box04



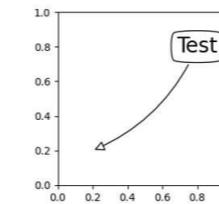
Annotate Explain



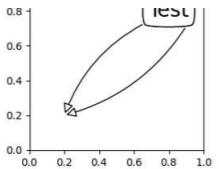
Annotate Simple01



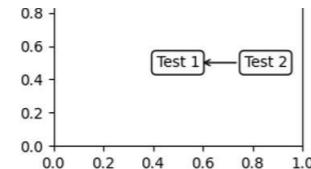
Annotate Simple02



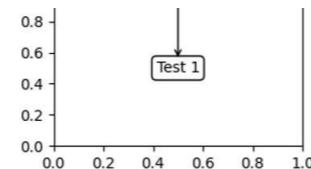
Annotate Simple03



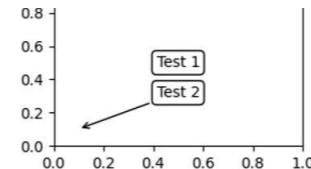
Annotate Simple04



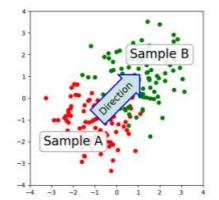
Annotate Simple  
Coord01



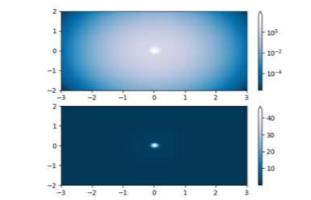
Annotate Simple  
Coord02



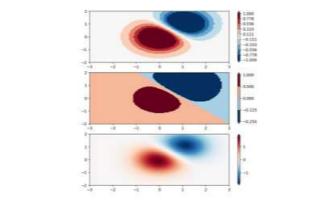
Annotate Simple  
Coord03



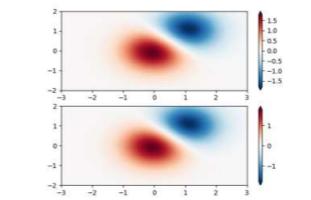
Annotate Text Arrow



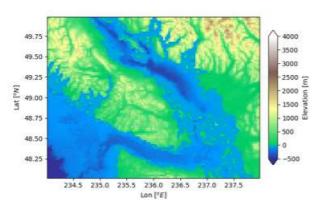
Colormap  
Normalizations



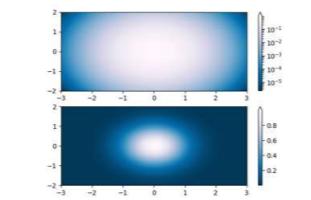
Colormap  
Normalizations  
Bounds



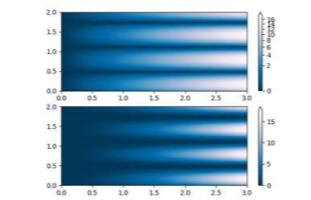
Colormap  
Normalizations  
Custom



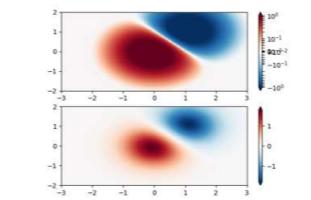
TwoSlopeNorm  
colormap  
normalization



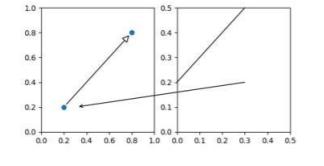
Colormap  
Normalizations  
Lognorm



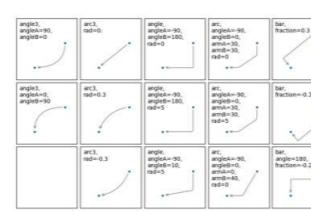
Colormap  
Normalizations  
Power



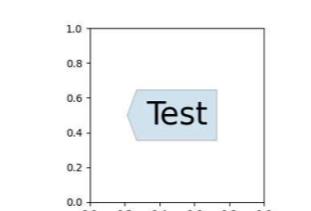
Colormap  
Normalizations  
Symlognorm



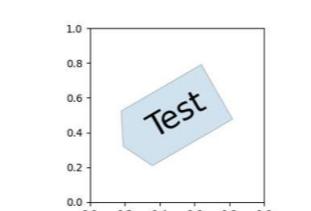
Connect Simple01



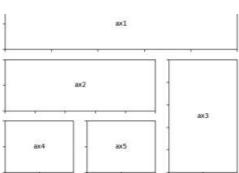
Connectionstyle  
Demo



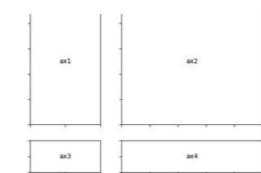
Custom Boxstyle01



