# Change Log

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| --- | --- | --- | --- |
| Date | Version | Description | Person |
| 23-06-2013 | 0.1 | Initial Document | Zane Bloom |
| 23-06-2013 | 0.1.1 | Added Pipeline Image Processing | Zane Bloom |
| 24-06-2013 | 0.1.2 | Added Image PreProcessing Filter | Zane Bloom |
| 24-06-2013 | 0.1.3 | Added Image FaceDetect Filter | Heelin Mistry |

# Functional Requirements

## Pipeline attachments

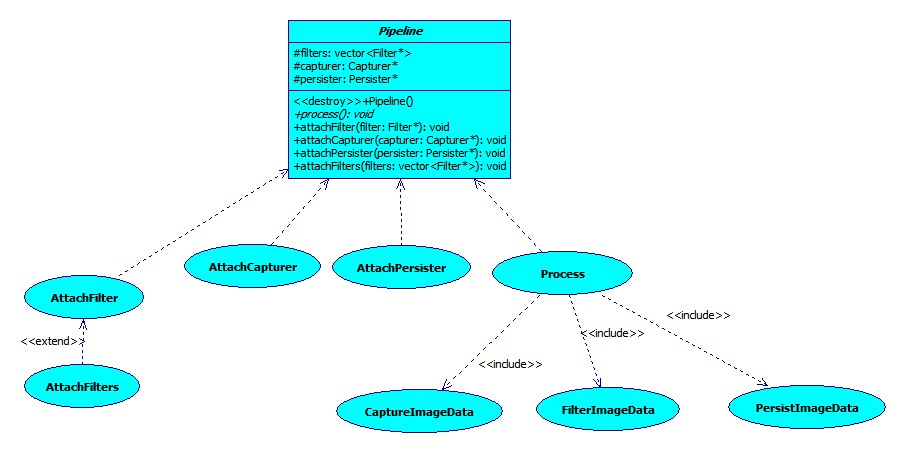
The user must be able to attach a Capturer, Persister and zero to many Filters to the pipeline.

## Pipeline Image Processing

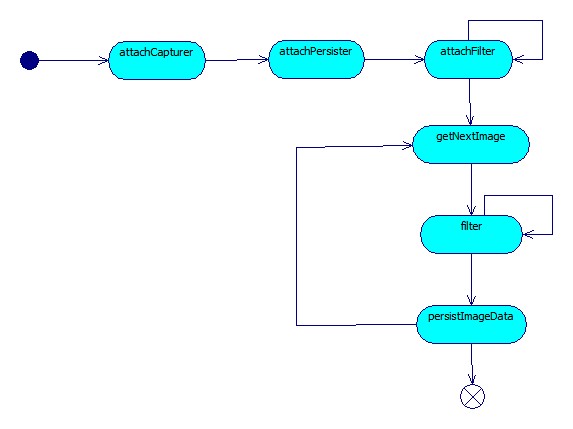
The pipeline must capture an image from a camera, push the image through the attached filters and persist the image and its data for reference later on.

