

Report #1: Extract Auto patches and HOGs

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Crowd Abnormality Images

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Description of Experiment

Listing 1 shows the part of code to extract patches and compute HOG with ihog.
Kmeans size is 10, resize patch dimensions is 30 px.

Listing 1: extract automatic abnormal patches and HoGs

```

resize_dim = 30;
kmeans_size = 10;

5 [ patch_table ] = extract_raw_patches_auto( annotation_xml_file, false );

HOG_features = [];
HOG_Index = [];
HOG_feats = [];

10 fprintf(1,'Claculate HoG Fetures (image count %d) current: ',size (patch_table,1));
for img_no=1:size (patch_table,1)
    img = imread(patch_table{img_no,1});
    rect= patch_table{img_no,2};
15 for pachth_no=1:size(rect,1)
    pactch = imresize(imcrop(img, rect(pacth_no,:)), [resize_dim resize_dim]);
    pactch = im2double(pactch);
    feat = features(pactch, 8);
    featureVector = invertHOG(feat);
20 featureVector = reshape(featureVector, 1, numel(featureVector));
    HOG_Index = [HOG_Index ; cellstr(patch_table{img_no,1}), rect(pacth_no,:)];
    HOG_features = [HOG_features ; featureVector];
    HOG_feats = [HOG_feats ; reshape(feat,1,numel(feat))];
    end
25 reverseStr = repmat(sprintf('\b'), 1, length(num2str(img_no-1)));
    fprintf(1,strcat(reverseStr,'%d'),img_no);
end
fprintf ('\n');

30 hog_size = size(feat,3);
feat_size = size(feat);

[labels] = kmeans(HOG_features,kmeans_size);

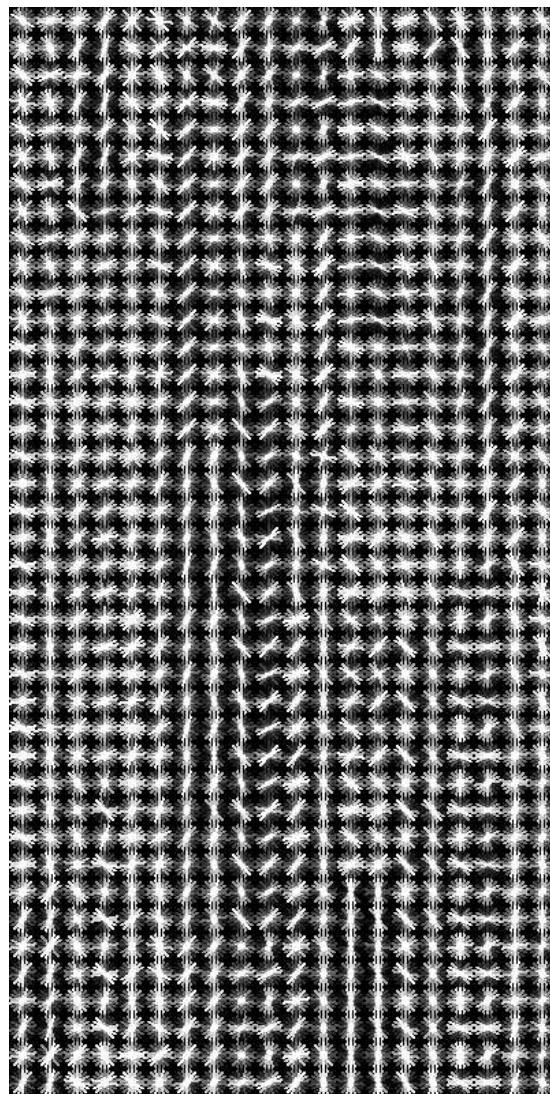
```

Along the 10 clusters, I've selected two clusters No1 and No4 to visualise. Both of them are included around 300 samples out of 3400 extracted patches.

