UNDERSTANDING OF AI-BASED RECRUITMENT OUTCOMES

25-1-R-6

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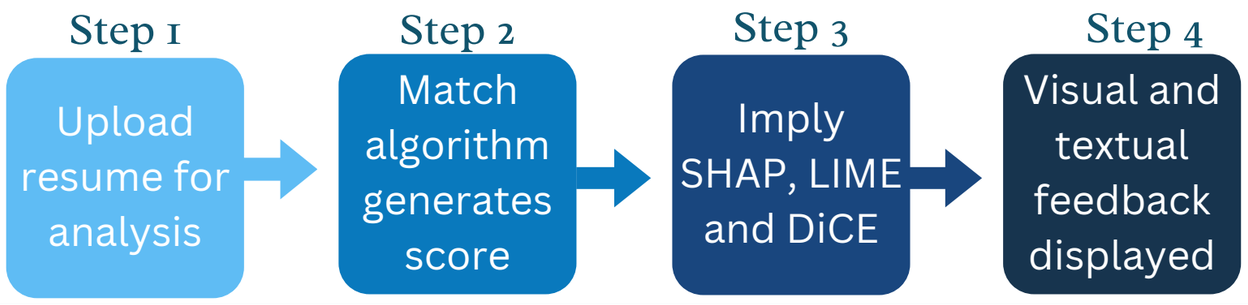
Introduction

- AI-based recruitment tools are increasingly used in hiring processes, yet they often operate as "black boxes"
- Our motivation is to create a system that evaluates resumes and explains the reasoning behind the match scores

Methodology

- Model: Pre-trained XGBoost Regressor for match score prediction
- XAI Tools: SHAP, LIME, and DiCE
- Web interface for interactive visual & textual explanations

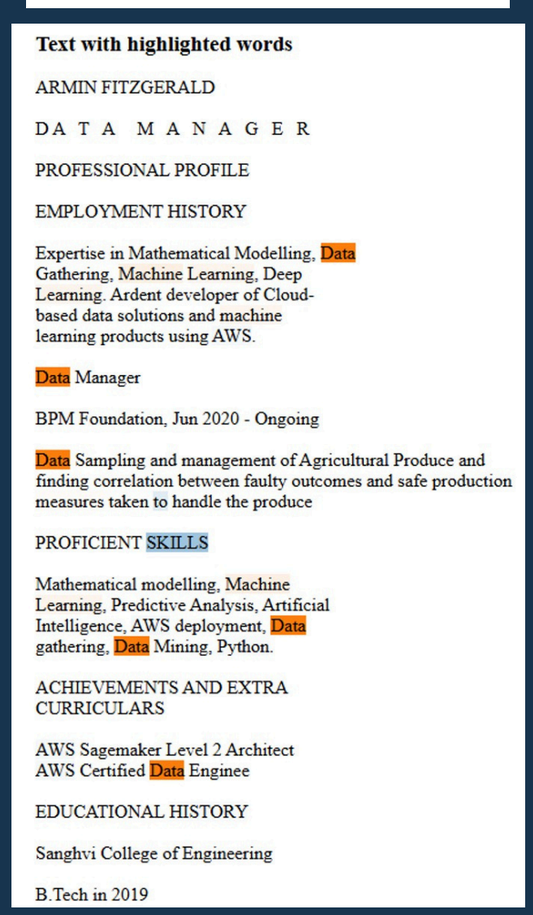
System Workflow



LIME: Identifies impactful words in real CV

DICE: Concrete suggestions for improving match score

SHAP: Ranks most important words overall



Text with highlighted words

ARMIN FITZGERALD

D A T A M A N A G E R

PROFESSIONAL PROFILE

EMPLOYMENT HISTORY

Expertise in Mathematical Modelling, Data Gathering, Machine Learning, Deep Learning. Ardent developer of Cloud-based data solutions and machine learning products using AWS.

Data Manager

BPM Foundation, Jun 2020 - Ongoing

Data Sampling and management of Agricultural Produce and finding correlation between faulty outcomes and safe production measures taken to handle the produce

PROFICIENT SKILLS

Mathematical modelling, Machine Learning, Predictive Analysis, Artificial Intelligence, AWS deployment, Data gathering, Data Mining, Python.

