



Resume Radar – NLP based Streamlined Recruitment Process

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Project Guide
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Outline

- Introduction
- Literature Survey of the existing systems
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Introduction

In today's competitive job market, managing a large volume of resumes can be challenging, and traditional recruitment methods are often slow and error-prone. Resume Radar tackles these issues by leveraging NLP technology to automate resume screening, enhancing efficiency, accuracy, and overall hiring effectiveness.

Motivation:-

The growing complexity of the job market and the high volume of applications overwhelm recruiters, leading to delays and potential biases in hiring.

Resume Radar uses NLP technology to automate and improve resume screening, reducing errors and biases, and making the recruitment process faster and more effective.

This innovation aims to enhance candidate selection and overall hiring outcomes

Objectives:-

Implement a streamlined system where candidate resumes are assessed by qualifying staff and a dedicated committee.

Employ resume screening and matching technology to quickly identify candidates meeting our specific criteria.

Establish a qualifying and approval process to thoroughly review candidates before interviews, saving time and ensuring only the best are considered.

Involve a dedicated committee of experts to provide diverse perspectives and comprehensive evaluations.

Literature Survey of the existing system

SR. NO	TITLE	AUTHOR	YEAR	OUTCOMES	METHODOLOGY	RESULT
1.	Resume Shortlisting Using NLP[1]	Nikhil Kumar Thakur	2024	The recruitment process was automated, reducing manual effort and improving candidate selection efficiency.	The system parses resumes, applies NLP techniques (tokenization, lemmatization, NER), and uses a trained NER model with cosine similarity to match resumes with job descriptions.	The system effectively shortlisted resumes with high precision and recall scores.

Literature Survey of the existing system

SR. NO	TITLE	AUTHOR	YEAR	OUTCOMES	METHODOLOGY	RESULT
2.	Enhancing Recruitment Processes Using Machine Learning Algorithms [2]	A. Smith	2022	The study showcased how machine learning algorithms streamline recruitment by automating resume screening, resulting in faster hiring and better talent matching.	Machine learning models, including classification algorithms and NLP, were used to match resumes with job descriptions and prioritize candidates based on skill relevance.	Implementing these algorithms reduced manual screening time, improved candidate matching accuracy, and minimized biases in hiring decisions.

Literature Survey of the existing system

SR. NO	TITLE	AUTHOR	YEAR	OUTCOMES	METHODOLOGY	RESULT
3.	Web Application for Screening Resume[3]	Nikita Jayakar	2019	The system automates resume screening by ranking candidates based on relevance to job descriptions, reducing recruiter effort.	It uses NLP and machine learning for text extraction and comparison, scoring resumes against job requirements.	The model, trained on 220 resumes, achieved expected accuracy, improving efficiency in candidate selection..