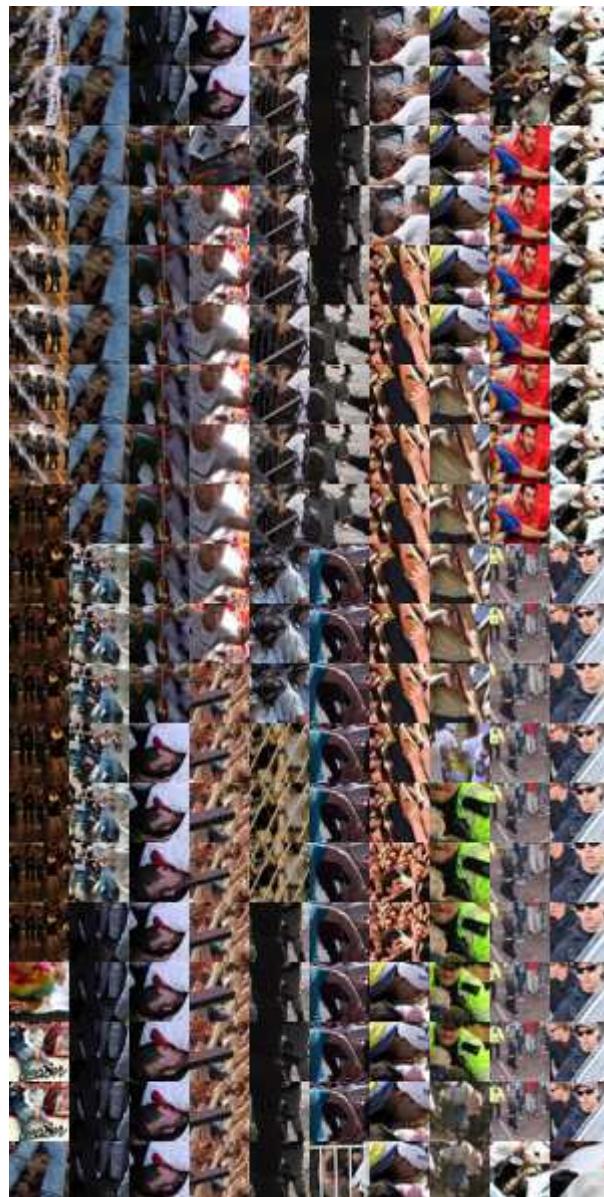
Patches in Cluster #1



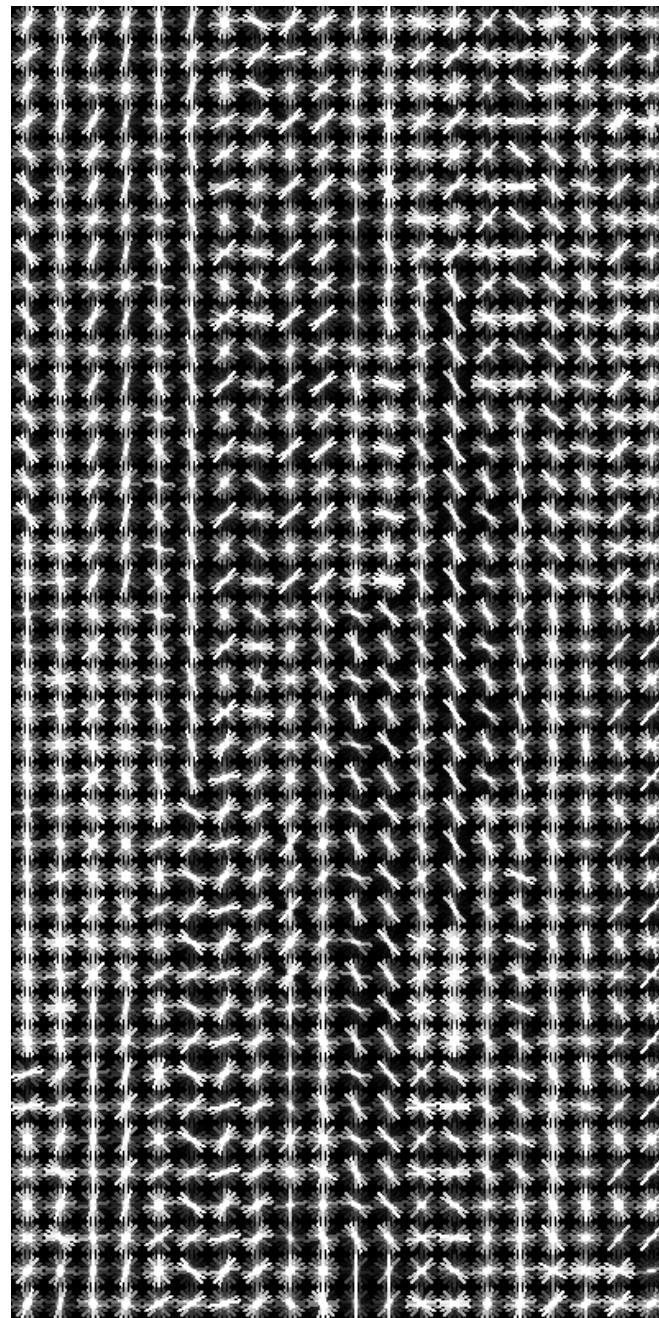
HoG in Cluster #1



Patches in Cluster #4



