Voice to text automation using teX.ai

- Human intervention was reduced by 60%, thus reducing the associated costs
- The model exhibited an accuracy of 80%
- Reduced the time taken to create transcripts by 40%

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Customer Background

The client is a leading platform provider working on reducing the task of data entry for physicians across the globe. The platform provided an avenue for physicians to record interactions with their patients, which would then automatically transcribe the recording to a noise-less (by removing any non-medical interaction) and meaningful text.

Business
teX.ai

Domain
Healthcare

Tools
Python, teX.ai, LSTM, RNN, Neural Networks

Key Highlights

- Human intervention was reduced by 60 %, thus reducing the associated costs.

- The model exhibited an accuracy of 80%.

- Reduced the time taken to create transcripts by 40%.

- The front-end portal helped automate the process of voice to text conversion.

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Business Requirement

Client being a leading platform for automating physician and patient related tasks was interested in building a system that could record physician patient conversations and help reduce the manual data entry tasks to produce transcript files. The need for this system came up since the physicians who work with the client stated out that any improvement in the manual process would be of great help in terms of turnaround time, short staffing situations and improved productivity.

Challenges

- The model needed to be trained repetitively to understand the various accents.

- Removal of noise from the input audio files (non-medical interactions).

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Solution Overview and Implementation

Recording

- Physicians recorded their conversations with the patients through Google Meet and stored the files in a specified folder.

Voice to text conversion

- Passed the conversation audio files through Indium's Voice to Text conversion NLU engine.
- The NLU engine was pretrained with medical terminology. PyAudio and SpeechRecognition were leveraged for a good baseline.
- Frame-by-frame processing for timeline-based transcription was done.
- The audio timestamp was tagged for every line in the text output.
- Models used: Neutral Network based models such as RNN, LSTM, Encoder-Decoders, Seq2Seq

Saving the Output

- Saved the converted file in the required file format.
- Stored the file in the designated pre-configured storage location via an API.

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Business Impact

Time: teX.ai significantly reduced the time taken to extract the data from the PDF files by 50%.

Accuracy & Validation: Accuracy level of 80% was achieved for the voice extraction process compared to their legacy methods. Clients were able to efficiently validate the converted outputs by easily skimming through the Front-end application as they can do a side-by-side comparison of the input and output.

Training: As the data kept flowing through the model, it trained itself automatically thereby improving its accuracy. This was aided by the capability of the AI model to learn from the final edits made on the output file by the validation team.

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Get in touch to see how
teX.ai can help you!

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