

# AI-Powered Tool for Recruitment - TalentThunder

Ayush  
Department of Computer  
Science and Engineering,  
Apex Institute of Technology  
Chandigarh University,  
Mohali, Punjab

Angelee Ahuja  
Department of Computer  
Science and Engineering,  
Apex Institute of Technology  
Chandigarh University,  
Mohali, Punjab

Sheetal Rao  
Department of Computer  
Science and Engineering,  
Apex Institute of Technology  
Chandigarh University,  
Mohali, Punjab

Manogna Kachiraju  
Department of Computer  
Science and Engineering,  
Apex Institute of Technology  
Chandigarh University,  
Mohali, Punjab

Sukhmeet Kour  
Department of Computer Science and Engineering,  
Apex Institute of Technology Chandigarh University,  
Mohali, Punjab

**Abstract:-** TalentThunder is an innovative AI-powered tool designed to streamline the recruitment process and reduce the risk of hiring mistakes while improving retention rates. With its comprehensive CV analysis capabilities and video conferencing interview round feature, TalentThunder is the ultimate recruitment solution for organizations looking to hire the best candidates for their open positions.

The heart of TalentThunder lies in its ability to analyze resumes or CVs based on a set of criteria specified by the user. The tool evaluates a candidate's education, work experience, achievements, and skills, and identifies any gaps or inconsistencies in their career history. This allows recruiters to make more informed decisions about the candidate's fit for the role, reducing the risk of costly hiring mistakes.

The video conferencing interview round feature is another crucial aspect of TalentThunder that makes the recruitment process more efficient and accurate. Recruiters can hold interviews with candidates and store the transcript in the database, making it easier to analyze and reference later on. This feature allows recruiters to assess a candidate's communication skills and personality, helping them to make better hiring decisions.

TalentThunder also leverages web scraping technology to collect data from professional sites like LinkedIn. The collected data is stored in the database, and HR personnel can use it to classify candidates based on their profiles. This saves a considerable amount of time that would otherwise be spent manually searching for candidate information.

To ensure scalability and reliability, the system is containerized using Docker and orchestrated using Kubernetes. The code repository is hosted on GitHub, and the CI/CD pipeline is managed by Jenkins. The system is deployed on Azure AKS services, which provides high

availability and scalability, making TalentThunder the most reliable and efficient recruitment tool on the market.

In comparison to existing systems, TalentThunder has several advantages. Unlike traditional Application Tracking Systems (ATS), TalentThunder uses advanced AI technology to analyze CVs and match them with job requirements, ensuring a higher degree of accuracy and efficiency in the recruitment process. The video conferencing interview round feature allows recruiters to get a better understanding of the candidate's personality and communication skills, making the hiring process more holistic.

In conclusion, TalentThunder is the ultimate recruitment tool that provides organizations with a comprehensive solution to improve their recruitment process's accuracy and efficiency. The tool's unique features, including CV analysis, video conferencing interview round, and web scraping capabilities, make TalentThunder the ideal choice for organizations looking to hire the best candidates for their open positions.

**Keywords:-** Document Management, Search Optimization, Efficiency, Organization, Collaboration, Security, Web-Based Platform, Version Control, Encryption, Permission-Based Access, Scalability, Python, Docker, Kubernetes, Github, Jenkins, Azure AKS Services.

## I. INTRODUCTION

Recruitment is a critical function for any organization looking to build a successful team. However, finding the right candidates for the job can be a daunting and time-consuming task. HR personnel often have to sift through a vast number of resumes and applications, trying to identify the most suitable candidates for the role. This process can be further complicated by the lack of standardization in resumes, making it challenging to compare candidates effectively.

To address these challenges, the use of AI-powered tools in the recruitment process has gained popularity in recent years. These tools can help streamline the recruitment process by automating various tasks, such as screening resumes and matching candidates with job requirements. However, most of these tools focus on only one aspect of the recruitment process, such as applicant tracking or resume parsing.

In this context, TalentThunder aims to provide a comprehensive solution for the recruitment process, leveraging AI technology to match candidates with the right job requirements. The tool is designed to reduce the risk of hiring mistakes and improve retention rates, making it a valuable tool for organizations looking to build a successful team.

TalentThunder uses AI algorithms to analyze resumes or CVs based on a set of criteria specified by the user. The tool evaluates a candidate's education, work experience, achievements, and skills to determine their potential suitability for the job. It can also identify any gaps or inconsistencies in a candidate's career history, allowing recruiters to make more informed decisions about the candidate's fit for the role.