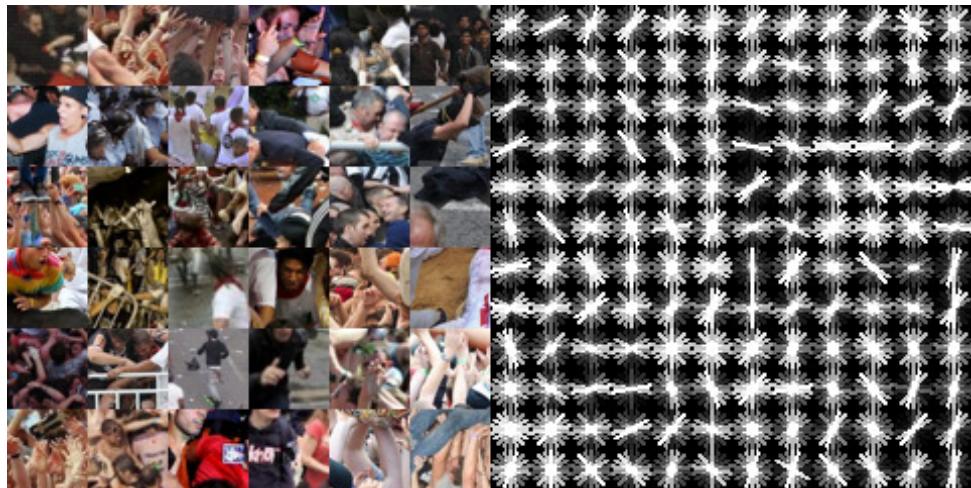
HoGs in Cluster #4



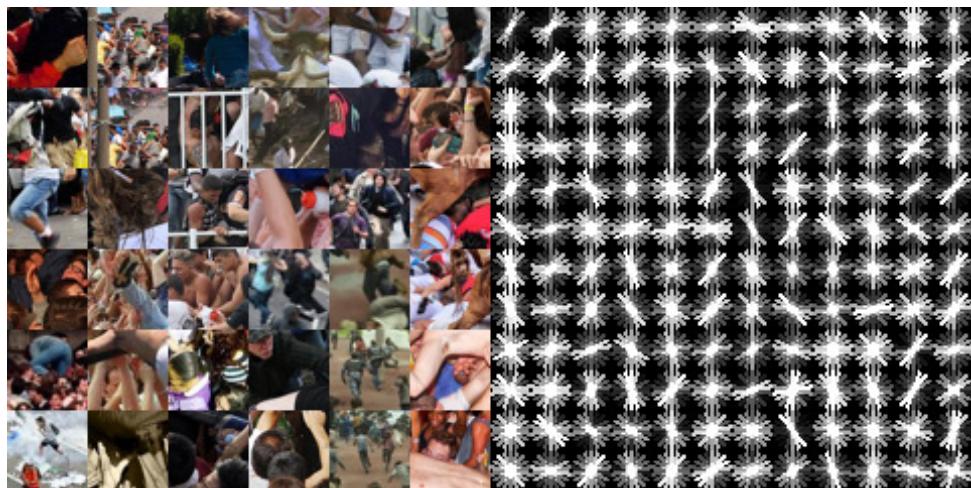
Update- Single patch 30px

Single patches per cluster (10 Clusters):

