

2000 Paper 8 Question 12

Computer Vision

Explain the Bayesian approach to solving problems in computer vision. Explain the notion of an *Inverse Problem* and how computer vision can be regarded thereby in a formal sense as *inverse graphics*. Write down Bayes' rule in general form, and explain the interpretation of its terms as:

- probability of the image, given the object
- probability of the object, given the image

What is the role of the “prior?”

Discuss and illustrate the Bayesian approach in terms of 3D surface reconstruction, given the reflectance data in an image.

[20 marks]