ACHIEVEMENTS AND EXTRA CURRICULARS

AWS Sagemaker Level 2 Architect
AWS Certified Data Enginee

EDUCATIONAL HISTORY

Sanghvi College of Engineering

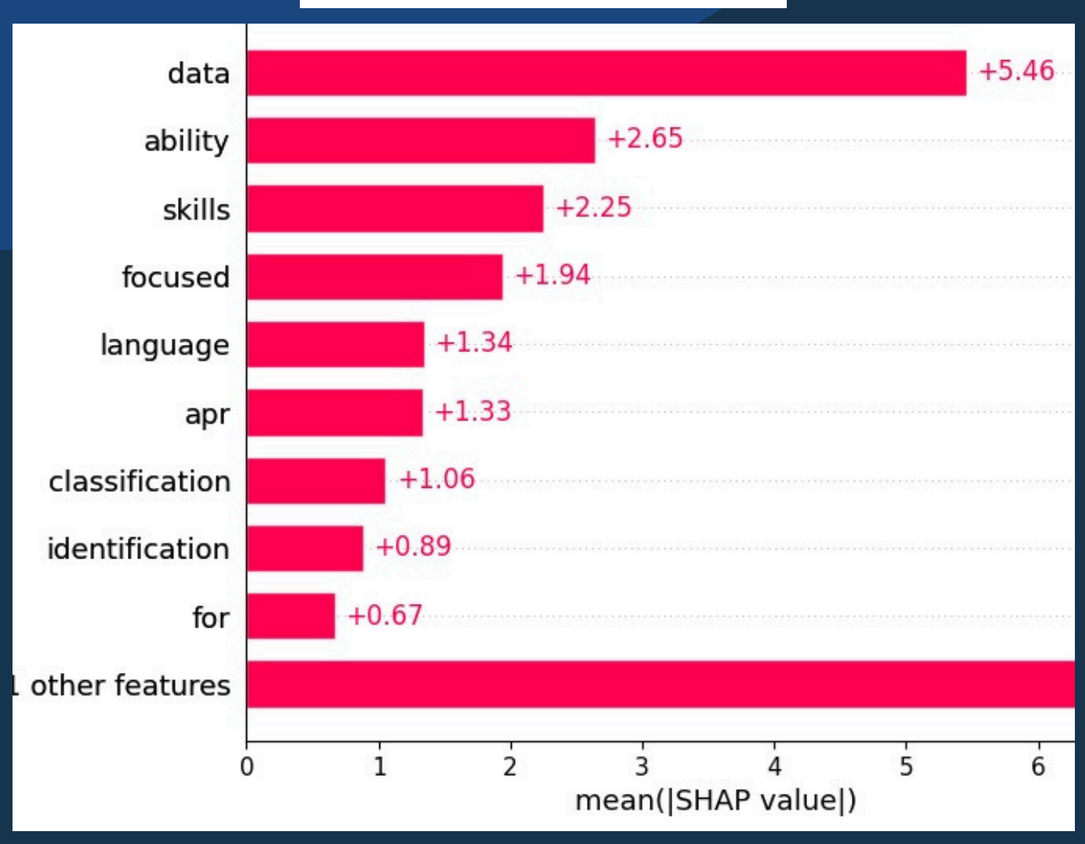
B.Tech in 2019

Your resume currently scores 52.4%. Best improvement: add ml, deep learning, scikit learn, seaborn, pytorch to reach 62.9%

Potential gain: +10.4%

Your Current Skills:
- machine learning

Improvement Scenarios:
Scenario 1: Score improvement to 62.9%
Add these skills:
- ml: knowledge of ml
- deep learning: neural networks and deep architectures
- scikit learn: using scikit-learn for ML tasks
- seaborn: knowledge of seaborn
- pytorch: developing models with PyTorch



Results

- DiCE achieved the highest ratings across all categories
- Users better understood and trusted the system with DiCE
- SHAP and LIME were moderately helpful
- No-explanation condition received the lowest ratings

XAI TOOL	Count	CAUSABILITY	EXPLAINABILITY	TRUST	SATISFACTION
NON	9	-0.44 (2.46)	-0.48 (2.26)	-0.11 (1.56)	-0.52 (1.72)
DICE	10	1.90 (0.77)	1.77 (0.92)	1.40 (0.93)	1.80 (1.31)
LIME	5	0.40 (0.80)	1.07 (0.76)	1.13 (0.69)	0.60 (0.89)
SHAP	10	0.80 (1.53)	0.77 (1.32)	0.60 (1.31)	0.63 (1.78)

The table presents the various XAI tools and the Mean(STD) results for each tested variable.