Moreover, TalentThunder goes beyond just analyzing resumes. It provides a video conferencing interview round feature that allows recruiters to hold interviews with candidates and store the transcript in the database. This feature can be useful for later analysis or as a reference point during the recruitment process. Additionally, TalentThunder leverages web scraping technology to collect data from professional sites like LinkedIn. This data is stored in the database, and HR personnel can use it to classify candidates based on their profiles.

In this project, we aim to develop TalentThunder, containerize it using Docker, and orchestrate it using Kubernetes. The code repository will be hosted on GitHub, and the CI/CD pipeline will be managed by Jenkins. The system will be deployed on Azure AKS services for scalability and reliability. The proposed system has advantages over existing systems, such as Applicant Tracking System, by providing a comprehensive solution to improve the recruitment process's accuracy and efficiency.

Overall, TalentThunder is an innovative tool that promises to revolutionize the recruitment process by leveraging AI-powered technology. It has the potential to significantly reduce the time and effort required for hiring, allowing HR personnel to focus on more strategic initiatives for the organization.

## II. EASE OF USE

### A. Problem Definition

The recruitment process can be time-consuming and expensive, and the risk of hiring mistakes can have a significant impact on an organization's success. Traditional methods of candidate screening rely on manual processes that are often

subjective and prone to error. The aim of this research project is to address these challenges by developing an AI-powered tool called TalentThunder, which can analyze resumes and match candidates with the right job requirements, reducing the risk of hiring mistakes and improving retention rates. Additionally, TalentThunder offers a video conferencing interview round feature and leverages web scraping technology to collect data from professional sites like LinkedIn, providing a comprehensive solution to improve the accuracy and efficiency of the recruitment process.

### B. Problem Overview

The TalentThunder project aims to address the challenges associated with the recruitment process, such as the risk of hiring mistakes and the inefficiency of traditional screening methods. By leveraging AI technology and data analysis techniques, TalentThunder offers a comprehensive solution for recruiters to streamline their recruitment process, making it more efficient and accurate. This project involves the development of a containerized software system that utilizes various tools and frameworks, including Python, Streamlit, Pandas, Numpy, Seaborn, Tkinter, Pyreparser, Sklearn, NLTK, and Scipy. The system is deployed on Azure AKS services and managed using Kubernetes, with code repository hosted on GitHub, and a CI/CD pipeline managed by Jenkins. The system's key features include comprehensive CV analysis, video conferencing interview round, and web scraping technology to collect data from professional sites like LinkedIn. The system offers advantages over existing systems such as Applicant Tracking System, making it a valuable tool for organizations looking to improve their recruitment process's accuracy and efficiency.

### C. Hardware Specification

- Processor: 4GB RAM, i5 11th generation (Minimum)
- GPU: No Requirement

### D. Software Specification

- IDE: VS Code
- Containerization Tool: Docker
- Container Orchestration Tool: Kubernetes
- Code Repository: GitHub
- CI/CD Tool: Jenkins
- Cloud Provider: Azure AKS services
- For Compilation: Python
- Dependency: fs, axios, Elasticsearch, mime-types, Multer, pdf-imp-convert

The proposed AI-powered tool for recruitment, TalentThunder, offers significant advantages over existing systems such as Applicant Tracking Systems. By leveraging advanced technologies like natural language processing, video conferencing, and web scraping, TalentThunder streamlines the recruitment process, reduces hiring risks, and improves retention rates. The tool provides comprehensive CV analysis and can match candidates with the right job requirements,

making the selection process more accurate and efficient. Additionally, TalentThunder is containerized using Docker and orchestrated using Kubernetes, ensuring scalability and reliability. These features make TalentThunder an innovative and valuable tool for organizations looking to hire the best candidates for their open positions. . The platform's user interface is intuitive and easy to use, providing a streamlined experience for HR personnel. The tool's comprehensive CV analysis capability reduces the time and effort required for manual resume screening. TalentThunder can quickly and accurately evaluate candidate resumes based on specific job requirements, allowing HR professionals to identify suitable candidates with ease.

### III. LITERATURE SURVEY

#### ➤ Existing System

The process of hiring new candidates for a company is a critical and time-consuming task. The initial step in the recruitment process is to analyze the candidate's resume or CV to determine if they meet the job requirements. To simplify this process, several existing systems use algorithms to analyze and match CVs with job requirements such as Applicant Tracking Systems (ATS), Human Resources Information Systems (HRIS), and Recruitment Management Systems (RMS).

ATS is one of the most commonly used systems, which helps recruiters manage job postings, applications, and candidate communication. The software uses algorithms to filter and rank candidates based on their qualifications and experience.

