



**EUNETHYDIS**  
**2<sup>ND</sup> INTERNATIONAL**  
**ADHD CONFERENCE**

SHARPENING THE CUTTING EDGE OF  
ADHD SCIENCE AND CLINICAL PRACTICE

Barcelona 23<sup>rd</sup> - 25<sup>th</sup> May 2012

# Automatic Behavioral Analysis of ADHD: The Influence of the Motivation Variable

Sergio Escalera<sup>1</sup>, Josep Moya<sup>2</sup>, Laura Igual<sup>3</sup>, Verónica Violant<sup>4</sup>, M. Teresa Anguera<sup>5</sup>

<sup>1</sup>Computer Vision Center UAB & Dept. Matemàtica Aplicada i Anàlisi, Universitat de Barcelona; <sup>2</sup>Servicio de Salud Mental del Parc Taulí, Sabadell; <sup>3</sup>Computer Vision Center UAB & Dept. Matemàtica Aplicada i Anàlisi, Universitat de Barcelona; <sup>4</sup>Facultat de Psicologia, Universitat de Barcelona; <sup>5</sup>Facultat de Psicologia, Universitat de Barcelona

## Introduction

Attention Deficit Hyperactivity Disorder is one of the most prevalent mental disorders in children and teenagers population. Currently, the diagnostic is based on the DSM-IV-TR (American Psychiatric Association, 2000) and/or CIE-10 criteria. These criteria involve three different blocks: attention deficit, hyperactivity, and impulsivity. However, the motivation variable does not appear in the classifications. On the other hand, the clinical experience shows that the motivation variable plays a key role.

## 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.

## Methods and Results

It has been developed a multi-disciplinary study carried out by means of a diachronic/nomothetic/systematic/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 labelling system of behavioral categories of children with ADHD diagnostic. Finally, the obtained data have been statistically analyzed (Demsar, 2006).

## Keywords

ADHD disorder analysis; Automatic behavior analysis; Motivation variable

## Contact Information

Sergio Escalera - sergio@maia.ub.es

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