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\vspace{.5cm}\abstit{\large{Paper ID AI\#31}}

\vspace{.3cm} {\large{\textbf{\centerline{XPD - Imparting Explainability to Parkinson’s Disease Identification}}}}\label{1}\\

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Medicine has long reached an overwhelming consensus on the importance of detecting Parkinson's disease (a degenerative neurological disorder marked by decreased dopamine levels in the brain) in a timely manner. With the advent of the domain of HealthTech, Deep Learning approaches have generated State Of The Art performance in solving several problems in the medicinal arena. We propose the creation of a novel, explainable sequence learning problem that can detect Parkinson’s Disease from voice recordings of characteristic vocal features and explain the reasoning for this inference. Our sequence learning architecture is modelled on the basis of a Recurrent Neural Network, and extends the architecture to provide interpretability to inferences. This would overcome the shortcomings of the traditional method of diagnosis where a physician is required to perform tedious analysis of a person’s motor skills in various situations. Our model can serve as an effective non-invasive screening tool, promoting early detection. As deep learning continues to be adopted, the prominence of assistance and automated. decisions made by neural networks in high stake situations is an undeniable fact that stakeholders and academicians have to grapple with. An XAI model that detects PD leverages the performance of a neural network, while providing reasoning and accountability to inferences, reducing bias.

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