# MATLAB programming course for beginners, supported by Wagatsuma Lab@Kyutech

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# Specifications and requirements

1. @Time : 2021-5-26
2. @Author : Hiroaki Wagatsuma
3. @Site : https://github.com/hirowgit/1B1_matlab_signal_analysis_course
4. @IDE : MATLAB R2018a
5. @File : lec2D_A0_lineGen_Normal.m

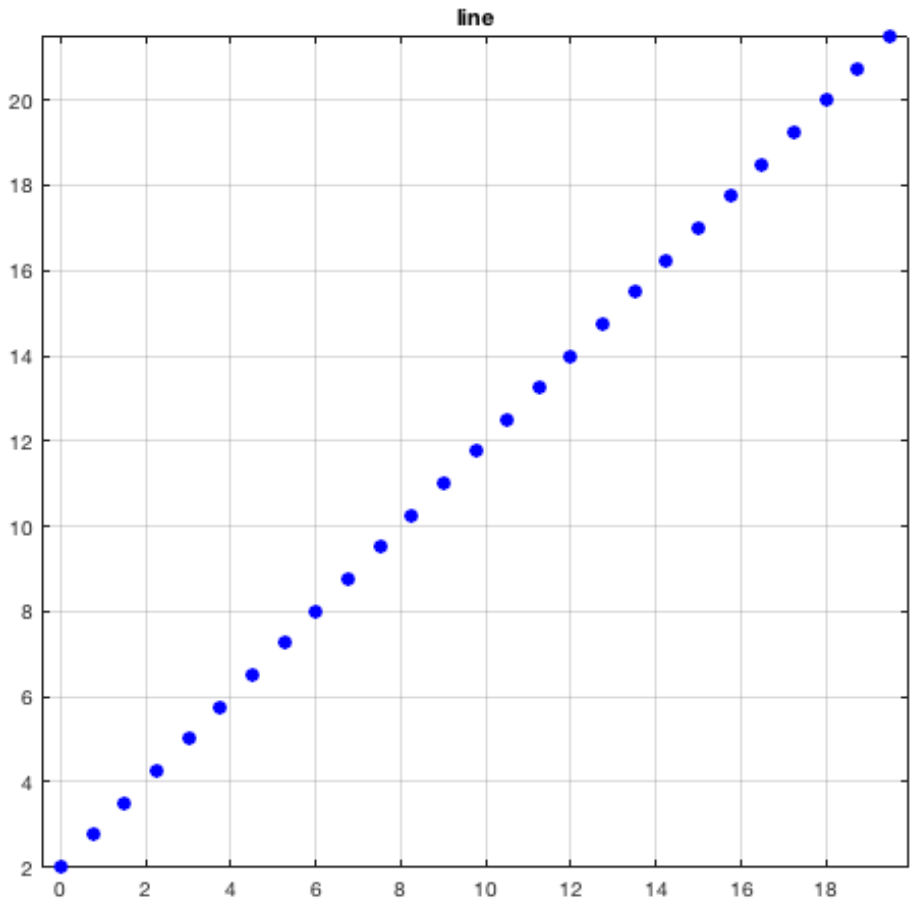
# Main program

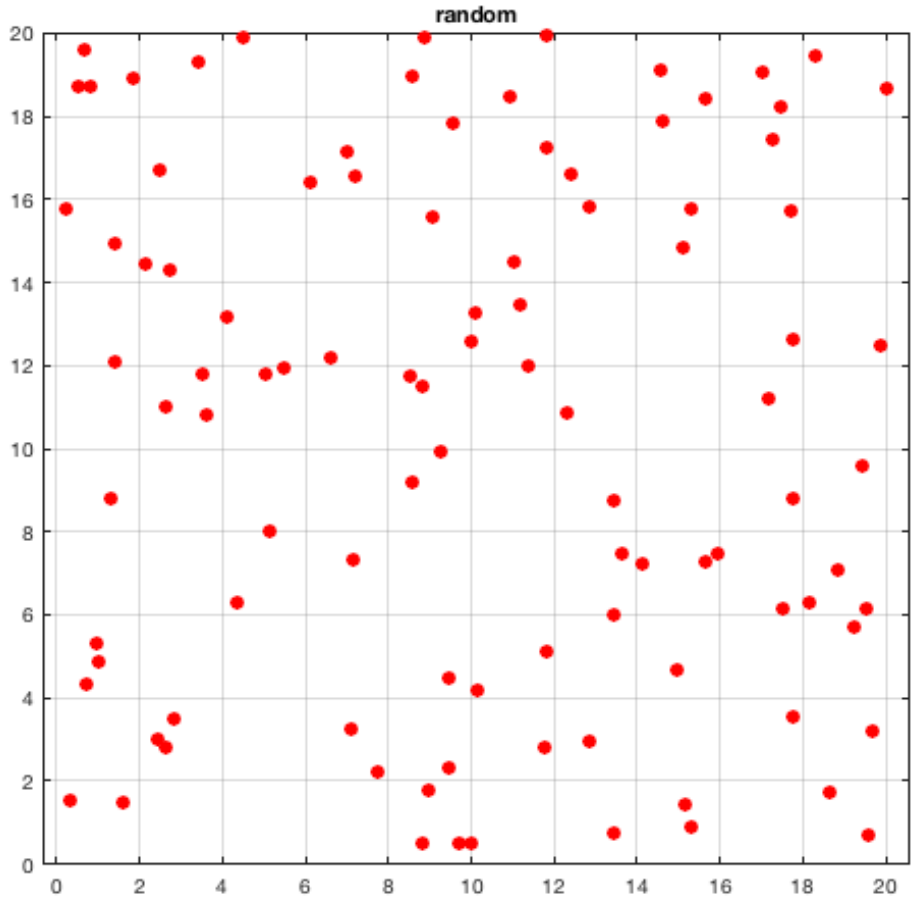
clear all

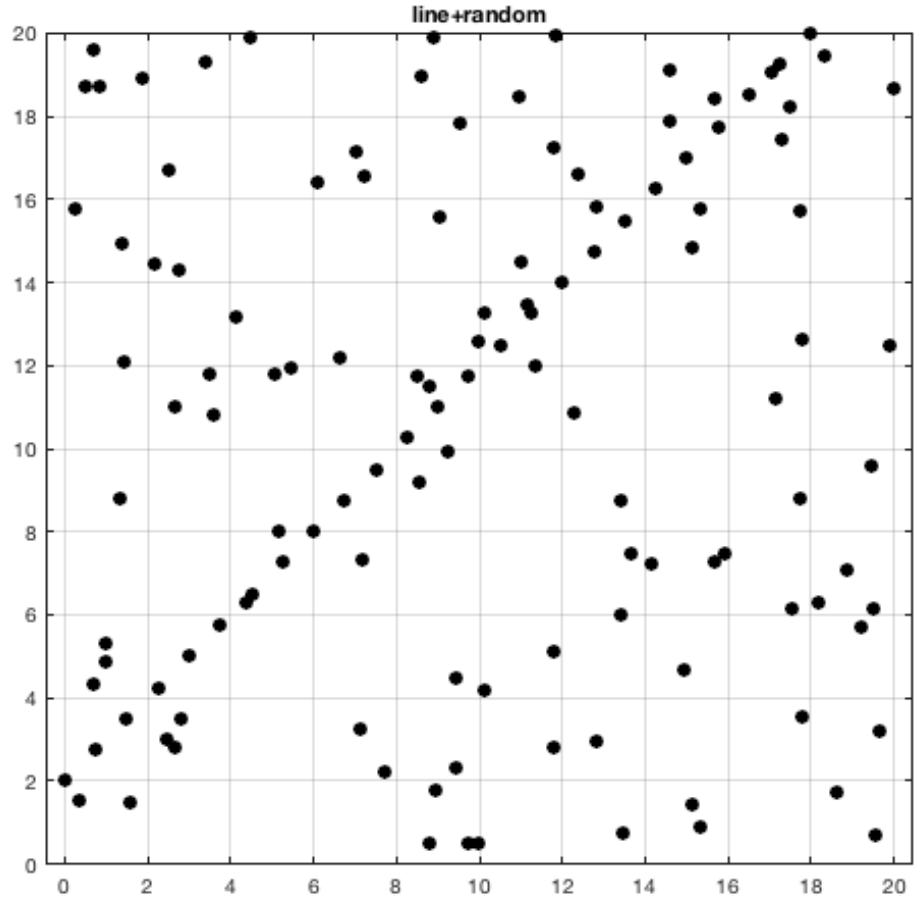
```
a=1; b=2;
% dT=0.25;
dT=0.75;
rdN=100;
```

```
dN=100;
dNs=20;
t=0:pi/dN:pi;
gridP=0:dNs;

rangeXY=[0 20; 0 20]; %[xmin, xmax; ymin, ymax];
labelF={'line','random','line+random','hough trans. for
 line','discrete vote','voting contour map'};
fignum=1;


x=0:dT:rangeXY(1,2);
lgen=@(x) a*x+b;


figure(fignum); clf
set(fignum,'name',labelF{fignum},'Position',[500   920   550   500]);
