IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, November 2025
Impact Factor: 7.67

An Implementation Paper on Deep Learning-Based AI Systems for Clinical Decision Support and Disease Prediction

Vishal Vishnu Gurav[1] and Prof. D. B. Thakur[2]
Department of Electronics & Telecommunication[1]
Associative Professor, Department of Electronics & Telecommunication[2]
TPCT's College of Engineering, Dharashiv, India

Abstract: *The rapid expansion of healthcare data has opened new frontiers for intelligent disease prediction and personalized medical support. This study introduces an AI-based Clinical Decision Support System (CDSS) that leverages the XGBoost machine learning model for accurate disease prediction and health recommendations. The proposed system integrates patient medical history and symptom-based inputs to predict the most probable disease with high precision. It further assesses the severity level—categorized as low, moderate, high, or extreme—enabling tailored health guidance. Based on the predictive and severity outcomes, the system delivers personalized recommendations, including medication suggestions, dietary guidance, exercise routines, and preventive measures, while recommending professional consultation for critical cases. By employing structured healthcare datasets and advanced machine learning techniques, this model enhances diagnostic accuracy, promotes preventive healthcare, and ensures accessibility for patients in remote areas. The proposed approach bridges the gap between automated disease detection and personalized medical decision-making, paving the way for an efficient, data-driven, and intelligent healthcare ecosystem.*

Keywords: XGBoost, Disease Prediction, Machine Learning, Symptom Analysis, Medical Recommendation System, Patient Management

DOI: 10.48175/IJARSCT-29751