SCHOOL OF COMPUTER SCIENCE

Tracking People using Multiple Kinects: Literature Review

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1 PROJECT

The current project proposes an algorithm for tracking people using multiple Kinects. The proposed algorithm would reliably track targets' appearance, position, and movement in realtime. [Tracking people using other technologies]. The algorithm would be suited to applications that require people tracking, including gesture recognition, motion prediction, medical monitoring, and surveillance.

1.1 CONTRIBUTIONS

1.1.1 PROBLEM OF OCCLUSION

Real world environments are dynamic. Occlusion occurs when the tracked target is hidden by other objects in the field of view of one or more cameras. There are two types of occlusions. Static occlusion refers to stationary objects, and it can be accounted by placing cameras at locations that encapsulate the entire world view. Dynamic occlusion arises from the interactions of targets in the environment, such as two person walking past each other. The project aims to resolve both types of occlusion using multiple Kinects.

The problem of occlusion is illustrated in Figure 1.1.

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$$\begin{aligned}(x+y)^3 &= (x+y)^2(x+y)\\ &= (x^2+2xy+y^2)(x+y)\\ &= (x^3+2x^2y+xy^2)+(x^2y+2xy^2+y^3)\\ &= x^3+3x^2y+3xy^2+y^3\end{aligned} \tag{7.1}$$

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7.1 HEADING ON LEVEL 2 (SUBSECTION)

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$$A = \begin{bmatrix} A_{11} & A_{21} \\ A_{21} & A_{22} \end{bmatrix} \tag{7.2}$$

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7.1.1 Heading on level 3 (subsubsection)

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8 Lists

8.1 Example for list (3*itemize)

- First item in a list
  - First item in a list
    - First item in a list
    - Second item in a list
  - Second item in a list
- Second item in a list

8.2 Example for list (enumerate)

1. First item in a list
2. Second item in a list
3. Third item in a list

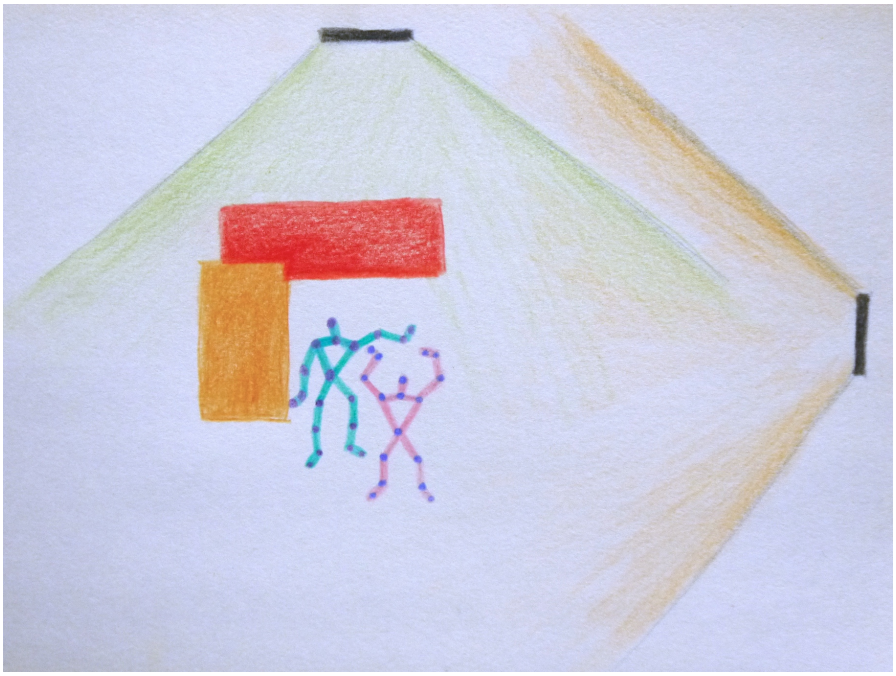

Figure 1.1: The problem of occlusion