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# An Early-Stage Autism Spectrum Detection System

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**Abstract:** *The Early-Stage Autism Detection System presents a breakthrough approach to identifying Autism Spectrum Disorder (ASD) in its initial stages, particularly focusing on early childhood diagnosis. Leveraging machine learning (ML) techniques such as Random Forest and Support Vector Machines, the system meticulously analyses behavioural patterns and social interactions to pinpoint potential indicators of ASD, even in toddlers. It adeptly tackles challenges like imbalanced class distributions by employing random oversampling and adopts feature scaling and selection methods to heighten prediction accuracy. Through extensive experimentation on diverse ASD datasets, the system discerns crucial features pivotal for precise diagnosis. Its implementation promises timely intervention and improved outcomes by enabling the early detection and support of individuals with ASD from the outset of development. This system represents a paradigm shift in ASD diagnosis, offering a more efficient and effective means of identifying and assisting individuals with ASD at the earliest possible stage, thereby potentially mitigating the impact of the disorder and enhancing quality of life.*

**Keywords:** Autism spectrum disorder, machine learning, classification, feature scaling, feature selection technique.

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