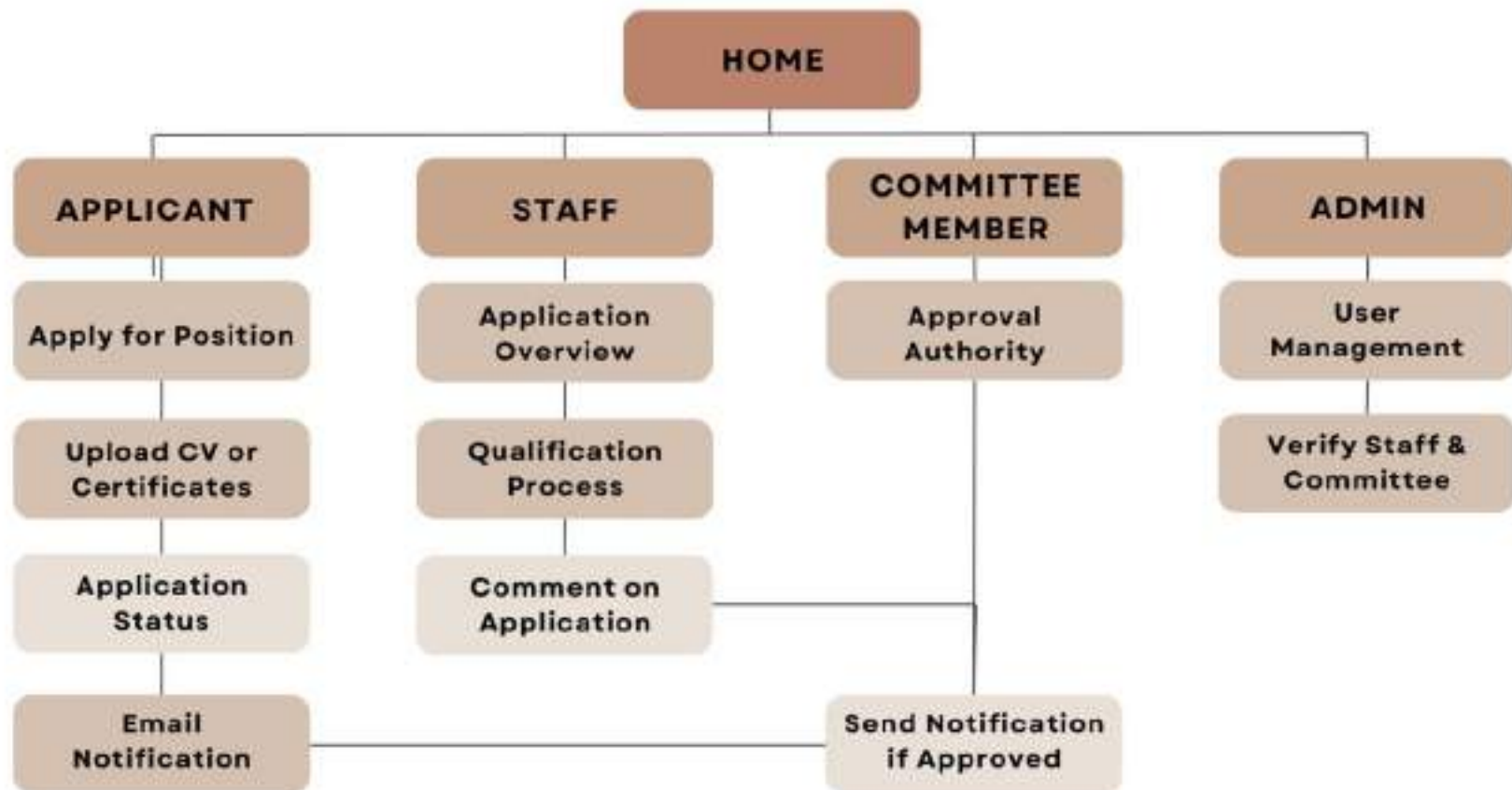
Limitations of existing systems

- **Limited Dataset:** The model is trained on only 354 resumes, limiting its ability to handle diverse resume formats and job profiles across industries.
- **Manual Re-training Requirement:** The need to retrain the model with more relevant data if the F1 score is low introduces manual effort, reducing automation efficiency.
- **Bias in Training Data:** A biased or non-diverse training dataset may lead to the model reinforcing existing biases, affecting fairness in resume shortlisting.

Problem statement

- Organizations are struggling to efficiently manage and screen a high volume of resumes, often leading to delays and suboptimal hiring decisions.
- Traditional manual methods are time-consuming, labor-intensive, and prone to biases, which can result in overlooked talent and reduced hiring quality.
- There is a need for a solution that can automate and streamline the resume screening process to improve efficiency, accuracy, and fairness in recruitment.

