Application Development: Eye Tracking for Paediatric Attention Defect Diagnosis

Background

During the therapy of dyslexia patients the qualitative and quantitative determination of e.g. reading disabilities need to be performed. The neuropsychological therapist depends on accurate and easy to use tools that produce reliable, robust and repeatable data for further interpretation and evaluation of therapy effectiveness. Since the early diagnosis and therapy play a significant role, focussing on pediatric therapy analysis is of special great interest.

Description

During this thesis a tool for the visual tracking of the eye positions of patients should be developed. Based on previous work and neuropsychological requirements, this tracking should provide also accurate key data during therapeutical analysis of patients. The system will consist of a stationary camera and fiducial markers in order to track the patient’s head position and orientation in an accurate way. Additional filtering of the data may be required, depending on the work achievements. After the head position is known in 3D, the eyes movements of the person will be tracked and used to derive relevant information.

Tasks

This student project consists of the following tasks:

- Introduction into the tools and technologies used
- Design and Implementation of the tracking algorithms
- Evaluation of tracking results
- Testing and documentation of the developed software components

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