HRIS is another widely used system that helps HR personnel manage employee data, benefits, payroll, and other HR-related tasks. It also includes recruitment and hiring modules that allow recruiters to manage job postings, applications, and candidate communication.

RMS is a comprehensive system that combines features of both ATS and HRIS. It includes modules for job posting, candidate sourcing, applicant tracking, interview scheduling, and onboarding. It also provides reporting and analytics tools to help recruiters make data-driven decisions. These systems are typically hosted on-premises or in the cloud and require significant infrastructure and IT support. They can be expensive to implement and maintain, and their complexity can make them difficult to use for smaller organizations.

Overall, while these systems can be effective in streamlining the recruitment process, they have limitations in terms of flexibility, scalability, and customization. This is where newer AI-powered tools like TalentThunder can offer advantages in terms of accuracy, efficiency, and cost-effectiveness.

#### ➤ Proposed System

The proposed TalentThunder is designed with the user in mind, making it an easy-to-use and efficient tool for HR personnel. The user interface (UI) is designed to be intuitive, requiring minimal training to get started. HR personnel can easily upload resumes or CVs and set criteria for analysis with just a few clicks. The tool then analyzes the resumes or CVs and provides a comprehensive analysis, including identifying any gaps or inconsistencies in a candidate's career history.

The video conferencing feature also makes it simple for HR personnel to conduct interviews with candidates. The transcript of the interview is automatically stored in the database, allowing for easy reference during the recruitment process. This feature saves time for HR personnel and provides a more accurate evaluation of the candidates' suitability for the role.

TalentThunder also integrates web scraping technology, which automatically collects data from professional sites like LinkedIn. This data is then stored in the database, allowing HR personnel to classify candidates based on their profiles, saving time and effort. This integration is achieved using DevOps, making the tool highly efficient and reliable.

The use of DevOps is essential to TalentThunder's success. The project is containerized using Docker, which allows for easy deployment and management across different platforms. The tool is orchestrated using Kubernetes, which provides scalability and reliability, making it easy to handle the significant load of analyzing resumes and conducting interviews. The code repository is hosted on GitHub, making it easy to collaborate and manage changes to the project.

In addition to these benefits, TalentThunder also offers significant time savings for HR personnel. The tool automates many of the time-consuming tasks involved in the recruitment process, such as analyzing resumes and conducting interviews. This frees up time for HR personnel to focus on more critical tasks, such as evaluating the suitability of candidates and making the final hiring decision.

Overall, TalentThunder is an innovative and efficient tool that streamlines the recruitment process for HR personnel. The use of advanced technologies like natural language processing, video conferencing, and web scraping, combined with the benefits of DevOps, makes TalentThunder a valuable tool for organizations looking to hire the best candidates for their open positions. The simple and intuitive UI, combined with the time-saving features, makes TalentThunder an easy-to-use and effective tool for HR personnel, saving time and effort while improving the accuracy of the recruitment process.

#### IV. METHODOLOGY

##### A. Overview

The project aims to develop a comprehensive and efficient resume screening system called "TalentThunder" that utilizes advanced machine learning techniques and natural language processing. The system aims to improve the accuracy and efficiency of the resume screening process by analyzing resumes and job descriptions in a more sophisticated manner, identifying the most qualified applicants, and reducing the risk of hiring mistakes. This project involves a methodology that combines a literature survey of existing systems and studies in the field of resume screening with the development of a new system that builds upon these findings. It also involves the use of CI/CD and DevOps methodologies to ensure continuous testing and deployment of the system. The project also includes the incorporation of UI design, web scraping, and video conferencing capabilities into the system to enhance its functionality and user experience.

#### V. CONCLUSION AND FURTHER WORK

##### ➤ Conclusion

In conclusion, "TalentThunder" is an intelligent resume analysis system that has the potential to revolutionize the recruitment process. The system is designed to reduce the risk of hiring wrong person and improve retention by matching candidates with the right skills and experience to the job requirements. It uses machine learning and natural language processing techniques to automate the screening and selection process, saving time and resources while ensuring that the best candidates are selected for a job position.

The development process of "TalentThunder" follows an iterative and collaborative approach, leveraging DevOps practices to ensure that the system is always up-to-date, highly available, and can quickly respond to changes in the recruitment process. The system is developed using a microservices architecture and hosted on the cloud, making it highly available, scalable, and secure.

One of the key advantages of "TalentThunder" is its ability to process a large volume of resumes quickly and accurately. The system can analyze resumes and provide a shortlist of the most suitable candidates for each job position, eliminating the need for manual screening, which is time-consuming and prone to errors. This saves time and resources while ensuring that the best candidates are selected for the job.

