# A COMPREHENSIVE FRAMEWORK FOR EARLY DETECTION AND HOLISTIC SUPPORT OF AUTISM SPECTRUM DISORDER USING MACHINE LEARNING

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Autism Spectrum Disorder (ASD) is a neurological and developmental illness that affects children's social and cognitive skills. It can lead to issues with communication, restricted interests, repetitive behaviors, and trouble interact- ing with others. By utilizing machine learning, this initiative seeks to create a cutting-edge support network for people with ASD. The method uses a comprehensive strategy that includes individualized dietary advice, preventative measures, therapy recommendations, and predictive modeling. This paper presents a novel machine learning (ML) framework for the comprehensive management of Autism Spectrum Disorder (ASD) in a range of age groups, starting with early detection. This framework takes a multifaceted approach, incorporating several Feature Scaling (FS) techniques customized to unique ASD datasets to improve prediction accuracy, in contrast to traditional ML-based systems that are exclusively focused on detection. Furthermore, the framework extends beyond diagnosis by providing tailored recommendations and safety measures involving nutrition, coun- seling, and management techniques to proactively address ASD- related repercussions. The goal of the project is to create machine learning algorithms that can assess a variety of datasets, including behavioral patterns and sensory sensitivity information, and offer tailored insights into the particular requirements of people with ASD. Furthermore, a user-friendly interface enables caregivers to record and monitor possible triggers for problematic behaviors, and a nutrition suggestion module creates tailored food and ther- apy recommendations to enhance general wellbeing and target particular symptoms of ASD. This complete approach seeks to go beyond simple detection by offering improved accuracy, tailored insights, and all-encompassing management techniques to people with ASD of all ages.

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