MATLAB Visualization Reference

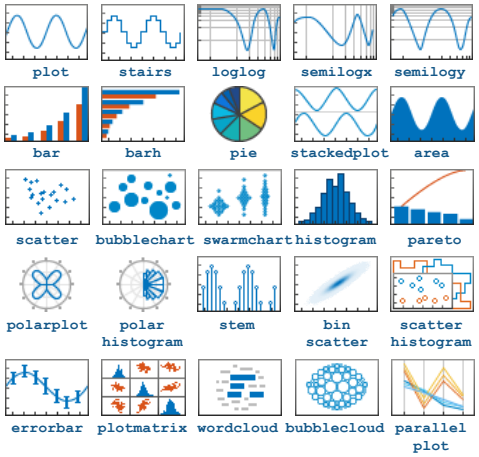
MathWorks
https://www.mathworks.com

Plot Basic

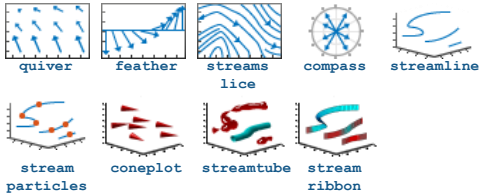
Display plot

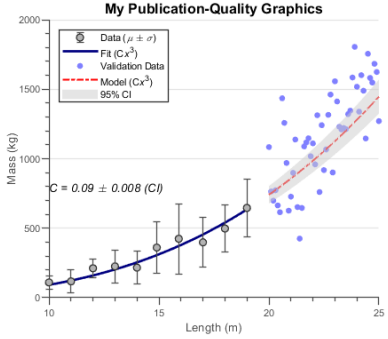
```
>>> figure;
>>> plot(x,y)
```

Types of Plots



Types of Vector Plots





Customizing Plots

Get figure window object or current axes objects

```
>>> fig = gcf
>>> ax = gca
```

Get graphics object (an example)

```
>>> h = plot(x,y)
```

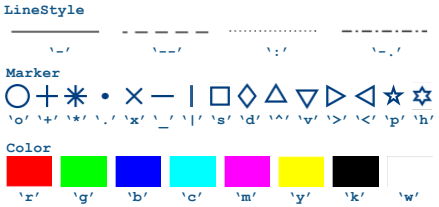
Examples of axes object properties

Set font properties

```
>>> fontname(gcf,'Helvetica')
>>> fontsize(gcf,18,"pixels")
```

Set the color, line width, and marker of the plot

```
>>> h.Color = [0 0 0.5]
>>> h.LineWidth = 1
>>> h.Marker = 'o'
```



Set axes limits

```
>>> xlim([0 10]) % set x-axis limits
>>> axis([0 10 0 100]) % set both x,y axes
```

Set axes ticks

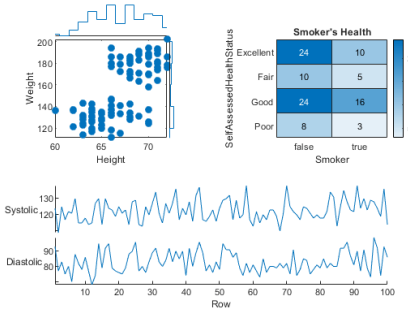
```
>>> xticks(0:1:10) % set ticks 0 to 10 by 1
```

Set the aspect ratio of the axes

```
>>> daspect([1 2 1]) % x:y:z in 1:2:1 ratio
```

Add annotation

```
>>> annotation('textarrow',x,y,'String',text)
```

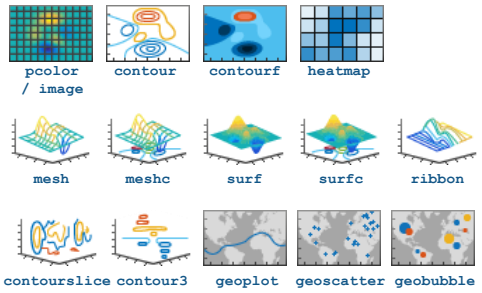


Display Image/2D Data

Display image

```
>>> figure;
>>> image(A)
```

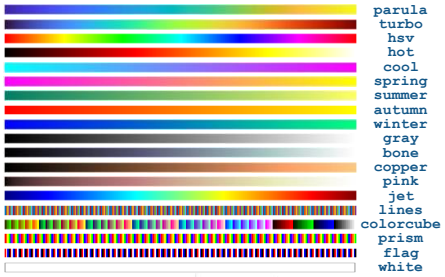
Types of Images

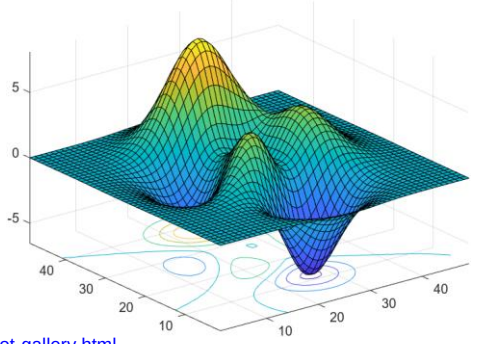


Colormaps

Set colormap

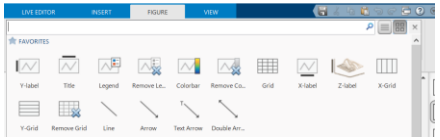
```
>>> colormap(colormapName)
```





GUI Operations

Operation via Live Editor Toolstrip



Operation via Property Inspector

Combining Plots

Overlay plots

```
>>> plot(x1,y1)
>>> hold on
>>> plot(x2,y2)
```

Overlay charts

```
>>> plot(x1,y1)
>>> ax2 = axis([0.7,0.7,0.2,0.2])
>>> plot(x2,y2,'Parent',ax2)
```

Tiled layout of charts (even)

```
>>> tiledlayout('flow')
>>> nexttile; plot(x1,y1)
>>> nexttile; plot(x2,y2)
```

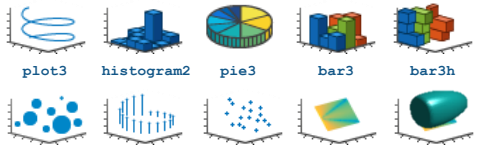
Tiled layout of charts (varied)

```
>>> tiledlayout('flow')
>>> nexttile; plot(x1,y1)
>>> nexttile([2,1]); plot(x2,y2)
>>> nexttile; plot(x3,y3)
```

Chart with two y-axes

```
>>> plot(x,y1)
>>> yyaxis right
>>> plot(x,y2)
```

Types of 3D Plots



MATLAB Plot Gallery: https://www.mathworks.com/products/matlab/plot-gallery.html