

Early Detection of Chronic Kidney Disease Using

Machine Learning

Literature Survey

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Introduction:

Chronic kidney disease (CKD) poses a significant burden to the healthcare system due to its increasing prevalence, undue risk of developing end-stage renal disease, and negative morbidity and mortality prognosis. Unexpectedly, it turned into an international fitness crisis. An unhealthy diet and inadequate water intake are the main causes of this disease. Without a kidney, you can stay most effectively 18 days on average, but this requires a kidney transplant and dialysis. Having a reliable strategy for predicting CKD in its early stages is critical. Loss of kidney function is a hallmark of chronic kidney disease, commonly known as chronic renal failure. Waste products and excess water are removed from the blood by the kidneys and excreted as urine. As chronic kidney disease progresses, dangerous levels of water, electrolytes, and waste products can build up in the body. When chronic kidney disease first develops, people may not have many signs or symptoms. Kidney disease may go unnoticed until it is advanced. The goal of treating chronic kidney disease is usually to slow the progression of kidney damage by treating the underlying cause. But stopping the cause of kidney disease didn't stop the damage from

getting worse. Without artificial filtration, end-stage renal failure from chronic kidney disease is fatal.

S. No	Title	Authors	Year	Technique	Merits	Demerits
1.	Analysis of Chronic Kidney Disease Dataset by Applying Machine Learning Methods.	<ul style="list-style-type: none"> • Yedilkhan Amirgaliye • Shahriar Shamiluul • Azamat Serek. 	2018	Support Vector Machine (SVM) technique is used.	Merits are noninvasive, cheap and save.	Demerits are less compact and autonomous tools need to be developed.
2.	A Novel Approach to Predict Chronic Kidney Disease using Machine Learning Algorithms .	<ul style="list-style-type: none"> • Bhavya Gudeti • Shashvi Mishra • Shaveta Malik • Terrance Frederick Fernandez • Amit Kumar Tyagi • Shabnam Kumari. 	2020	<ul style="list-style-type: none"> • Support Vector Machine (SVM). • Logistic Regression and K Nearest Neighbours (KNN) are the techniques used. 	Merits are prediction process takes far less time.	Demerits are unable to work with larger datasets.
3.	Early Detection of Kidney Disease Using ECG Signals Through Machine Learning Based Modelling.	<ul style="list-style-type: none"> • Tahsin M. Rahman • Saima Siddiqua • Siam E. Rabby • Nahid Hasan • Mohammad Hasan Imam. 	2019	<ul style="list-style-type: none"> • SVM Linear • QT interval and RR interval. 	Merits are safe non invasive	Demerits are both the features should act as predictors in order to get better accuracy rate.

4.	Optimization of Prediction Method of Chronic Kidney Disease Using Machine Learning Algorithm.	<ul style="list-style-type: none"> • Pronab Ghosh • F. M. Javed Mehedi Shamrat • Shahana Shultana • Saima Afrin • Atqiya Abida Anjum • Aliza Ahmed Khan. 	2020	<ul style="list-style-type: none"> • Support Vector Machine (SVM). • AdaBoost • Linear Discriminant Analysis • Gradient Boosting are the techniques used. 	Merits are can detect the stage of this deadly disease much quicker with a reliable dataset.	Demerits are Gradient Boosting takes the highest time to achieve a predictable score.
5.	Performance Analysis of Machine Learning Classifier for Predicting Chronic Kidney Disease	<ul style="list-style-type: none"> • Rahul Gupta • Nidhi Koli • Niharika Mahor • N Tejashri 	2020	<ul style="list-style-type: none"> • Support Vector Machine (SVM). • Linear Discriminant Analysis. 	Merits are prediction process takes far less time.	Demerits are unable to work with larger datasets.