plot(x,lgen(x),'b.','MarkerSize',24);
title(labelF{fignum});
grid on;
axis equal;
fignum=fignum+1;

rdPos=repmat(diff(rangeXY'),[rdN
 1]).*rand(rdN,2)+repmat(rangeXY(:,1)',[rdN 1]);

figure(fignum); clf
set(fignum,'name',labelF{fignum},'Position',[1050   850   550   500]);

plot(rdPos(:,1),rdPos(:,2),'r.','MarkerSize',24);
set(gca,'xlim',rangeXY(1,:),'ylim',rangeXY(2,:));
title(labelF{fignum});
grid on;
axis equal;
fignum=fignum+1;

mD=[x',lgen(x'); rdPos];
% mD=[x',lgen(x'); ];

figure(fignum); clf
set(fignum,'name',strrep(labelF{fignum},'+','_'),'Position',[1600
 850   550   500]);

plot(mD(:,1),mD(:,2),'k.','MarkerSize',24);
set(gca,'xlim',rangeXY(1,:),'ylim',rangeXY(2,:));
title(labelF{fignum});
grid on;
axis equal;
fignum=fignum+1;



% datafname='pict_res';
```

```
% save_fig;
```




random
0
2
4
6
8
10
12
14
16
18
20




*Published with MATLAB® R2018a*