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Patent Search

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Abstract:

EARLY AND ACCURATE PREDICTION OF KIDNEY DISEASES USING ALGORITHMS OF DEEP LEARNING A method for the development of the computer-aided automated (CAD) can play an important role in predicting CKD. CAD systems, such as deep learning algorithms, are critical in disease diagnosis due to their high classification accuracy. In this research, numerous clinical variables of CKD were used, and seven cutting-edge deep learning algorithms ANN, LSTM, GRU, Bidirectional LSTM, Bidirectional GRU, ML Simple RNN were developed to predict and classify CKD. The proposed artificial intelligence-based techniques were used to extract and evaluate characteristics from processed and fitted CKD datasets using five distinct methodologies. The suggested Deep neural model outperforms the other four classifiers Support Vector Machine (SVM), Nearest Neighbor (KNN), Logistic regression, Random Forest, and Naive Bayes classifier) with a 100% accuracy. The proposed approach could help nephrologists detect Apoptosis Inhibitor of Macrophage (AIM) or a partial peptide of it, or a nucleic acid containing a base sequence encoding the same, or a screening method for a preventive therapeutic drug for renal disease. It deals with the diagnosis, prediction, and monitoring of kidney problems through the detection of cytokines, cytokine-related soluble chemokines in urine. FIG.1

Complete Specification

Description:EARLY AND ACCURATE PREDICTION OF KIDNEY DISEASES USING ALGORITHMS OF DEEP LEARNING

Technical Field

[0001] The embodiments herein generally relate to a method for an early and accurate prediction of kidney diseases using algorithms of deep learning.

Description of the Related Art

[0002] The CKD is one of the most serious health concerns due to its increased global incidence, and it encompasses disorders that gradually damage the kidneys diminishing the body's capacity to execute important activities for an extended period of time. Complications of chronic kidney disease include renal failure, excess pressure, anemia, nerve damage, and so on. The number of kidney failure cases is predicted to increase unexpectedly in developing countries like China and India. renal failure makes it harder to remove excess fluid from the body's blood. Advanced chronic renal disease can cause harmful quantities of fluid, electrolytes, and waste to accumulate in the body. It can result in consequences like excessive blood pressure, anemias, weak bones, and nerve damage. When kidney function declines to the point of renal failure, kidney dialysis and kidney transplantation become necessary, posing major challenges to patients' quality of life and the medical economy.

[0003] It is claimed that numerous risk factors, including a history of renal failure, high blood pressure, or diabetes, must be monitored annually for any abnormal results. A few blood tests are often used to detect CKD: (i) determining the glomerular filtration rate (eGFR), (ii) verifying the concentration of albumin in the blood and (iii) measuring the blood urea nitrogen (BUN) index and creatinine (CR). Clinical judgements are mostly based on physicians' competence and experience while examining the patient's symptoms. As the health-care system evolves and new drugs become available, physicians are finding it more difficult to keep up with current clinical practice changes. Any therapeutic approach cannot effectively halt the disease's progression, necessitating the development of a new one. Furthermore, no

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