PARTIAL REPORT ON THE STATE-OF-THE-ART REVIEW ON AUTOMATIC TECHNIQUES EMPLOYING SPEECH TO DISCOVER DISORDER/ILLNESS

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Brief description of the project

The aim of my paper is to provide a scientific description on how a speech signal nowadays can be used in an automatic form to discover illness. Interestingly enough, the scope of this technique is not limited to speech pathologies, it can also be used to detect other illnesses ranging from Parkinson's to heart failure, and lately it has been applied to expose Covid-19.

Overall, the process from which a speech signal is converted into medical data is fairly similar. Starting from the pre-processing stage of the signal, moving onto the feature extraction and selection and finally the classification of the signal to finally give a result, as shown below in Figure 1. Nevertheless, the features that are extracted to detect each pathology are different. For this reason, I will explain how the process above takes place in the case of discovering speech pathologies overall, Parkinson's disease and Covid-19.

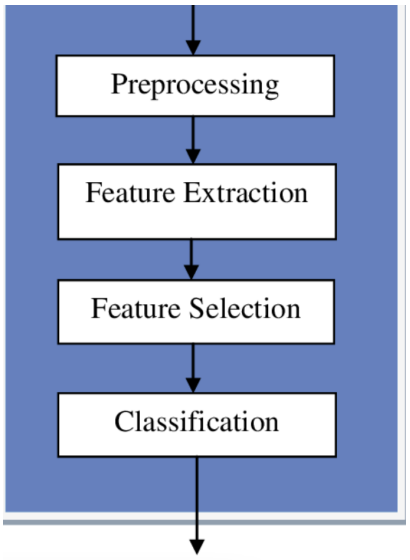

Fig. 1

Tasks that must be done to proceed with the project

1. Search for around 40 scientific papers that describe how a speech signal can be used to discover illnesses in an automatic manner, with the help of machine learning. Documents ranging with different amounts of citations and year of publication will be chosen to provide a greater variety of sources.
2. The articles must then be downloaded and summarised showcasing how each of them performs each of the stages in figure 1. All of these will be contained in a Microsoft excel spreadsheet.
3. With the information on the articles, I will proceed to write the paper on the three sectors that I have decided to reduce the scope my project to.

Current stage of the project

At the moment, I have all the articles that I have to read already downloaded, and have started summarising them into the spreadsheet. I still have to finish with this second point and move onto the actual writing of the paper.

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Bibliography

Gnanasekar, P., et al. “Investigation on Feature Extraction and Classification of Medical Images.” Undefined, 2011, www.semanticscholar.org/paper/Investigation-on-Feature-Extraction-and-of-Medical-Gnanasekar-Nagappan/ef9450f00b618704fe63e3bb17d6bb9c0b853366. Accessed 18 Mar. 2022.