

Computer Vision

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M2R MoSIG option GVR

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Lesson 4

Exercises

Edge Detection, Hough Transforms

Illustrations for questions 1, 2 and 3.

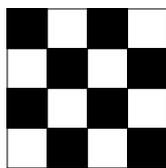
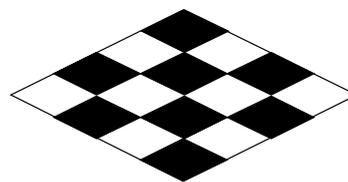


Image S: Calibration Pattern



The image I: Image as seen from
Camera

- 1) A checkerboard pattern can be used as a calibration grid for estimating a homography. Explain how to use the Sobel edge detector and the Hough Transform to determine the image positions of the corners of the squares of the calibration pattern (S), as seen from the camera (I).
- 2) Explain how to estimate the homographic transform H_S^I from the pattern (S) to the image (I) given the position of the corners in image (I).
- 3) Explain how to use H_S^I to transform the image (I) into the image (S) as seen from above.