System Design



Technologies and methodologies

- **Front-End:**
 - HTML
 - CSS
- **Back-End:**
 - Python
 - Django
 - Sqlite DataBase
- **Dataset:**
 - Resume Dataset from Kaggle
 - Updated Resume Dataset from Kaggle
- **Algorithm:**
 - Named Entity Recognition (NER) using SpaCy
 - Stochastic Gradient Descent (SGD)

Implementation

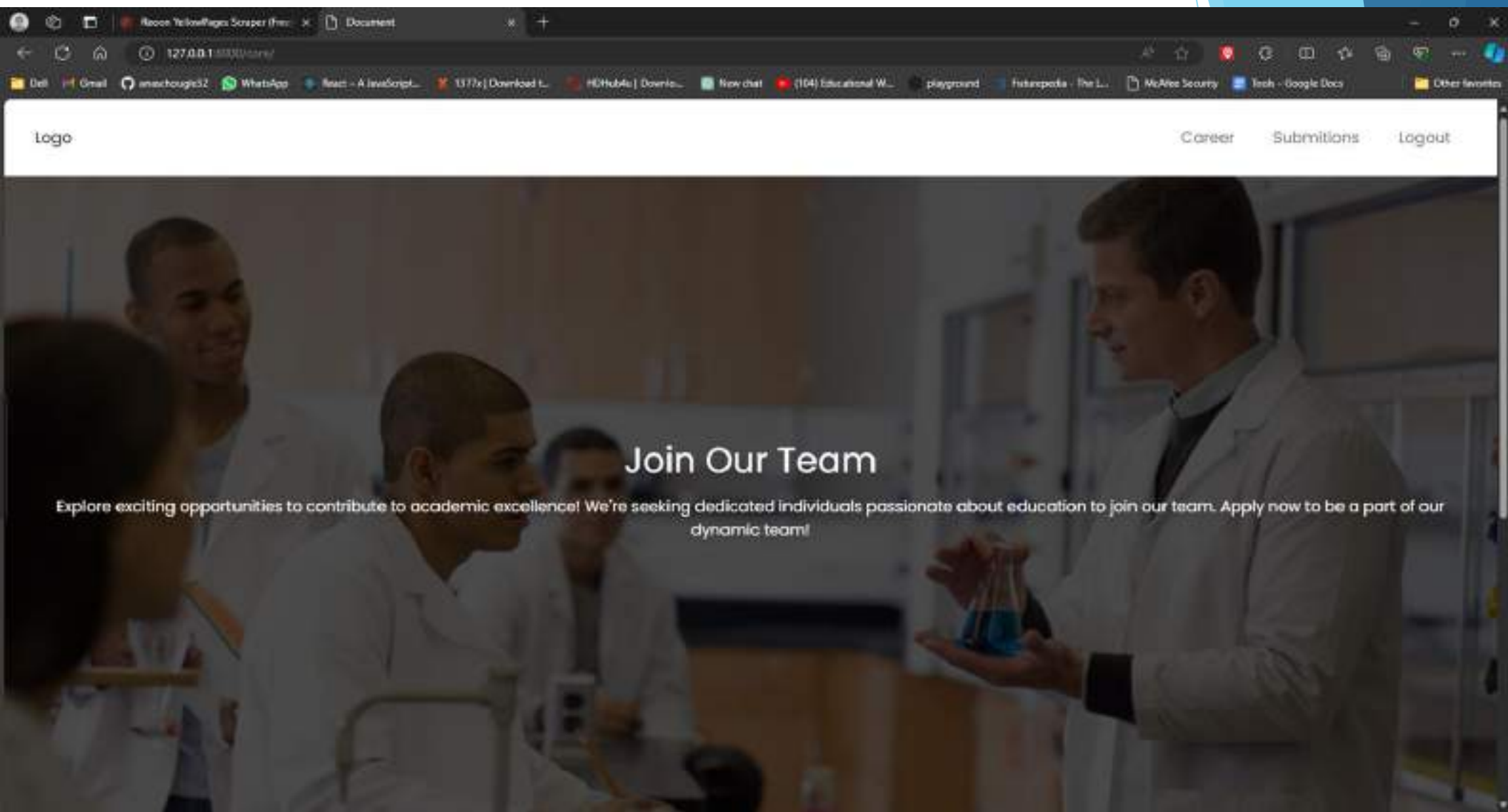


Fig.1:Homepage

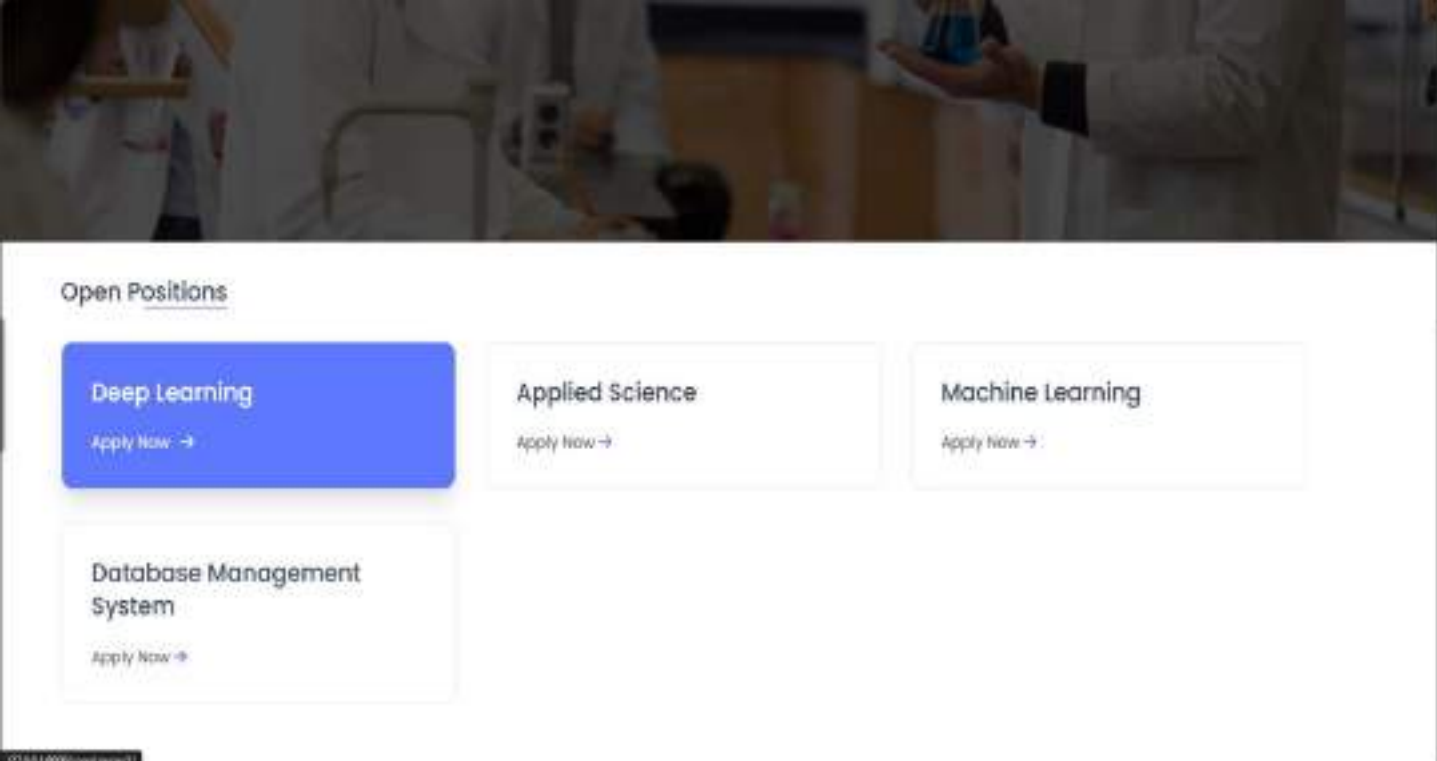


Fig.2.Dashboard

Fig.3.Job Description

A screenshot of a job description page for a 'Deep Learning' position. The page has a header with 'Logo' on the left and 'Career', 'Submissions', and 'Logout' on the right. The main heading is 'Deep Learning'. Below it is a paragraph describing the role. A 'Requirements' section lists four bullet points. On the right, there's a 'Send your application' section with a 'Attach your CV' area containing a 'Choose File' button and a 'No file chosen' text. Below that is an 'Add Certificates' section with a plus icon. At the bottom, there's a question 'Do you have experience working as a TA at North University?' with a 'Yes' checkbox, and a 'Why are you interested?' section with a text input area.