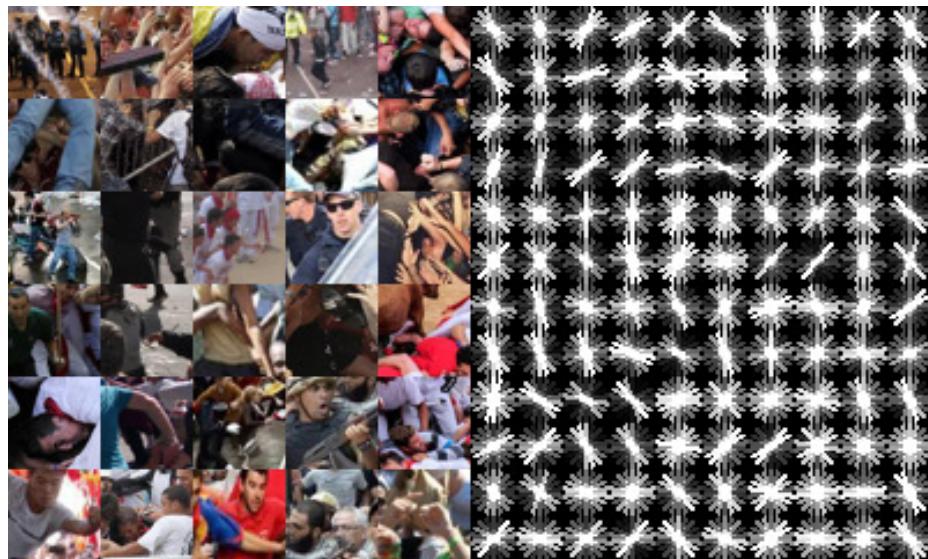
Patches in Cluster #1



Patches in Cluster #2



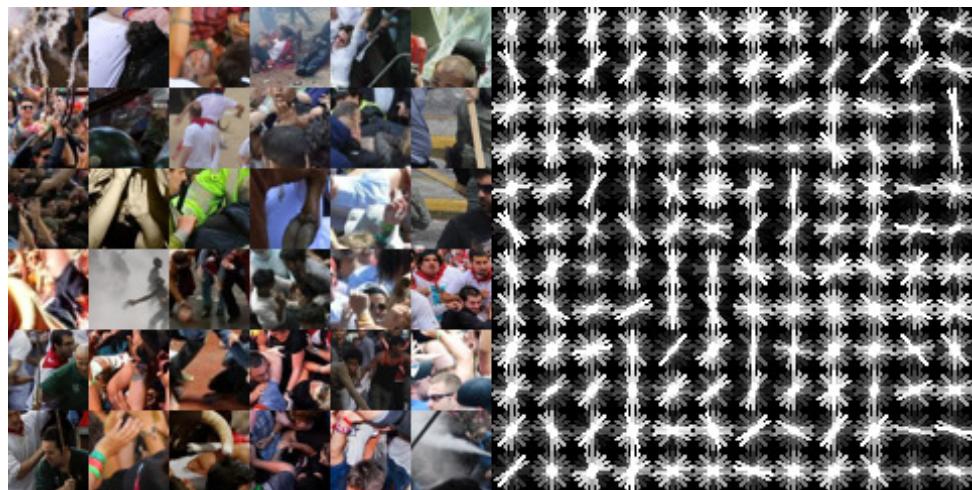
Patches in Cluster #3



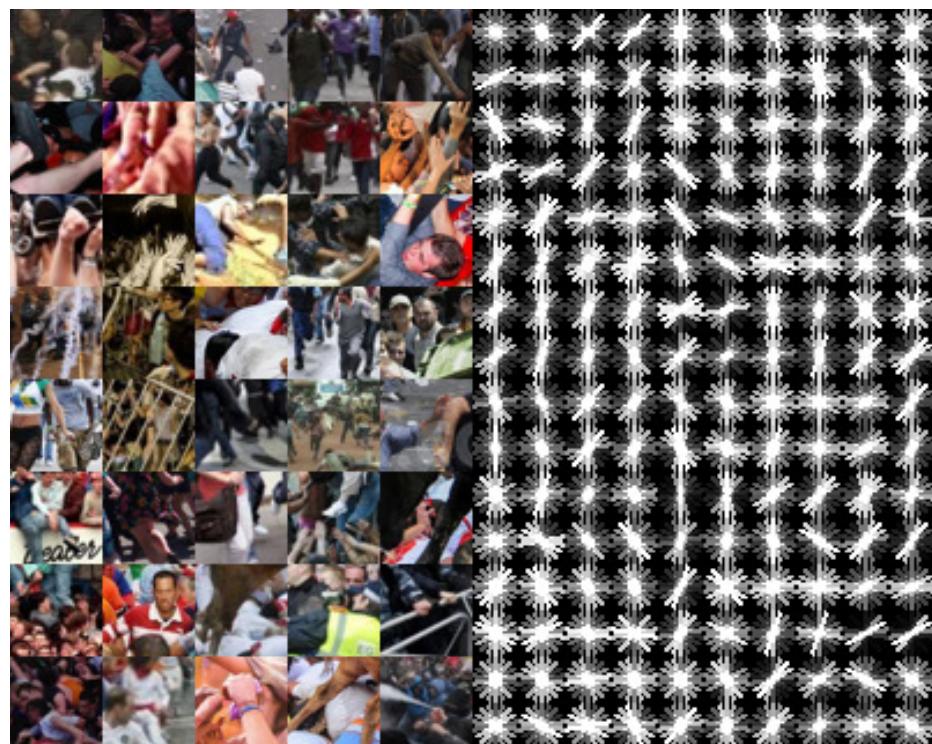
