



SHYENA
TECH YARNS

A Data Science Company

AI

Case Study

AI Model For Insurance Claims Form Data Extraction

About the Client

- The Client is a leading Third Party Administrator i.e. TPA
- They provides operational services such as claims processing and employee benefits management under contract to their customers
- The Client provides the TPA services to the leading Insurance companies in India and US
- They also provide the payroll and other administrative services to large MNCs in India



Business Problem

- The Insurance Claim processing involves data extraction from the Insurance claim forms which are in the form of PDF or Scanned image
- The Client was using a home grown OCR based back office application to extract data from the insurance forms but the extraction accuracy for very low especially for the Uniform Billing Forms i.e. UB Forms and Healthcare Financial Administration claim forms i.e. HFCA forms
- Moreover, the forms lacked a fixed layout, making data extraction challenging. Additionally, the quality of the scanned documents was poor, further hindering accurate data extraction
- The manual data extraction from the UB & HFCA form was taking 30 minutes each. The client was hence looking for a more accurate document data extraction solution to cut down the data extraction time to less than one minute to improve the operational efficiencies
- They were looking for an AI Powered solution which could be easily plugged into there existing back office application



Solution

- The BU and HFCA form had the data in the form of tables. Extracting data from table is very complex. We trained the Deep Learning model on large corpus of UB and HFCA claims form data for the model to understand the data pattern.
- We also improvised the OCR technology using AI. On top of it, we built custom models for table and column data extraction
- We also built document classification model. Based on the document type, the model for UB or HFCA would be invoked. This was needed as both the forms were different and the data to be extracted was also different.
- We also developed models to improve document quality like denoising images and tilt correction.
- Using our state of the art document data extraction AI Models, the Insurance form data extraction accuracy jumped to over 85%
- The AI models used GPU for the processing, hence each form only took 30-40 seconds as compared to 30 minutes earlier
- The AI Models were deployed on-premise and integrated with the clients Backoffice application using secured RESTful APIs



Outcome

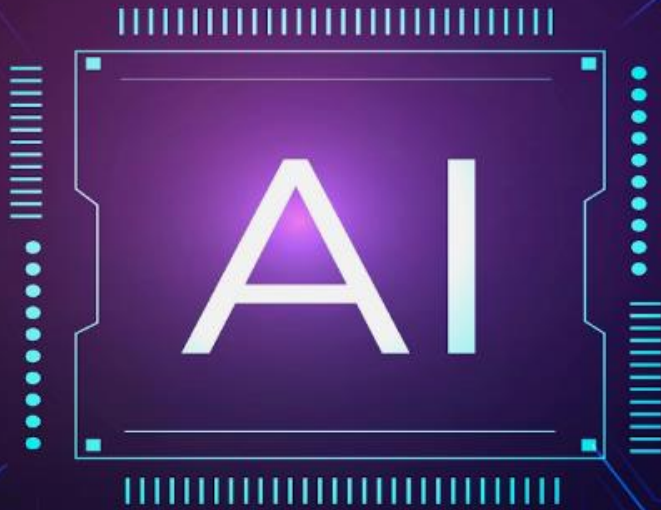
- The overall operational efficiency as far as the UB and HFCA form data extraction was concerned, improved by over 80%
- The automated UB and HFCA form data extraction accuracy jumped from 30% to over 85%
- Our solution helped the client to save massive human efforts. The solution enabled the client to utilize the saved human capacity on other critical work





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