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NATIONAL SEMINAR - RESEARCH PAPER

BEYOND THE RESUME
An AI-Based Skill Graph Framework for Predicting Future Employability

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1.INTRODUCTION

Artificial Intelligence (AI) is mostly used in our Daily life and it is a Way of changing the way the people work and find jobs on our daily life. As technology Continues to develop, Companies are looking for people with new and updated skills. Because of these changes students and Working professionals may find it difficult to understand which skills they should learn and be perfect for future job opportunities.

To address this problem , This paper proposes an **AI-Based Skill Graph Framework** for **Predicting Future Employability**. The Framework aims to analyse job descriptions using the **Natural language Processing (NLP)**, identify important skills , and connect related skills with different job roles through a skill graph. And Discover What they need to learn next. The proposed framework aims to support better **career planning** and encourage **continuous learning** in a changing job marke**t**

2.REVIEW OF LITERATURE

Artificial Intelligence (AI) is helping people understand which skills are needed for different jobs. Companies look for people who have right skills and knowledge to do their work. **Natural language processing (NLP)** help computers read job descriptions and find the important skills mentioned in them. AI can also help people understand which skills they already known which new skills they need to learn

Earlier studies have looked at ways to match people's skills with suitable jobs and suggest useful learning opportunities. These methods can help the students and working people choose better career paths. However, job requirements keep changing as new technologies develop. Because of this people may find it difficult to known which skills will be useful in the future

To Solve this problem, this paper proposes and **AI-Based Skill Graph framework** for predicting **future employability**. The Framework aims to connect different skills Job roles and show people what they need to learn next. By studying job descriptions and changes in the skills required by companies, the framework could help people find their missing skills and prepare for future jobs. It aims to help students and employees plan their careers and continue learning new skills

3.RESEARCH GAP

Many Existing systems use artificial intelligence to match people with suitable jobs based on their skills and qualifications. These systems can help students and job seekers find opportunities that match their current abilities, However people may still find it difficult to understand which new skills they should learn to prepare for the future job opportunities

Technology is changing quickly, and companies need new skills as job requirements change. Students and employees may find it difficult to known which skills they should improve or learn for future jobs for example, a person who knowns python may need to learn for future jobs For example, a person who knows python may need to learn data analysis or machine learning to explore more career opportunities

To Address this problem, this paper proposes an **AI- Based Skill Graph Framework** for **predicting future employability**. The Framework aims to **connect existing skills with related skills, job roles, and learning paths**. by analysing job descriptions and changes in skill requirements, it could help people identify missing skills, choose what to learn next, and prepare for future job opportunities

To address this problem, this paper proposes an AI-Based Skill Graph Framework for predicting Future Employability . The Framework aims to connect existing with related skills, job roles, and learning paths. By **analysing job descriptions and changes in Skill requirements** could help people **identify missing skills**, **choose what to learn next**, and **prepare for future job opportunities**.

4. OBJECTIVES OF STUDY

The Main Objective of this Study is to propose an **AI- Based Skill Graph Framework** that helps students and employees **prepare for future job opportunities**

The specific objectives are

1.) **To identify important Skills from job descriptions** using **Natural Language processing (NLP)**
2.) **To connect related skills with different jobs roles** through **skill graph**
3.) To **identify skill gaps** between a person's **existing skills and job requirements**
4.) To **suggest useful skills** that individuals can learn to **improve their career opportunities**
5.) To study how **changing job requirements** can help people plan their **future learning and career development**

5 . CONCEPTUAL BACKGROUND

Artificial intelligence (AI) is a technology that helps the computers perform tasks that normally require human intelligence. In the employment field, AI can help analyze job descriptions, identify required skills and support career planning

Natural language processing (NLP) is a part of AI that help computers understand and process human language. In this study, NLP Would be use to identify important skills from the job descriptions and organize them for future analysis

A Skill Graph is a structure that shows the relationships between different skills and job roles For example, Python may be connected to data analysis and machine learning. These connections can help individuals understand which skills are related to their career goals

Skill gap analysis involves comparing a person's existing skills with the skills required for a particular job. It helps identify areas where additional learning may be needed. Based on this information, a recommendation system could suggest relevant skills for further development

The proposed Framework combines these concepts to support future employability. By analysing job requirements and relationships between skills, it aims to help the students and employees understand changing skills demand and make better decisions about their learning and career development

However its ability to predict future skill demand would need to be evaluated using relevant employment data.

