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Notice for the PhD Viva Voce Examination

Ms D Swainson Sujana, Registration Number: 2270134, PhD Scholar at the Department of Computer Science, School of Sciences, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Friday, 06 February 2026 at 12.00 pm in Room No. 044, Ground Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

Title of the Thesis	:	**Explication of Autism Diagnosis through Explainable Artificial Intelligence to Minimize the Academic Imbalance in Children**
Discipline	:	**Computer Science**
External Examiner - I	:	**Dr Padma M C** Professor Department of Computer Science & Engineering P E S College of Engineering Mandya – 571401 Karnataka
External Examiner - II	:	**Dr A Michael Alphonse** Associate Professor Department of Mathematics Birla Institute of Technology and Science Pilani, Hyderabad Campus Jawahar Nagar Hyderabad – 500078 Telungana
Supervisor	:	**Dr Peter Augustin D** Professor Department of Computer Science School of Sciences CHRIST (Deemed to be University) Bengaluru - 560029 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva – voce examination.

Place: Bengaluru
Date: 27 January 2026

Registrar (Academics)
Registrar (Academics)
CHRIST (Deemed to be University)
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ABSTRACT

Autism is a neurodevelopmental disorder that significantly impacts the quality of life, particularly in children, and affects both social and academic domains. Early diagnosis of this disorder can reduce the core symptoms through timely interventions. The clinical diagnosis of ASD is primarily based on clinical observation and psychological evaluation via diagnostic tools. However, diagnoses based on these tools are often subject to bias due to their reliance on subjective observations and the input of reporters, typically parents and caregivers. Consequently, researchers have been investigating stable biomarkers for ASD to provide more reliable diagnostic evidence. Neuroimaging techniques use structural imaging, functional imaging, and diffusion tensor imaging (DTI) to diagnose ASD. Advancements in technology, combined with image processing, have enabled computer-aided diagnostic systems (CAD) to play a vital role in the medical field. This study implemented an explainable deep learning (DL) model, FaithfulNet, to predict autism from structural brain magnetic resonance imaging (MRI) images, achieving a classification accuracy of 99.74%. The predictions are interpreted through a novel gradient-based saliency map, Faith CAM, providing compelling visual explanations. A systematic review of XAI found that approximately one-third of the studies implementing XAI methods used saliency-based techniques to understand the internal mechanisms of models. While numerous studies have applied XAI methods to interpret deep learning models developed for disease prediction, the present work constitutes a novel contribution by interpreting a model specifically designed for disorder prediction, namely Autism.

Keywords: *Deep Learning, XAI, sMRI, Autism, Diagnosis*

Publications:

1. **Sujana, D.S.**, Augustine, D.P. Diagnosis of Autism Spectrum Disorder: A Review of Three Focused Interventions. SN COMPUT. SCI. 4, 139 (2023). https://doi.org/10.1007/s42979-022-01584-1. (Scopus Indexed)

2. **Sujana DS**, Augustine DP (2025) FaithfulNet: An explainable deep learning framework for autism diagnosis using structural MRI. Brain Res 1866:149904. https://doi.org/10.1016/j.brainres.2025.149904 (Scopus Indexed)