

# VISION WITH OF

Add Vision to your Apps

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EmbeddedLance

## HAAR FEATURES

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- "A general framework for object detection", Papageorgiou et al, 1998
- "Rapid object detection using a boosted cascade of simple features", Viola and Jones, 2001
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## Detection Method

- Adjacent rectangular regions at a specific location in a detection window
- Sum up pixel intensities in each region
- Calculate difference between these sums
- Compare this difference with a learned threshold
- Categorize subsections of image based on this difference



- Single Haar-Like Feature is slightly better than random guessing
- Classifier Cascade
- Key advantage: Calculation Speed



How to train Haar Cascades

- [OpenCV](#)
- [Nao Toshi](#)



## Download Trained Cascades

- [OpenCV](#)
- [Alejandro F. Reimondo](#)
- [Face Features](#)

CODE

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- setup
- findHaarObjects

YOU CAN NOW DETECT OBJECTS USING A HAAR FINDER :)