GP2 – Simple Program with OpenCV

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High–Level Description

Our program allows the user to interact with the webcam of the Macbook. For the project we used OpenCV for Python. Our program has many features and for each feature there are different functions.

1. Recognition of a chessboard with the webcam.

   - getCameraCalibration(): this function recognizes the chessboard. Two lists are used to save the 3D points in real world space and the 2D points in image plane.

2. Display different 3D shapes over the chessboard.

   - drawShape(): this function draws different shapes depending on user's input.

3. Display different 2D images over the chessboard.

   - drawImages(): this function draws different images depending on user's input.

4. Play Tic-Tac-Toe with the keyboard. The board for the gameplay is shown in realtime over the chessboard.

   - drawGrid(): function to draw the grid for the gameplay.
   - steps(): defines the possible inputs for the player.
   - winner(): this part of the program defines the winner and ends the game.
   - play(): main function for the gameplay.

5. Print secret messages when the chessboard is shown.

   - printMessage(): function to print a message written by the user.

6. Face or hands recognition.

   - recognizeFace(): function that detects faces
   - recognizeHands(): this part allows the recognition of hands and movement of hands.

7. main(): this is the main part of the program, which allows to run all the features of our project depending on user's inputs.