Patches in Cluster #4



Patches in Cluster #5



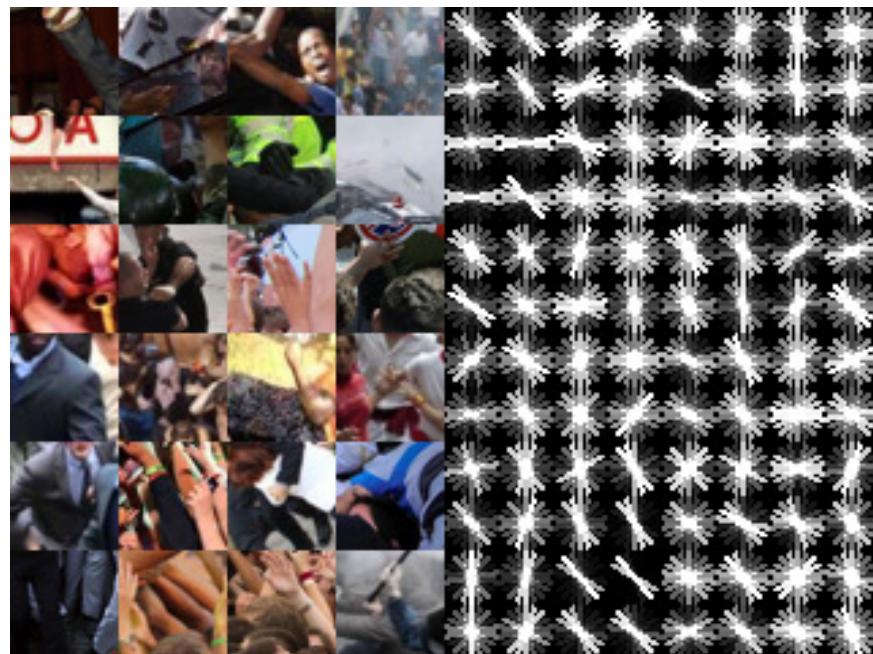
Patches in Cluster #6



Patches in Cluster #7



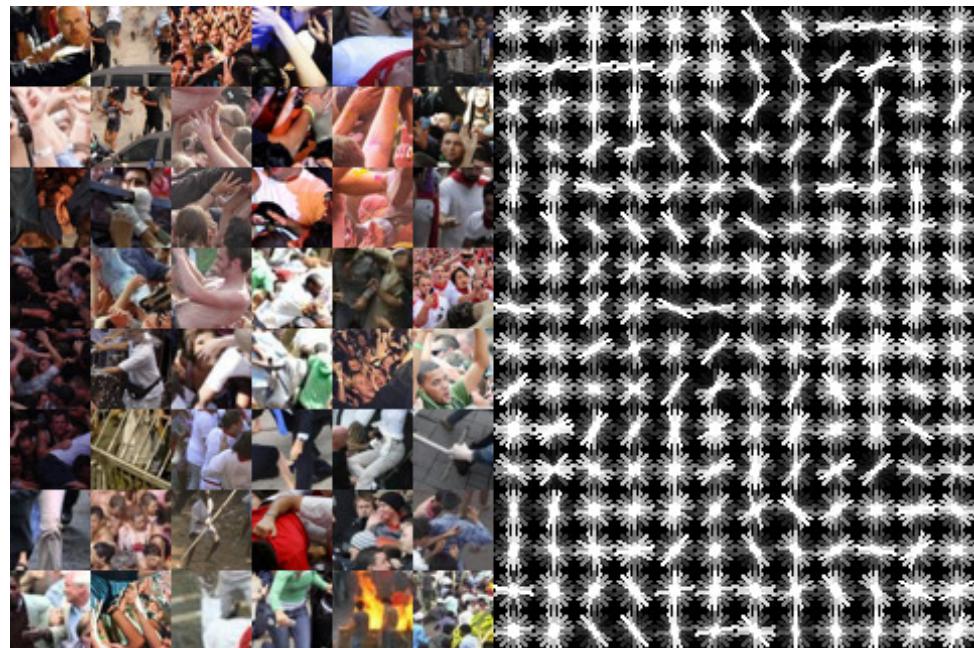
Patches in Cluster #8



Patches in Cluster #9



Patches in Cluster #10



Update- Single patch 55px

We choose bigger size on patches, to get higher resolution on HOGs. Single patches per cluster (10 Clusters):

