<table>
<thead>
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<th>Title</th>
<th>Face detection and recognition for DoCaRo</th>
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<tr>
<td>Author(s)</td>
<td>Liu, Yiying</td>
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DoCaRo is designed to provide services in a home environment. In order to manage face-to-face interaction with human beings, the ability to detect and recognize human faces is crucial.

**Face detection: find a face!**
- by using adaptive boosted cascade of haarr-like feature

The figure below shows the Haar-like features used. If the difference between the light and dark region is above a threshold, that feature is said to be present.

1. Edge features
   - (a)
   - (b)
   - (c)
   - (d)

2. Line features
   - (a)
   - (b)
   - (c)
   - (d)
   - (e)
   - (f)
   - (g)
   - (h)

3. Center-surround features
   - (a)
   - (b)

The classifier cascade is a chain of filters.

**Face recognition: recognize the person!**
- by using Eigenface and Principle Component Analysis method

**PROCEDURE OF FACE RECOGNITION**

1. Feature extraction
2. Feature vector projection
3. Distance computation
4. Classification

**System performance**

**Detection:**
- reduce false detection
- increase detection rate for rotated faces

**Recognition:** reduce false recognition

**Further improvement**

**Project Title:** Face Detection and Recognition for DoCaRo

**Supervisor:** Prof Er Meng Joo