### Service ContractG:\University\2014\COS 301\Main Project\Documents\UML Pictures\PipelineClass.jpg

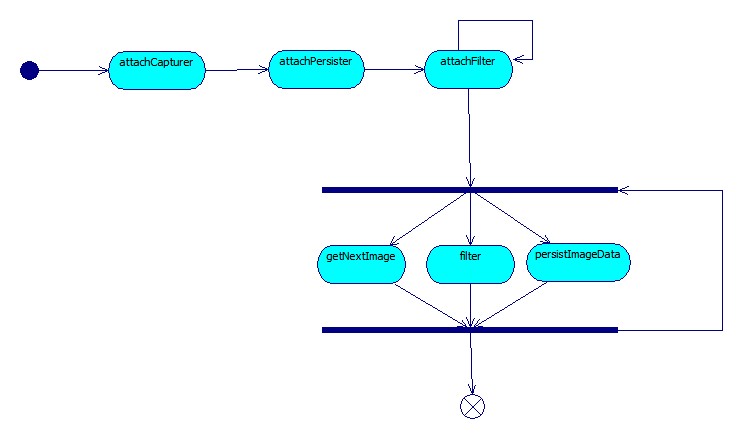
### Functional Use Case



### Sequential Pipeline Process Specification

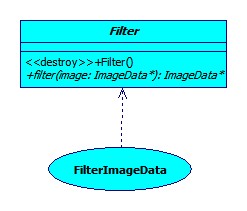


### Parallel Pipeline Process Specification

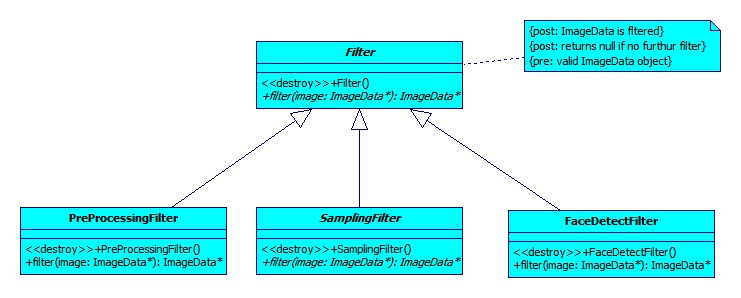


## Filtering an Image

### Functional Use Case



### Service Contract

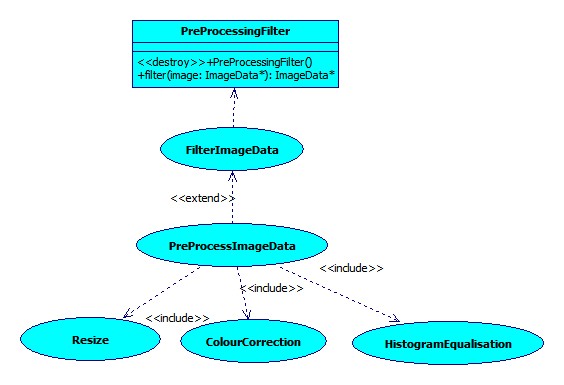


## PreProcessing an Image

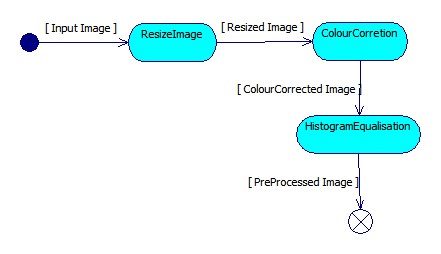
An image has to be pre-processed to ensure better facial recognition quality. Image pre-processing includes:

* Resizing the images to the same size. Images have to be the same dimensions in order to use them for facial recognition.
* Correcting the colour of the image. Images must be made greyscale as colour images are more susceptible to lighting conditions.
* Histogram equalisation of the image. This includes standardizing the brightness and contrast of the image.

### Functional Use Case



### Image PreProcessing Process Specification



## FaceDetectFilter

The FaceDetectFilter will be applied to a specific frame. Image FaceDetectFilter includes:

* Identify all faces within a frame.
* Crop facial images and add them to face vector for further processing. FaceDetectFilter attachments

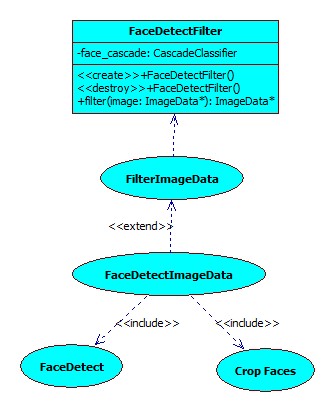
## FaceDetectFilter attachments

The filter must accept a valid location for the HaarCascading xml file.

## FaceDetectFilter processing

This filter must capture faces from an image, push the facial images through the attached filters.

## Functional Use Case



### Image FaceDetect Specification

### E:\Users\Mistry\Documents\GitHub\Andrologists2014\Documents\UML Pictures\FaceDetectActivity.jpgProcess