AI-POWERED DONATION MATCH REVIEW

Sponsor: Benevity Inc.

Kameshwara Sekar, Viet Long Ta, Junhao Xue,
Hoang Long Tran, Jade Fjestad

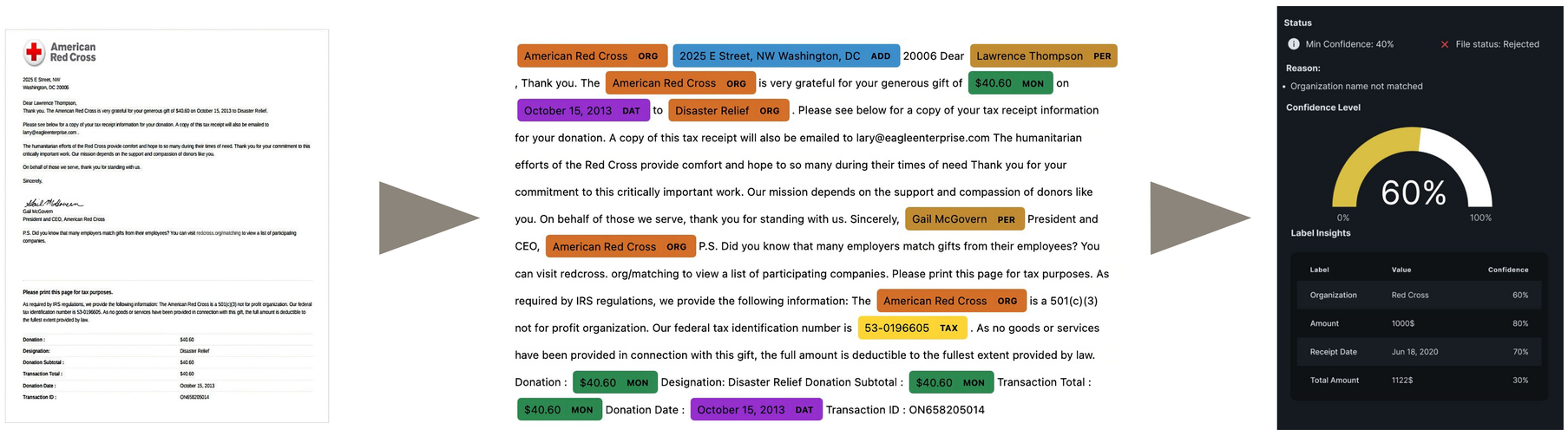
Introduction

- Company donation matching programs are limited due to the high cost of manual review.
- There is an opportunity to use machine learning to reduce the time required for human review.
- The sponsor, Benevity Inc. provided us with the data required to automate this process.

Methods

- Extracting receipt text using Optical Character Recognition library Tesseract.
- Spacy to train custom Named Entity Recognition model for extracting important data from document.
- Verify extracted data against user submissions.

Automated Review Process



Results

(based on 75 random samples)

- Potential Automation Rate: **52.0%**
- Accuracy: **70.6%**
- Specificity/Precision rate: **100%**
- Sensitivity/Recall rate: **63.9%**
- It was a priority to minimize the False Positives as that could lead the company to fraud.

Name Entity Recognition Scores

Label	F1 Score
Person Name	74.4
Date	89.7
Money	100.0
Organization	63.4
Tax ID	66.7
Address	66.7
Country	100.0

Full Process Results

		Actual	
		Positive	Negative
Predicted	Positive	39	0
	Negative	22	14

Conclusion

- We are able to reduce the manual work load significantly.
- Valuable insights are given to reviewer of failed documents.
- This has the potential to reduce the cost of reviewing corporate donation matching significantly.