Introduction to the

**Haar Classifiers**

**Haar Cascades**

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A Haar classifier, or a Haar cascade classifier, is a machine learning object detection program that identifies objects in an image and video. (So, Haar Cascades is ML classifier to detect and identifies objects in an image).

It’s important to remember that this algorithm requires a lot of **positive images of faces** and **negative images of non-faces** to train the classifier, like other machine learning models.

Haar cascades are one of many algorithms that are currently being used for object detection. Implementing this into code is surprisingly easy using OpenCV’s Cascade Classifier function.

References:

[Haar Cascades](https://medium.com/analytics-vidhya/haar-cascades-explained-38210e57970d)

[OpenCV Haar Cascades](https://pyimagesearch.com/2021/04/12/opencv-haar-cascades/)

[Python | Haar Cascades for Object Detection](https://www.geeksforgeeks.org/python-haar-cascades-for-object-detection/#:~:text=The%20haar%20cascade%20files%20can%20be%20downloaded%20from,to%20detect%20whatever%20type%20of%20object%20you%20want.)

[Haar Cascades Github](https://github.com/opencv/opencv/tree/4.x/data)

[Creating a haar cascade classifier aka haar training](http://opencvuser.blogspot.com/2011/08/creating-haar-cascade-classifier-aka.html)

[Tutorial: OpenCV haartraining (Rapid Object Detection With A Cascade of Boosted Classifiers Based on Haar-like Features)](http://note.sonots.com/SciSoftware/haartraining.html)

* **Create your own Haar Cascade XML file to for object detection**

[Guide to make Custom Haar Cascade XML file for Object detection with OpenCV](https://medium.com/@vipulgote4/guide-to-make-custom-haar-cascade-xml-file-for-object-detection-with-opencv-6932e22c3f0e) (Very important link, try to download [Cascade-Trainer-GUI](https://amin-ahmadi.com/cascade-trainer-gui/)and install it fir further work)

* With my apologies about the Haar Cascade explanation in the class here is more detail on it.