

FYP: Dynamics of Human Eye

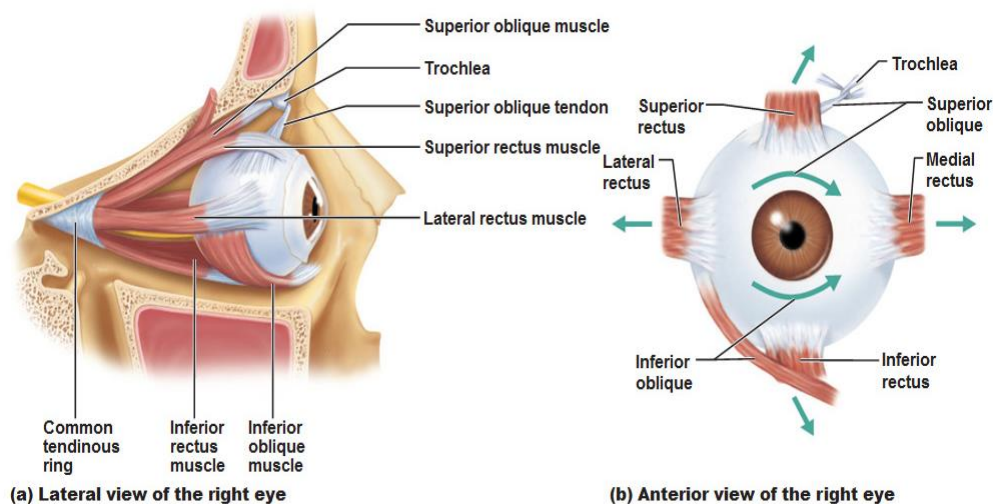
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Background

The dynamics of human eye movement is highly complex. Understand the dynamics of human eye could improve the diagnosis eye movement disorders and the outcome of corrective surgical procedures. It appears that the eye cannot move from one configuration in roll/pitch/yaw space to any other arbitrary configuration. The restriction of eye movements is considered to optimize its visual perception. A simulator for eye image simulation is a desired tool to study eye perception. Dynamics of human eye is an essential part for such simulator.

Problem

Dynamics of human eye include geometric description of eye model, kinematics and force analysis, and muscle innervations. Some preliminary work has been done in developing the geometric model of human eye using spring, type and pulley model in Matlab.



Objective

To establish dynamics of human eye:

1. Select appropriate eye muscle model.
2. Derive the kinematics relations.
3. Derive the dynamics relations.
3. Develop simulation.

Requirements

One student in Mechanical, Mechatronics, or Aerospace

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