Patches in Cluster #1



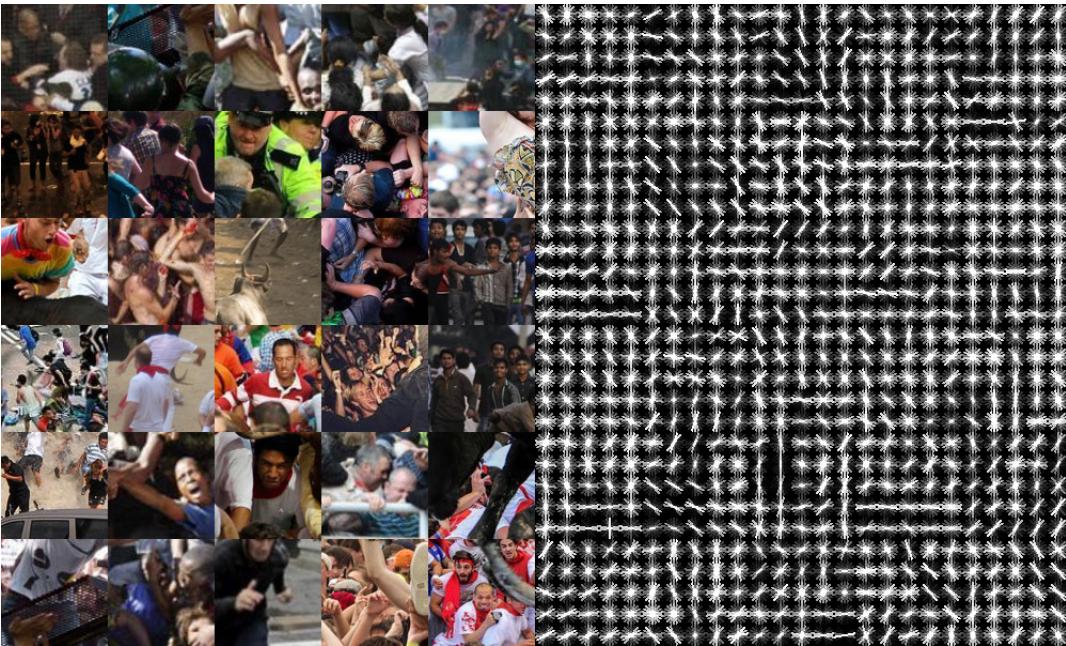
Patches in Cluster #2



Patches in Cluster #3



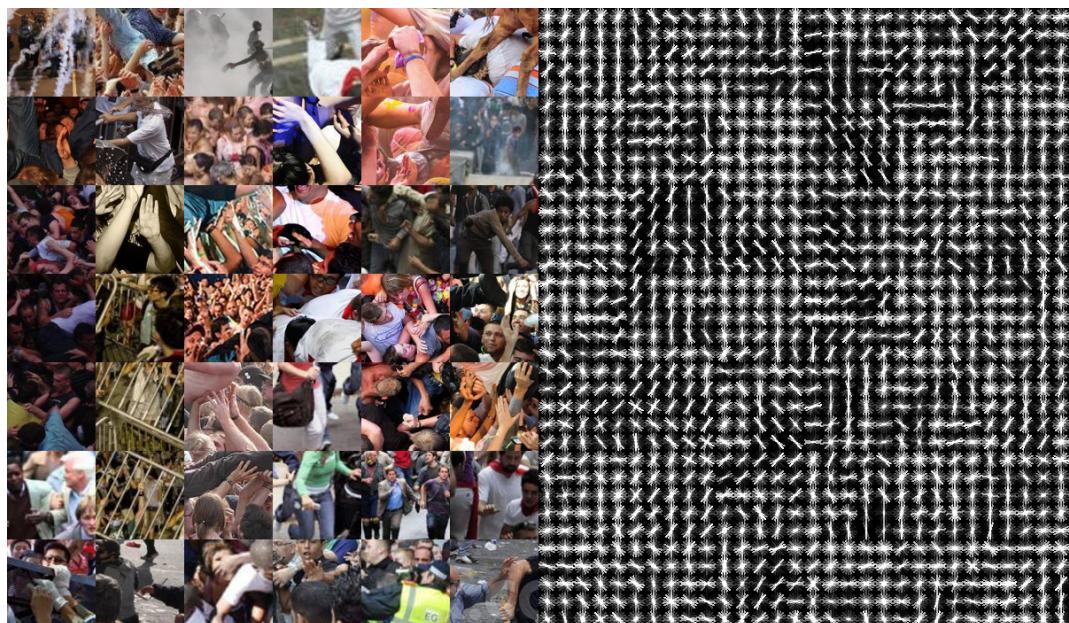
Patches in Cluster #4



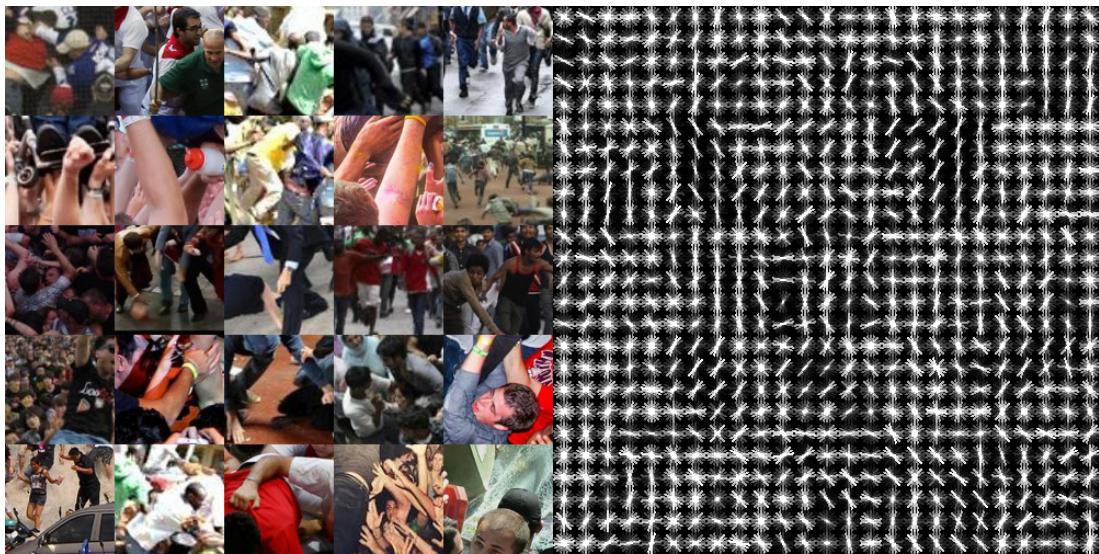
