

# Project: Applying Optical Flow to Detect Moving Objects

In this problem, you will:

- Use the Farneback method to calculate the optical flow vectors between the frames and save them as a variable named `flow`.
- Create a mask including only pixels with an optical flow vector magnitude above 1. Save the result as a variable named `mask`.
- Use image processing to update `mask` to remove regions with an area below 500 pixels.
- Use image processing to morphologically close `mask` with a structuring element of type "disk" and size 20.

```
frame1 = imread("Rt9Frame1.png");
frame2 = imread("Rt9Frame2.png");
montage({frame2,frame1})
```



```
%Calculating the optical flow vector between frame1 & frame2
```

```
myOpticalFlow = opticalFlowFarneback;
estimateFlow(myOpticalFlow,im2gray(frame1));
flow = estimateFlow(myOpticalFlow,im2gray(frame2));
% myOpticalFlow stores the previous frame
```

```
%Just to see
```

```
imshow(frame2)
hold on
plot(flow,"DecimationFactor",[15 15],"ScaleFactor",7)
hold off
```



```
%Creating Mask with optical flow magnitude 1+
```

```
vm = flow.Magnitude;
maskThreshold = 1.0;
mask = (vm(:, :) > maskThreshold);
%image processing

se = strel("disk", 20, 0);
mask = bwareafilt(mask, [500, inf]);
mask = imclose(mask, se);

% Uncomment below to view your optical flow vectors on your masked image
maskedFrame = frame2; maskedFrame(repmat(~mask, [1 1 3])) = 0;
imshow(frame2)
hold on
plot(flow, "DecimationFactor", [15 15], "ScaleFactor", 7)
hold off
```



```
figure  
imshow(maskedFrame)
```

