

# 22437 - Industrial Vision

## Final Exercise: Identifying number of pieces on a chess board

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### 1 Introduction

Computer vision techniques can be used for recognizing shapes or objects. A useful application could be to automatically identify the moves of pieces that have occurred on a chessboard from snapshots taken after each move, and thus automatically record the entire game.

### 2 Description of Work

The work to be done in this practice consists of developing only a preliminary part of the application suggested in the previous section. It is about making a script in matlab, using the techniques learned throughout the course, that is capable of performing the following actions **on each image**:

- Show the grid (grid delimiting the 64 squares)
- Count the number of white pieces on black square and show their location on the image (inside the grid).
- Count the number of black pieces and show their location on the image (inside the grid).

The way to show the location of the pieces will be drawing the grid and putting a white object in the corresponding box. The shape of this object does not matter; it only serves to identify that there is a piece.

### 3 Validation

Any technique learnt during the course can be used to write your solution, or even any other one that you find appropriate. Your code must work correctly on all the images supplied of your corresponding folder. **Solutions including code for specific images will not be accepted**, as well as, solutions suspected of being copied.

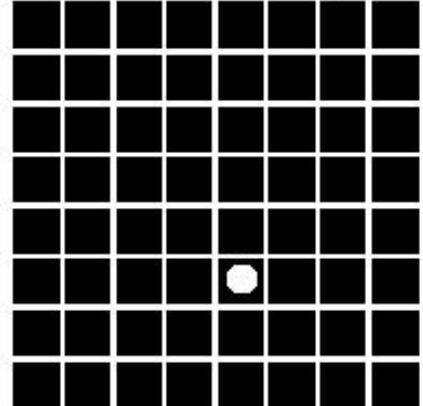
Your code should be included in a Matlab script. This script will have a main loop that will apply the same process to all the pictures. The user should be able to choose an option (1-White pieces on black squares, or 2-Black pieces). The output of the script for every input will be both, text messages displayed in the command window indicating the number of objects found, and images with the position of the objects found. Something like this:

```
>> Filename: P9-6314.jpg   Number of black pieces on white square: 3
```

**Original image P9-6314.jpg**



**White pieces on black square: 1/1**



## 4 Delivering Instructions

The solution to this final project must be submitted before June 1, 2022 at 23:59.

Each working group must submit a single compressed file (.zip). The file name must be *Gii\_FinalProject.zip*, where ii is the group number. The compressed file must include:

- main.m, that is the main loop, and any other files needed for its execution, properly commented.
- The image directory used.