In addition, the system provides a user-friendly interface for recruiters and hiring managers, allowing them to easily view and manage resumes, shortlist candidates, and communicate with them. The system also provides analytics and insights into the recruitment process, allowing organizations to measure the effectiveness of their recruitment strategies and make data-driven decisions.

In terms of future scope, "TalentThunder" has the potential to incorporate social media analysis and video analysis to provide a more comprehensive view of the candidate's suitability for a particular job position. It can also be enhanced to provide more personalized recommendations to candidates, based on their skills and experience.

Overall, "TalentThunder" is a highly efficient and automated system that has the potential to significantly improve the recruitment process. Its ability to reduce the risk of hiring wrong person and improve retention makes it an invaluable tool for organizations looking to hire the best candidates for a job position.

##### ➤ Future Scope:

There is a wide range of potential future enhancements for "TalentThunder". One possible enhancement is to incorporate social media analysis, where the system can analyze the candidate's social media presence to gain a better understanding of their personality, interests, and behavior. This could provide valuable insights into the candidate's suitability for a particular job position.

Another potential enhancement is to incorporate video analysis, where the system can analyze video resumes to gain a better understanding of the candidate's communication skills, body language, and presentation skills. This could provide a more comprehensive view of the candidate's suitability for a particular job position.

In addition, the system can be enhanced to provide more personalized recommendations to candidates, based on their skills and experience. This could include recommendations for relevant job positions, training programs, and career development opportunities.

Overall, there is a lot of potentials for "TalentThunder" to evolve and provide even more value to organizations and job seekers in the future.

#### ACKNOWLEDGMENT

We would like to express our sincere gratitude to all the individuals and organizations who contributed to the successful completion of the "TalentThunder" project. Firstly, . Their expertise and insight were invaluable in ensuring the project's success. We would also like to thank our team members, for their hard work, dedication, and collaboration. Each member brought unique skills and perspectives to the project, and their contributions were vital in achieving the project's goals. We are grateful to Chandigarh University, who provided us with the necessary resources and infrastructure to carry out the project. Their support enabled us to develop a scalable and efficient system that could handle large volumes of resumes and job positions. We would like to express our appreciation to the participants who volunteered to share their resumes for the purpose of data collection. Their contribution helped us to build

a robust dataset, which was critical in training the machine learning models. Finally, we would like to thank our families and friends for their support and understanding during the project's development. Their encouragement and motivation helped us to overcome challenges and stay focused on achieving the project's objectives.

### REFERENCES

- [1]. E. V. Razdobarina and A. V. Kuznetsov, "Design and development of a document management system," 2019 IEEE Conference of Russian Young Researchers in Electrical and Electronic Engineering (EIConRus), Moscow, Russia, 2019, pp. 1645-1649, doi: 10.1109/EIConRus49545.2019.8939446.
- [2]. S. Kadam and R. Dandekar, "Document management system using cloud computing," 2017 International Conference on Nascent Technologies in Engineering (ICNTE), Coimbatore, India, 2017, pp. 1-6, doi: 10.1109/ICNTE.2017.8293914.
- [3]. H. T. Gamage and K. R. U. Perera, "A document management system for small and medium enterprises," 2016 Moratuwa Engineering Research Conference (MERCon), Moratuwa, Sri Lanka, 2016, pp. 26-31, doi: 10.1109/MERCon.2016.7498377.
- [4]. K. R. K. Reddy and P. Sudhakar, "Design and implementation of a document management system using cloud computing," 2015 International Conference on Green Computing and Internet of Things (ICGCIoT), Noida, India, 2015, pp. 834- 839, doi: 10.1109/ICGCIoT.2015.7380592.
- [5]. S. S. Sule, "Design and implementation of a web-based document management system," 2017 3rd International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, India, 2017, pp. 2337-2342, doi: 10.1109/INDIACOM.2017.8019895.
- [6]. S. S. Sule, "Web-based document management system using open source technologies," 2015 International Conference on Advances in Computing, Communications and Informatics (ICACCI), Kochi, India, 2015, pp. 2365-2371, doi: 10.1109/ICACCI.2015.7276052.
- [7]. A. U. Khan, N. A. Khan and M. Farooq, "Towards efficient and intelligent document management system: A survey," 2018 2nd International Conference on Engineering and Emerging Technologies (ICEET), Islamabad, Pakistan, 2018, pp. 1-6, doi: 10.1109/ICEET.2018.8371163.