Patches in Cluster #5



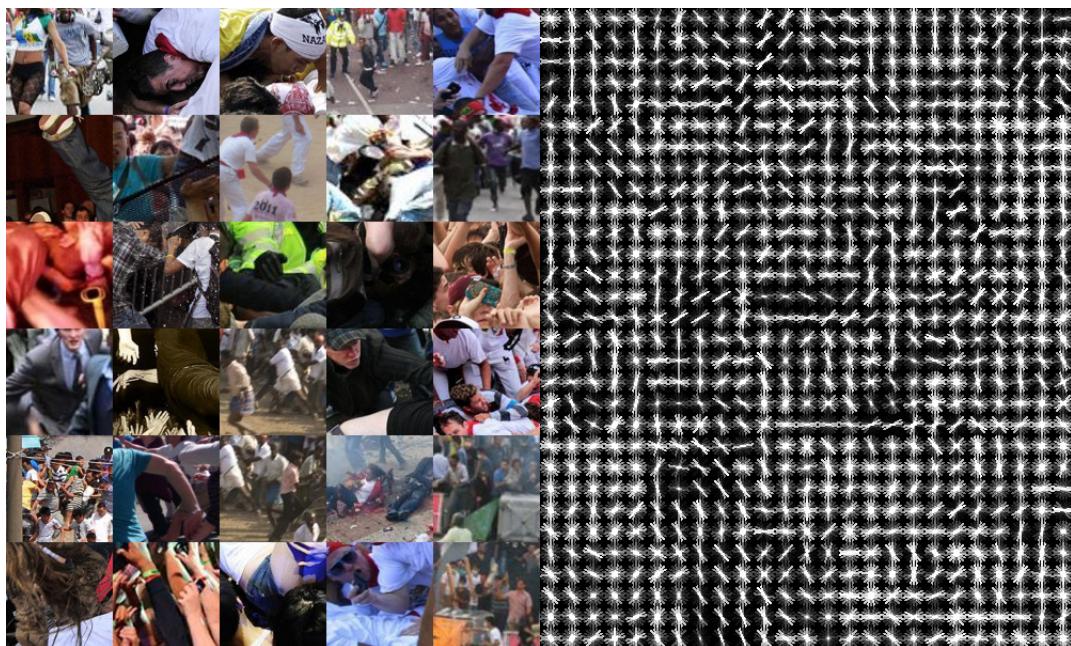
Patches in Cluster #6



Patches in Cluster #7



Patches in Cluster #8



Patches in Cluster #9



Patches in Cluster #10