Applications

Email	Course	Status	Action
applicant@gmail.com	Deep Learning	✓ Approved	VIEW
applicant@gmail.com	Applied Science	✓ Approved	VIEW
applicant@gmail.com	Machine Learning	↑ Recommended	VIEW
applicant@gmail.com	Database Management System	📁 Submitted	VIEW
applicant@gmail.com	Deep Learning	📁 Submitted	VIEW
applicant@gmail.com	Deep Learning	📁 Submitted	VIEW
applicant@gmail.com	Deep Learning	↑ Recommended	VIEW

Fig.4.Application Status

Details

Name John Doe
Email applicant@gmail.com
Course Database Management System
Message Hi
CV VIEW
CIR VIEW
Certificate VIEW

Recommend

Checklist

75.0%

- ☒ Bachelor's degree in a relevant field
- ☐ Prior teaching experience
- ☒ Ability to work collaboratively
- ☒ Organizational skills
- ☒ Certifications and Training
- ☒ Additional Qualifications
- ☒ Personal Statement/Statement of Purpose
- ☐ Proficiency in specific subject areas

Save

Comments

Add a comment

COMMENT

Fig.5.Admin Page

Open Positions

Deep Learning

edit →

Applied Science

edit →

Machine Learning

edit →

Database Management
System

edit →

+

Applications Courses Logout

Fig.6.Job Opening

Fig.7.Cv Check

Details

Name John Doe

Email applicant@gmail.com

Course Deep Learning

Message

Lorem ipsum dolor sit, amet consectetur adipiscing elit. Quia beatae ducimus blanditis aliquam quasi qui facere totam, eos eaque inventore, esse impedit?

CV

VIEW

1 like 0 reply

Approved

Checklist

50.0%

- ☒ Bachelor's degree in a relevant field
- ☒ Prior teaching experience
- ☒ Ability to work collaboratively
- ☒ Organizational skills
- ☐ Certifications and Training
- ☐ Additional Qualifications
- ☐ Personal Statement/Statement of Purpose
- ☐ Proficiency in specific subject areas

Comments

Add a comment

COMMENT

John Doe · 554K · Nov 07, 2022

Conclusion

Implementing NLP (Natural Language Processing) in Resume Radar enhances the efficiency and accuracy of resume screening and candidate matching. By analyzing language patterns and extracting relevant skills, NLP helps match candidates more effectively with job requirements. This streamlines the recruitment process, reduces manual effort, and improves alignment between candidates and roles. The data-driven approach optimizes hiring decisions, contributing to better talent acquisition and overall organizational success.

References

[1] Dr. Ambareesh S., Nikhil Kumar Thakur, Ujjwal Bhattarai, Saurav Kumar Yadav, Jay Nath Thakur, Amrit Kumar Mahato, Resume Shortlisting Using NLP, 4th IEEE International Conference on Data Engineering and Communication System (ICDECS 2024).

<https://ieeexplore.ieee.org/document/10502580>

2] M. Kowalski, L. Zhang, and A. Smith, "Enhancing Recruitment Processes Using Machine Learning Algorithms," 2022 IEEE International Conference on Artificial Intelligence and Machine Learning (AIML2022).

<https://ieeexplore.ieee.org/document/9634567>

[3] Sujit Amin, Nikita Jayakar, Sonia Sunny, Pheba, Babu. M. Krruthika, Ambarish Gurjar, Web Application for Screening Resume, 2019 International Conference on Nascent Technologies in Engineering (ICNTE 2019).

<https://ieeexplore.ieee.org/document/8945869>

Thank You...!!