# **Class Diagram**

# Camerainput

- + frames:vector<cv::Mat>
- + videoframe:cv::Mat
- + hogfeaturevector:cv::Mat
- + HOGextract() + capturevideo():vector<cv::Mat>
- + getfeaturevector():cv::Mat
- + ~ HOGextract()

### Humandetection

- svmmodel : cv::ml::SVM - modellocation : string
- + Humandetection()
- + loadmodel() : cv::ml::SVM
- + detecthuman():vector<vector<double>>
- + drawboxes():cv::Mat + ~Humandetection()

#### **SVMtrain**

- + labels:vector<int>
- negimagesdir:string
- posimagesdir:stringparams:map<string,double>
- + savedmodellocation:string
- + SVMtrain()
- + loadposimages():vector<double>
  + loadnegimages():vector<double>
- + setparams():void
- + trainingclassifier():string
- + plotresults():void + ~SVMtrain()

# **Activity Diagram** User inputs location of destination Load trained SVM model No while camera is on Yes Load each frame of video Create HOG features Use SVM model to detect humans No √f human detected >