Custom Boxstyle02



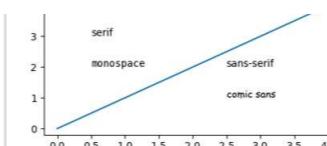
subplot2grid demo



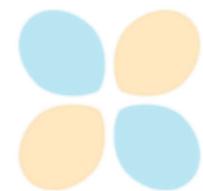
GridSpec demo



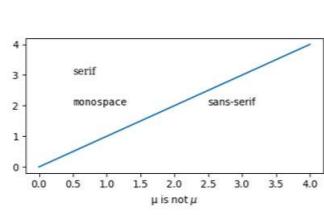
Nested GridSpecs



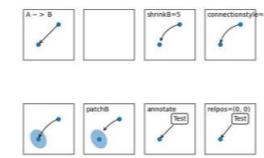
Pgf Fonts



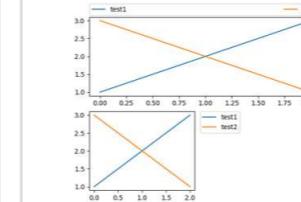
Pgf Preamble



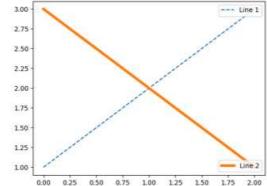
Pgf Texsystem



Simple Annotate01



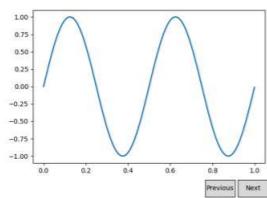
Simple Legend01



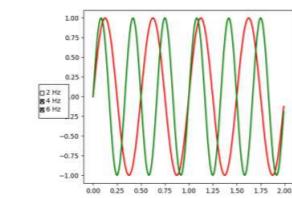
Simple Legend02

## Widgets

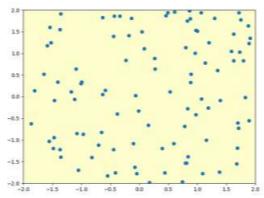
Examples of how to write primitive, but GUI agnostic, widgets in matplotlib



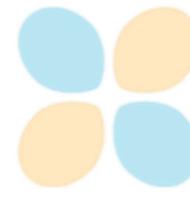
Buttons



Check Buttons



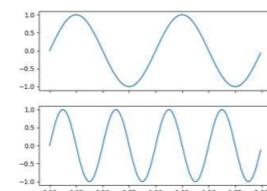
Cursor



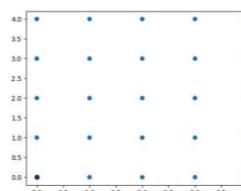
Lasso Selector  
Demo

open  
close  
save  
save as  
quit

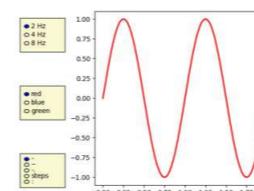
Menu



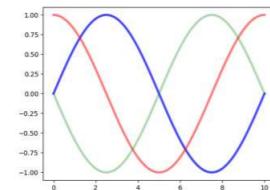
Multicursor



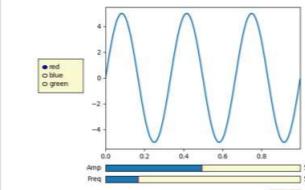
Polygon Selector  
Demo



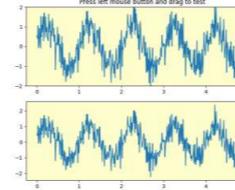
Radio Buttons



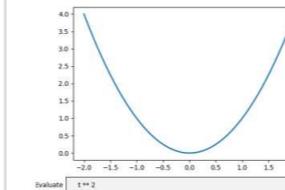
Rectangle Selector



Slider Demo



Span Selector



Textbox

[Download all examples in Python source code: gallery\\_python.zip](#)

[Download all examples in Jupyter notebooks: gallery\\_jupyter.zip](#)