

```
fig1 = [250 50 250 50 250; 50 250 50 250 50; 250 50 250 50 250; 50 250 50 250 50; 250 50 250 50 250]
```

```
fig1 = 5x5
    250     50    250     50    250
     50    250     50    250     50
    250     50    250     50    250
     50    250     50    250     50
    250     50    250     50    250
```

```
fig1_a = imtranslate(fig1,[2,3])
```

```
fig1_a = 5x5
     0     0     0     0     0
     0     0     0     0     0
     0     0     0     0     0
     0     0   250    50   250
     0     0    50   250    50
```

```
fig1_b = imtranslate(fig1,[0,1])
```

```
fig1_b = 5x5
     0     0     0     0     0
    250    50   250    50   250
     50   250     50   250     50
    250    50   250    50   250
     50   250     50   250     50
```

```
fig1_b1 = imrotate(fig1_b, 30)
```

```
fig1_b1 = 7x7
     0     0     0     0     0     0     0
     0     0     0     0   250     0     0
     0     0   250    50   250    50     0
     0   250    50    50    50   250     0
     0    50   250    50   250   250    50
     0     0   250   250    50     0     0
     0     0    50     0     0     0     0
```

```
fig1_b12 = imresize(fig1_b1, [5,5])
```

```
fig1_b12 = 5x5
    0.6782   -8.9898    7.4368   34.9175   -3.9117
   -7.7658    79.1157   97.4023  163.5189   -7.1897
   48.9655  157.2079   55.0155  178.0102   70.6254
   -4.7559  164.1363  177.8023  161.7296   57.1246
   -5.8865   57.1246   70.6254   -7.0757   -5.8865
```

```
fig1_c = imtranslate(fig1,[2,3])
```

```
fig1_c = 5x5
     0     0     0     0     0
     0     0     0     0     0
     0     0     0     0     0
     0     0   250    50   250
     0     0    50   250    50
```

```
fig1_c1 = imrotate(fig1_c, 30)
```

```
fig1_c1 = 7x7
0      0      0      0      0      0      0
0      0      0      0      0      0      0
0      0      0      0      0      0      0
0      0      0      0      50     250     0
0      0      0      0      250    250     50
0      0      0      0      50     0      0
0      0      0      0      0      0      0
```

```
fig1_c2 = imrotate(fig1_c1, 60)
```

```
fig1_c2 = 10x10
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      50     0      0
0      0      0      0      0      250    250    50     0      0
0      0      0      0      0      50     250    0      0      0
0      0      0      0      0      0      0      50     0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
```

```
fig1_c3 = imrotate(fig1_c2, 90)
```

```
fig1_c3 = 10x10
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      50     50     0      50     0      0      0      0
0      0      0      250    250    0      0      0      0      0
0      0      0      250    50     0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
0      0      0      0      0      0      0      0      0      0
```

```
fig1_c4 = imresize(fig1_c3, [5,5])
```

```
fig1_c4 = 5x5
0.8591  -1.9180  -2.7939   0.9827  -0.0595
-4.7035  90.2397  76.0384  -3.4103  -0.2541
-5.5092  63.4819  36.2679  -3.5385   0.0206
0.4669  -5.6122  -3.3600   0.3021   0
0      0      0      0      0
```

```
%Prepping the image
```

```
img1 = fig1_a;
```

```
%Getting object ready
```

```
hbm = vision.BlockMatcher('ReferenceFrameSource',...
    'Input port','BlockSize',[5 5]);
```

```
hbm.OutputValue = 'Horizontal and vertical components in complex form';
halphablend = vision.AlphaBlender;
```

```

%Prepping comparison image
img2 = fig1;

%Calculate motion
motion = hbm(img1,img2);

%Merge images
img13 = halphablend(img2,img1);

%Show and plot motion
[X,Y] = meshgrid(1:35:size(img1,2),1:35:size(img1,1));
img13

```

```

img13 = 5x5
    62.5000    12.5000    62.5000    12.5000    62.5000
    12.5000    62.5000    12.5000    62.5000    12.5000
    62.5000    12.5000    62.5000    12.5000    62.5000
    12.5000    62.5000   200.0000   100.0000   200.0000
    62.5000    12.5000   100.0000   200.0000   100.0000

```

```

hold on
quiver(X(:),Y(:),real(motion(:)),imag(motion(:)),0)
hold off

%Prepping the image
img1 = fig1_b12;

%Getting object ready
hbm = vision.BlockMatcher('ReferenceFrameSource',...
    'Input port','BlockSize',[5 5]);

hbm.OutputValue = 'Horizontal and vertical components in complex form';
halphablend = vision.AlphaBlender;

%Prepping comparison image
img2 = fig1;

%Calculate motion
motion = hbm(img1,img2);

%Merge images
img14 = halphablend(img2,img1);

%Show and plot motion
[X,Y] = meshgrid(1:35:size(img1,2),1:35:size(img1,1));
img14

```

```

img14 = 5x5
    63.0086     5.7576    68.0776    38.6882    59.5662
     6.6756   121.8368    85.5517   185.1392     7.1077
    99.2241   130.4059   103.7617   146.0077   115.4691
     8.9331   185.6022   145.8517   183.7972    55.3434
    58.0851    55.3434   115.4691     7.1932    58.0851

```

```

hold on
quiver(X(:),Y(:),real(motion(:)),imag(motion(:)),0)
hold off

%Prepping the image
img1 = fig1_c4;

%Getting object ready
hbm = vision.BlockMatcher('ReferenceFrameSource',...
    'Input port','BlockSize',[5 5]);

hbm.OutputValue = 'Horizontal and vertical components in complex form';
halphablend = vision.AlphaBlender;

%Prepping comparison image
img2 = fig1;

%Calculate motion
motion = hbm(img1,img2);

%Merge images
img15 = halphablend(img2,img1);

%Show and plot motion
[X,Y] = meshgrid(1:35:size(img1,2),1:35:size(img1,1));
img15

```

```

img15 = 5x5
    63.1443    11.0615    60.4046    13.2370    62.4554
     8.9724   130.1798    69.5288    59.9422    12.3095
    58.3681    60.1114    89.7009     9.8461    62.5154
    12.8502    58.2909     9.9800    62.7266    12.5000
    62.5000    12.5000    62.5000    12.5000    62.5000

```

```

hold on
quiver(X(:),Y(:),real(motion(:)),imag(motion(:)),0)
hold off

```

