IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.67
Volume 5, Issue 3, March 2025

Early Chronic Kidney Disease Detection and Personalized Treatment Strategies using ML

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Abstract: *Chronic Kidney Disease (CKD) is a progressive condition that often remains undiagnosed until its advanced stages, leading to severe health complications. Early detection and personalized treatment are crucial for improving patient outcomes. This study explores the application of Machine Learning (ML) techniques for early CKD detection and tailored treatment strategies. ML model, include Random forest algorithm is analyzed for their predictive accuracy using clinical and laboratory data. Additionally, a personalized treatment framework is proposed, leveraging patient-specific predictions to recommend optimized therapeutic approaches. Experimental results demonstrate that ML-based models significantly improve early CKD detection and enable more precise, patient-centric treatment plans. This research highlights the potential of AI-driven healthcare solutions to mitigate CKD progression and enhance quality of life.*

Keywords: Machine Learning, Random Forest Algorithm, Personalized Treatment, Patient Monitoring