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*Detection of Learning Disabilities  
Such as  
Dyslexia, Dysgraphia, and  
Dyscalculia  
in Kids at Early Stage*

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## **Abstract:**

Neurological processing issues called learning impairments can prevent youngsters from learning. Reading, writing, spelling, and even simple arithmetic are all tough tasks for someone with learning disabilities. About 10% of people worldwide are affected by this, making early diagnosis essential for effective treatment and prevention. Disabilities in learning, including dyslexia, dysgraphia, dyscalculia, and others. Interfere with academic performance but also have long-term effects that extend beyond the academic period. Children must complete a series of exams to determine whether they have such disabilities in their early years. These exams are scored by human experts who then determine, based on the results, whether the students need a certain educational approach. The evaluation may be expensive, time-consuming, and emotionally taxing. In this study, we explore how automating this assessment might be aided by artificial intelligence. In order to analyse the differences between dyslexic/dysgraphia and standard readers/writers and to build a model, we collect a dataset of hand-written text images and audio recordings from both standard children and from children who are dyslexic and/or dysgraphia. The model is trained using basic features discovered through analysis of the images and audio recordings. On the dataset we used, our prototype solution displays relatively high performances. This implies the potential for accurate non-invasive dyslexia and dysgraphia screening once sufficient data are available.

## **Keywords:**

Learning Disabilities, Dyslexia, Dysgraphia, Dyscalculia, CNN.