Artificial Intelligence

Exercises week 7 - Computer vision

COMP9414

Question 1: Image processing – Averaging

Consider the binary image with dimension 7×16 shown in Figure 1. Use the averaging method with a threshold $\epsilon = 3$ and a 3×3 sliding windows. Show the resulting image.

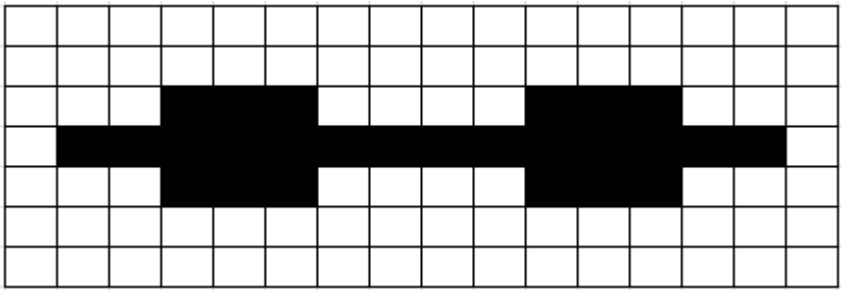

Figure 1: Original image.

Question 2: Scene analysis – Intersections

Consider the scene shown in Figure 2 in which points A, B, and C are intersections of planar surfaces creating occlude, blade, or fold edges.

What kind of intersection represents each point?

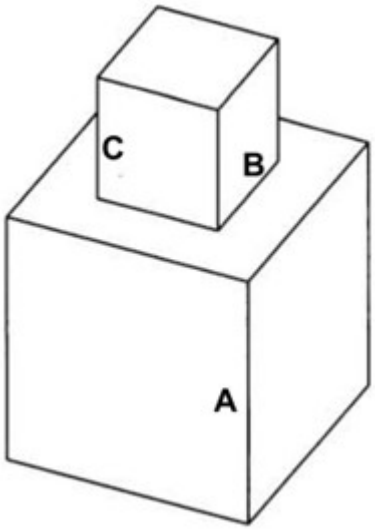

Figure 2: Scene with intersections.

Question 3: Stereo vision

Consider the scene shown in Figure 3 in which a known object is on the floor. The camera lens is at a height = 2 mts. and the object is perceived at an angle of 60 degrees.

What would be the computed distance d from the camera to the object?

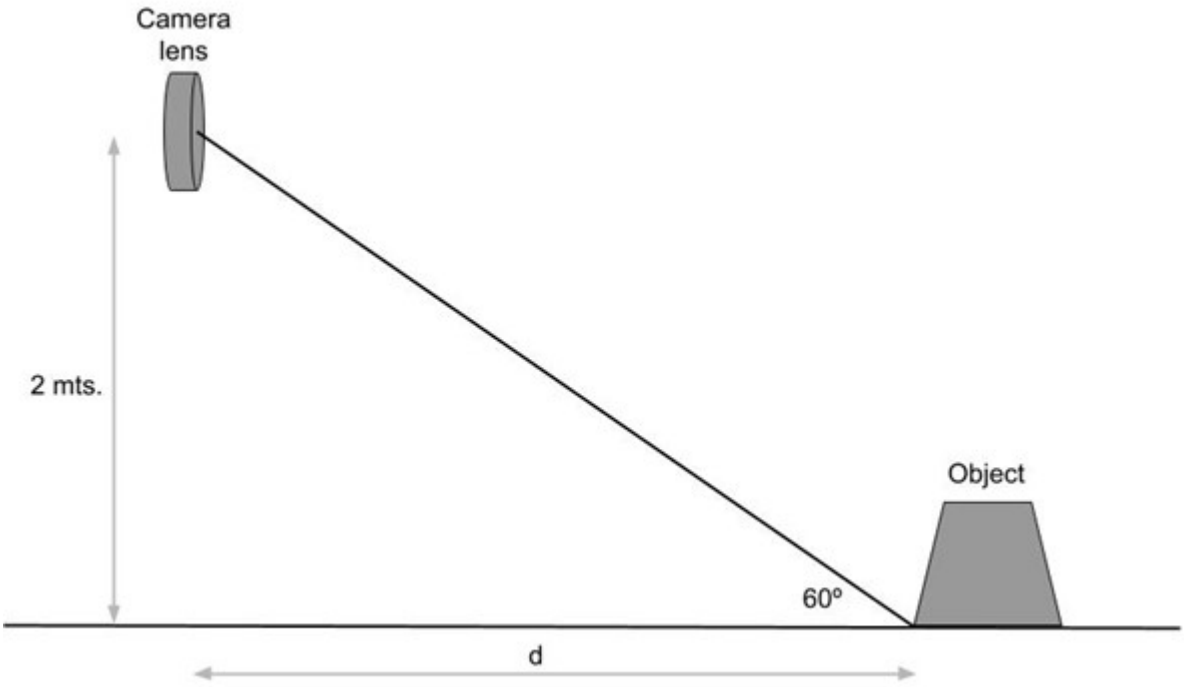

Figure 3: Stereo vision.