National University of Singapore
School of Computing

CS6240 Multimedia Analysis
Problem Definition Assignment 1

Due date: 16 Feb 2011

You are given the project of developing an Augmented Reality System for transportation system. The system contains 3D objects of vehicles of transportation such as airplanes, helicopters, cars, and boats scanned from real input scenes. The 3D objects can differ in shape and size due to differences in their models. Your task is to determine the orientation or heading of each vehicle given known models of the vehicles.

The input 3D objects and the 3D models are represented in point-and-mesh format. That is, each object or model is represented by a set of mesh vertices and edges that connect the vertices.

Formulate the problem of determining the orientation of each 3D object in the system.




Notes:

- Focus on "what is required" instead of "how to do it".
- Note that for this problem, the 3D objects are independent of each other. So, the same algorithm can be applied to determine the orientations of all the objects one at a time. So, it is sufficient to just focus of formulating the problem of determining the orientation of any one object given a set of known models.
- Remember to describe the three main things in a problem definition: inputs, outputs, and their relationships.