Automatic Human Behavior Analysis in ADHD

1. Objectives

1) Perform a proof-of-concept corresponding to a clinical-technical-methodological analysis to demonstrate that the motivation variable significantly modifies the symptoms of ADHD. In relation to this objective, it will be necessary to establish the ADHD diagnostic if the child shows the same intensity of the symptoms in both contexts (low and high motivation).

2) Develop an automatic transversal purpose technology for the behavioral analysis and the diagnostic assistance of mental disorders in childhood.

2. Methodology

It has been developed a multi-disciplinary study carried out by means of a diachronic/nomothetic/multidimensional design (Anguera, 2003) in two different contexts (low and high motivation). It has been applied an observational and selective methodology, combined with the information obtained from webcams and infrared sensors, being processed by automatic Computer Vision methods (Escalera, 2009). In this way, we have obtained an automatic, robust, objective, and reliable labeling system of behavioral categories of children with ADHD diagnostic. Finally, the obtained data have been statistically analyzed (Demsar, 2006).

3. Automatic feature extraction

4. Results

• Automatic detection of behavioral patterns.
• Statistically significant differences found between motivational and non-motivational environments.

References