6.PROPOSED METHODOLOGY

This study proposes an **AI-Based Skill Graph Framework** for predicting Future Employability. The **Framework aims to analyse job Descriptions, identify important skills, connect skills with job roles, and recommend skills that individuals may need to learn**. This proposed methodology consists of the following steps

6.1) Data Collection

The First step is to **collect the job descriptions from the online job portals and publicly available employment data**. The data may include **job titles, Required skills, qualifications, and experience**. This information would help the framework understand the skills required for different job roles

6.2) Skill Extraction Using NLP

Natural Language processing (NLP) Would be used to **identify important skills from the Collected jobs descriptions**. For example, A software Developer job description may

mention Python, Java, SQL and problem solving. The framework would **extract these skills and organize them for further analysis**.

6.3) Skill Graph Construction

The extracted skills would be **connected to the related skills and job roles to create the skill graph**. For example, Python may be linked to data analysis and machine learningv. These connections would help the people to show **how different skills relate to various career opportunities**

6.4) Skill Graph identification

The framework would **compare an individual's existing skills with the skills required for a selected job role**. The **missing or underdeveloped skills** would be identified as **possible skills gaps**. This information could help individuals understand which **areas need further learning**.

6.5) Skill Recommendation

Based on **identified skill gaps and connections in the skill graph**, the framework would **recommend relevant skills for learning SQL, Python, and data visualization**. These recommendations would support **career planning and skill development**.

6.6) Future Skill Demand Analysis

The Framework would **analyze job descriptions collected over different periods to identify changes in skill requirements**. By examining how frequently particular skills appear over time , it may **identify emerging skill demand**. These patterns could help individuals prepare for changing employment needs. However,. **reliable predictions would require sufficient data and proper evaluation**

Overall, the proposed methodology combines NLP, skill graph construction, Skill gap identification, Skill recommendation, and **Future skill demand analysis**. The framework is intended to help the students and employees understand changing job requirements and **make informed decisions about their career development**

7.HOW THE SYSTEM WILL WORK

The proposed system will help the students and employees **understand which skills they need for future jobs**. It will collect job details, Find the skills needed, connect skills with the job roles and **suggest skills to learn**

7.1) Collecting Job details

The System will **collect Job descriptions** containing **job roles and required skills**

7.2) Cleaning the data

The collected data will be **cleaned by removing unwanted and repeated information**

7.3) Finding Skills using AI

NLP will identify important skills, such as **python, Java and SQL** from job Descriptions

7.4) Connecting Skills and jobs

The system will **connect related skills with different job roles**

7.5) Finding Missing skills

The System **will compare a person's skills with Job requirements** to find the missing skills

7.6) Suggesting Skills to learn

The system will **suggest useful skills based on the identified skill gaps**

7.7) Showing the Results

The system will **display missing skills and learning suggestions** to **help users prepare for future job**.

8.EXPECTED OUTCOMES

The proposed Framework is expected to:

1.) Identify **important skills required** for different **jobs**
2.) Show the **missing skills** a person may need to learn
3.) Suggest **useful skills for future job opportunities**
4.) Help **students and employees plan their careers**
5.) Help people understand changes in job requirements

9.CONCLUSION

Artificial Intelligence is changing the skills needed for future jobs. This paper proposes an **AI- Based Skill Graph Framework** to help students and employees **understand these changing skill requirements**

The proposed Framework aims to identify skills from job Descriptions, Connect skills with job roles, **Find missing skills**, and **suggest useful skills to learn**. It may help people plan their careers and prepare for future job opportunities

In Conclusion, the framework aims to support **better career planning and continuous learning** However, the system needs to be developed and tested to understand how effectively it can help people prepare for future employment.

10. REFERENCES

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