

An Artificial Intelligence Approach to Dyscalculia

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Abstract. *Dyscalculia* stands for a brain-based condition that makes it hard to make sense of numbers and mathematical concepts. Some adolescents with dyscalculia cannot grasp basic number concepts. They work hard to learn and memorize basic number facts. They may know what to do in mathematical classes but do not understand why they are doing it. In other words, they miss the logic behind it. However, it may be worked out in order to decrease its degree of severity. For example, *disMAT*, an *app* developed for *android* may help children to apply mathematical concepts, without much effort, that is turning in itself, a promising tool to dyscalculia treatment. Thus, this work focuses on the development of an *Intelligent System* to estimate children evidences of dyscalculia, based on data obtained on-the-fly with *disMAT*. The computational framework is built on top of a *Logic Programming* framework to *Knowledge Representation and Reasoning*, complemented with a *Case-Based* problem solving approach to computing, that allows for the handling of incomplete, unknown, or even contradictory information.

Keywords: Dyscalculia · Knowledge Representation and Reasoning · Logic Programming · Case-Based Reasoning · Similarity Analysis.