



Voice to text automation using teX.ai



Digital
Services

Success Story

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 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.

Solution Overview

teX.ai was used to implement an NLP and Text Analytics based solution to formulate the intelligence layer of the platform. The solution consisted of building:

- A documents cluster in which a user can check for any topic.
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- A name entity recognition map detailing the 7 class recognizable entities.

Solution Modules

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Data Scraping

- Data gathering is achieved using Python scrapping packages such as BeautifulSoup, Scrapy and Selenium.

- The platform holds a repository of about 120+ million documents from the web in various formats such as PDFs, doc and HTML pages.
- Content is updated real-time into a 'Listener' and stored in the database.

Topic Modeling

- Scraped data is indexed using Elasticsearch for efficient querying. Elasticsearch's inherent ability to digest text data and provide faster query results helped in the choice of the database.

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

- The output is a cluster map of topics within a document and a map of documents related to a topic which is visualized in direction graphs.

Entity Recognition and Documents

- Implemented Named Entity Recognition (NER) Algorithm to identify entities under the 7 class classifiers such as - Location, Person, Organizations, Money, Percent, Date and Time - for the document content.
- A Tree Graph representation was implemented to visualize in an orderly manner providing insights about the entities in the document.

Solution Overview and Implementation

- **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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