**[1] Early Prediction of Chronic Kidney Disease Using Deep Belief Network**

* The paper addresses the problem of Chronic Kidney Disease (CKD) by proposing an intelligent model for its classification and prediction. CKD is a widespread health issue globally, characterized by various kidney disorders affecting their structure and function.
* The proposed model employs a modified Deep Belief Network (DBN) as its classification algorithm, utilizing Softmax activation and Categorical Cross-entropy loss functions. Deep Learning methods, particularly Deep Neural Networks (DNNs), are chosen for their ability to automate feature extraction and interpretation, crucial for accurate CKD prediction.
* To validate their approach, the authors conducted a comprehensive literature review, analyzing existing studies that employed different classification algorithms for CKD prediction. They selected the UCI Dataset, comprising 25 attributes (14 nominal and 11 numeric), for their experimentation.
* Pre-processing of the dataset involved handling missing values through imputation techniques. The model was trained using a DBN based on Restricted Boltzmann Machines (RBM), with a focus on the Contrastive Divergence (CD) training algorithm.
* The evaluation of the proposed model demonstrated promising results. It achieved an accuracy of 98.5% and a sensitivity of 87.5%, outperforming existing models. These results highlight the effectiveness of the proposed DBN-based approach in accurately predicting CKD.
* In conclusion, the paper underscores the significance of employing advanced deep learning techniques, such as the proposed DBN model, in clinical decision-making for early CKD prediction. By leveraging these methods, clinicians can potentially mitigate the progression of kidney damage and improve patient outcomes.

**2. A Deep Learning-based System for Automated Sensing of Chronic Kidney Disease**

* This study suggests a new way to find kidney disease by checking saliva for urea levels. They use a special machine to analyze the saliva and a smart computer program to understand the results better. Their method is very accurate, getting it right 98.04% of the time.
* Using saliva to find kidney problems is a new idea. It's good because getting saliva is easy and doesn't hurt.
* The study involved 102 people, some healthy and some with kidney disease. They collected saliva samples from them and checked them with their special machine.
* They built a computer program using a type of math called deep learning. This program looks at the results from the machine and helps figure out if someone has kidney disease or not.
* The results from their new method match well with the traditional way of finding urea levels, which is good. They also made graphs to show how the machine's readings relate to the amount of urea in saliva.
* To make sure their method works well, they tested it many times using a technique called cross-validation. They found their method to be very accurate, with a success rate of 98.04%.
* They also did more tests with 1000 samples from real patients to make sure their machine is reliable for use in clinics.