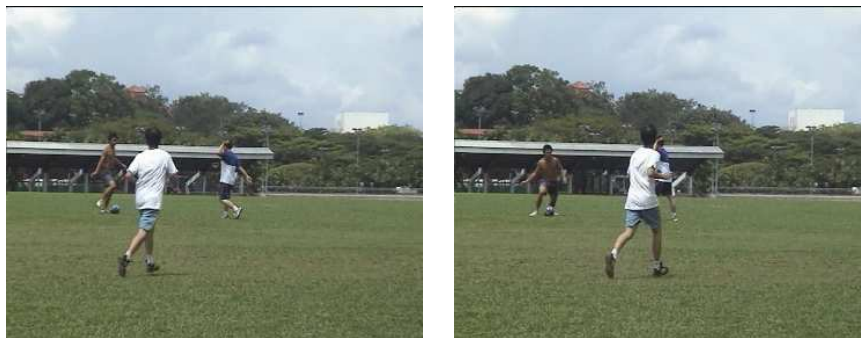


National University of Singapore  
School of Computing

CS6240 Multimedia Analysis  
Problem Definition Assignment 2

Due date: 16 Mar 2011

Your next task is to develop an algorithm for tracking multiple soccer players in a video. The algorithm needs to correctly track individual players, who may be partially or totally occluded some times. The images below show sample video frames in which one of the players is partially occluded:



Due to occlusion, the occluded player may emerge from occlusion in many possible ways. So, you realise that a **probabilistic approach** is required to capture the probability distributions of the locations of the players.

Based on the above reasoning, formulate the problem of correctly tracking multiple soccer players based on probabilistic approach.

Notes:

- Focus on “what is required” instead of “how to do it”. **DO NOT** write an algorithm for solving the problem. Write the problem definition.
- You may make other reasonable assumptions that you need to define the problem.
- Remember to describe the three main things in a problem definition: inputs, outputs, and their relationships.