Zebrafish Detection Demonstration

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```
%Parameters
backDif    = 25; %Background difference
noiseSize  = 5;  %Size of particles to keep
medFiltRad = 15; %Radius to evaluate median filter
skelSize   = 20; %Size to evaluate skeleton
```

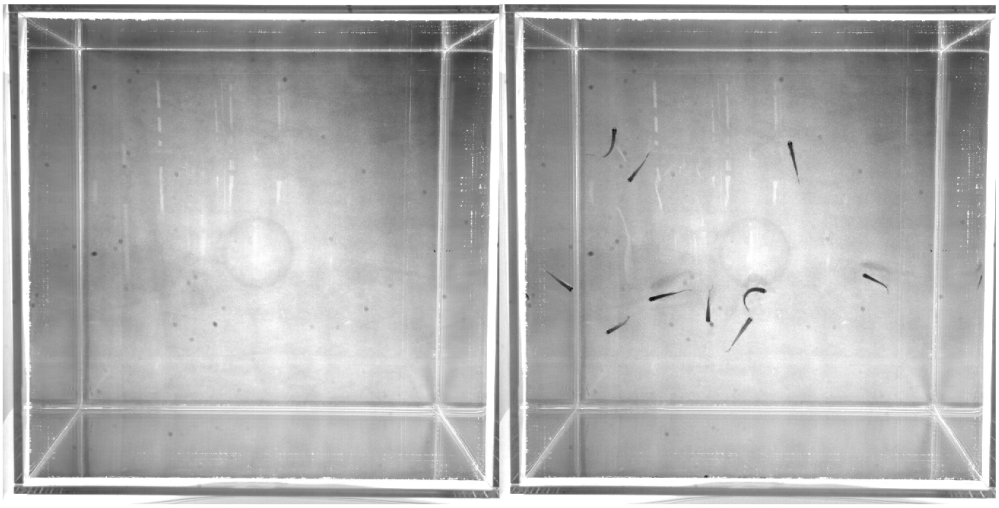
Import Image

```
image = imread('Data/example2.jpg');
background = imread('Data/backGround.jpg');
```

Show Background & Image

```
imshowpair(background,image,'montage');
```

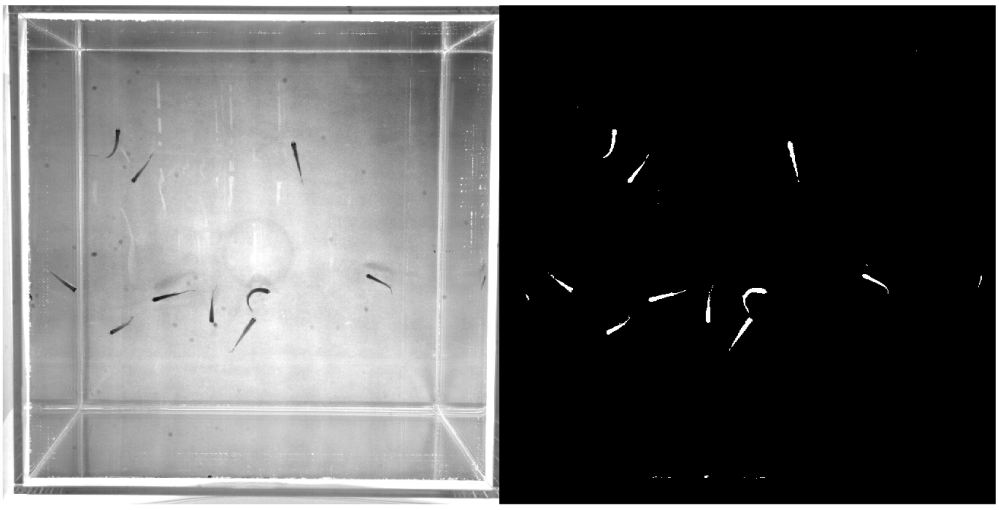
Warning: Image is too big to fit on screen; displaying at 33%



Subtract Background & Fill holes

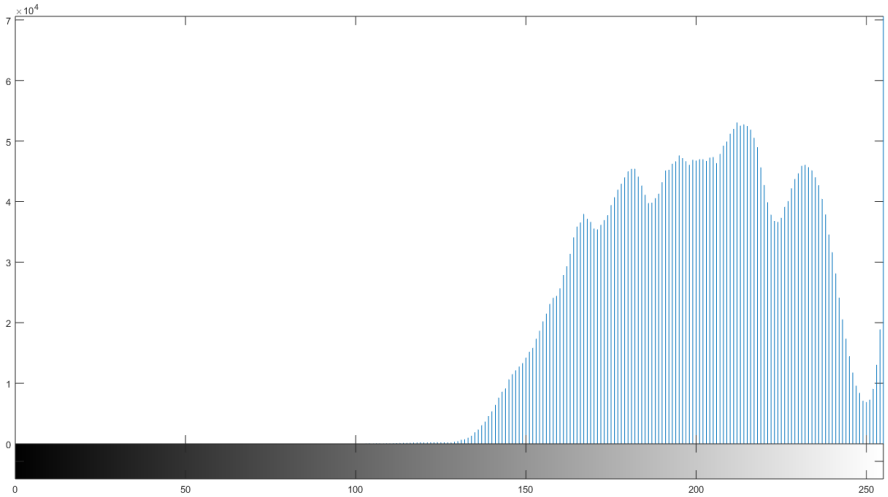
```
image1 = background(:,:) - image(:,:) > backDif;
image2 = imfill(image1,'holes');
imshowpair(image,image2,'montage');
```

Warning: Image is too big to fit on screen; displaying at 33%



Show a histogram of subtracted image contents

```
imhist(image);
```

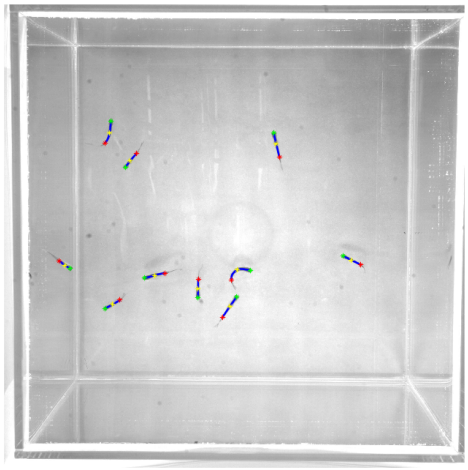


Remove Small Objects

```
image3 = bwareaopen(image2,noiseSize);
imshowpair(image2,image3,'montage');
image4 = medfilt2(image3,[medFiltRad,medFiltRad]);
imshowpair(image3,image4,'montage');
```

Mark Out Skeleton

```
[ske, r] = skeleton(image4);
imshow(r);
mainske = bwmorph(ske > skelSize, 'thin', inf);
imshow(mainske);
[d, ep, jp] = skeanalysis(mainske);
imshow(image); hold on;
skemark(mainske, ske, ep, jp, r);
```



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