Report #1: Extract Auto patches and HOGs

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Crowd Abnormality Images

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Description

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;


[ patch_table ] = extract_raw_patchs_auto( annotation_xml_file, false );

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

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};
    for pacth_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);
        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
    reverseStr = repmat(sprintf('\b'), 1, length(num2str(img_no-1)));
    fprintf(1,strcat(reverseStr,'%d'),img_no);
end
fprintf('\n');

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

[lables] = kmeans(HOG_features,kmeans_size);
```
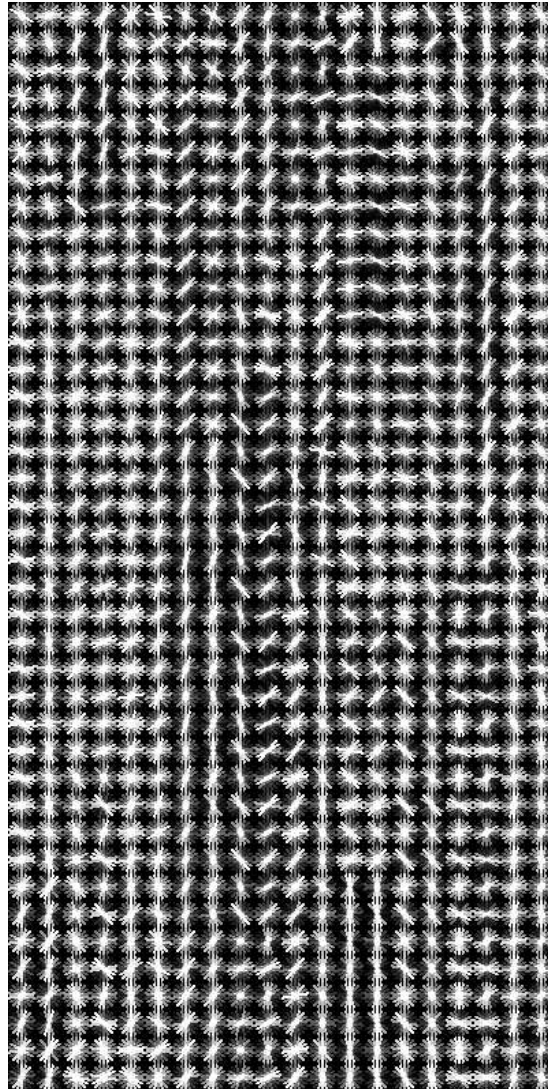
Along the 10 clusters, I've selected two clusters No1 and No4 to visualise. Both of them are included around 300 samples out of 3400 extracted patches.
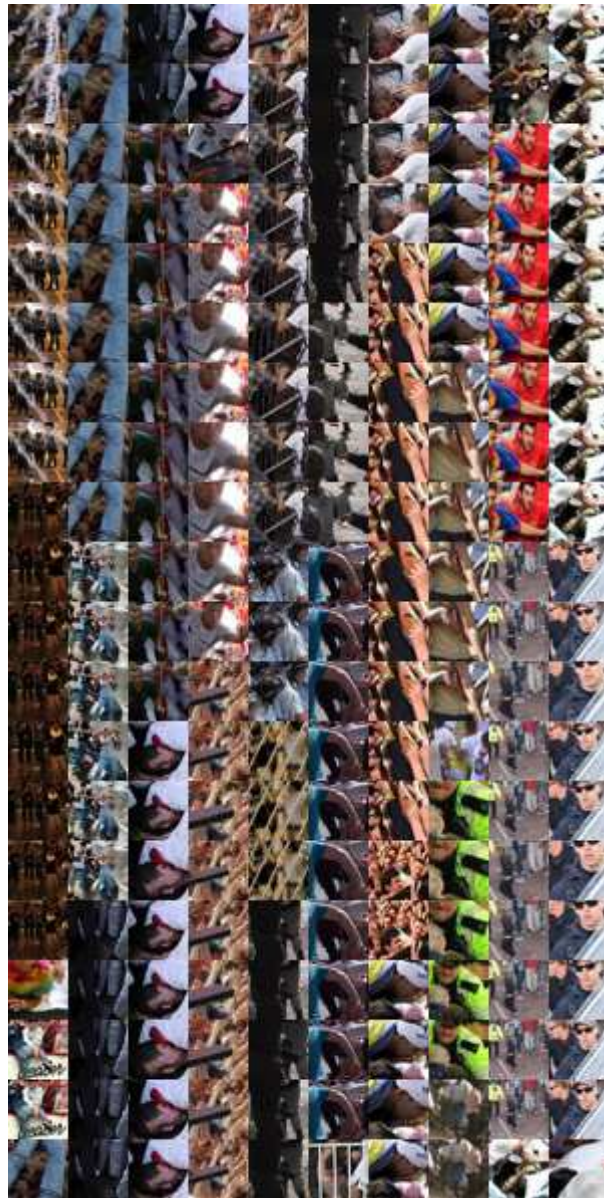
Patches in Cluster #1

HoG in Cluster #1

Patches in Cluster #4

HoGs in Cluster #4