IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

An AI-Driven System for Portfolio Management

Harshavardhan Surya B S, Inbakumar R, Santhoshkumar K, Sundaresa Ragavan S
Department of Computer Science and Engineering
Hindusthan College of Engineering and Technology
Coimbatore, INDIA

Abstract—Employee Portfolio Management, fuelled by advanced artificial intelligence (AI) techniques, stands out as a transformative strategy that has the potential to reshape how businesses optimize their human resources. In this context, Employee Portfolio Management refers to the systematic and data-driven process of understanding, organizing, and leveraging the skills, experiences, and aspirations of each employee within an organization. Unlike traditional approaches that often focus solely on job roles and responsibilities, Employee Portfolio Management takes a holistic view of individuals, acknowledging their diverse talents and potential contributions.

The integration of AI-driven techniques into Employee Portfolio Management introduces a game-changing element. These AI algorithms can analyze vast amounts of data related to each employee, ranging from their educational and professional background to their on-the-job performance and skill development. By processing this data, AI can uncover patterns, correlations, and insights that might not be immediately apparent through manual methods

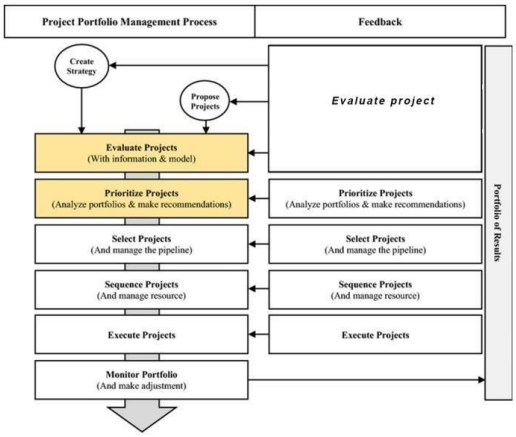
Index Terms—Skills assessment, AI-driven analytics, Datadriven approach, Pattern recognition

I. INTRODUCTION

In the ever-evolving landscape of talent acquisition and workforce optimization, organizations are increasingly turning to cutting-edge technologies to revolutionize traditional practices. One such transformative force is the integration of Artificial Intelligence (AI) into portfolio management systems. In an era where the depth and breadth of an individual's skills often transcend the limitations of a conventional resume, AIdriven portfolio management emerges as a game-changing approach, offering unprecedented insights and efficiencies. The traditional recruitment processes, relying heavily on standardized resumes and keyword matching, often struggle to capture the nuanced and dynamic nature of an individual's professional journey. In contrast, AI-driven portfolio management leverages advanced algorithms to analyze, interpret, and derive meaningful patterns from the wealth of information contained within digital portfolios. This approach not only enhances the accuracy of talent assessments but also brings a level of personalization and depth to the evaluation process that was previously unattainable. This introduction sets the stage for a deeper exploration of the transformative impact of AIdriven systems in portfolio management. By delving into the intricacies of how these systems process data, interpret skills and facilitate more informed decision-making, we uncover a paradigm shift in how organizations identify, assess, and strategically leverage the talents of their workforce.

II. METHODOLOGY

This research employs a mixed-methods approach to investigate the impact and effectiveness of Portfolio-Driven Job Portals and AI-driven Employee Portfolio Management in modern talent management. In the quantitative phase, a survey will be conducted using a structured questionnaire distributed electronically to a stratified random sample of 500 professionals across industries. The survey will collect data on user satisfaction, demographics, and perceived effectiveness of the systems. Simultaneously, in the qualitative phase, indepth interviews and case studies will be conducted with HR professionals, recruiters, and employees. A purposive sampling strategy will guide the selection of participants with direct experience in Portfolio-Driven Job Portals and AI-driven talent management systems. Quantitative data analysis will involve descriptive statistics such as means and percentages to analyze survey responses. Inferential statistics, including correlation analysis, will explore relationships between variables. For qualitative analysis, thematic analysis will be employed to identify key themes and patterns in the interview and case study data. Thematic coding will be iterative, allowing for the emergence of new themes during the analysis process. Ethical considerations are paramount in this study. Informed consent will be obtained from all participants, ensuring they understand the purpose and implications of the study. Participant data will be anonymized to protect confidentiality, and participants will have the right to withdraw from the study at any point without consequence.



III. SYSTEM ANALYSIS AND SPECIFICATION

A. System Analysis

1) Existing System : The landscape of HR software and talent management systems is dynamic, with various companies offering solutions that may include features related to employee portfolios. However, some well-known HR and talent management systems incorporate elements of employee portfolio management, allowing organizations to track and manage employee skills, experiences, and performance. These systems often provide functionalities such as employee profiles, skills assessments, and performance evaluations.

a) Disadvantages :

- Existing systems may not adapt to changes in employee skills or career goals over time, leading to career stagnation.
- Traditional systems may lack predictive analytics for performance assessment, relying on past data rather than future struggles
- The system struggles to measure and enhance employee engagement effectively
- Traditional systems may rely on annual performance reviews, which can be infrequent and less effective in providing timely feedback.

2) Proposed System : An AI-driven web and mobile application that bridges the gap between the employer and job seeker that helps in the retention of talented workforce within the organization along with the following features:

1) Improved Interpersonal Relationships: Participants should experience enhanced communication, empathy, and conflict resolution skills, leading to healthier and more effective relationships both personally and professionally.
2) Enhanced Job Searching: Individuals should be better equipped to work collaboratively within teams, leading to an increase in job opportunities.
3) Effective Portfolio: Participants who engage in the management of an effective portfolio should develop the skills necessary to lead with confidence, inspire others, and drive positive change

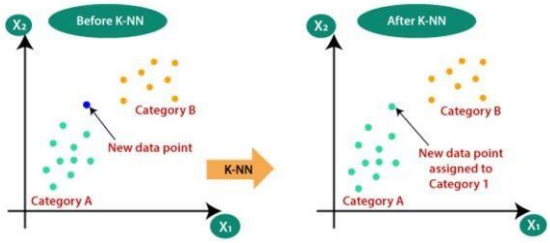
IV. ALGORITHMS

A. K-Nearest Neighbour

- K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on the Supervised Learning technique.
- K-NN algorithm assumes the similarity between the new case/data and available cases and puts the new case into the category that is most like the available categories.
- K-NN algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a suite category by using the K- NN algorithm
- K-NN algorithm can be used for Regression as well as for Classification but mostly it is used for Classification problems.
- K-NN is a non-parametric algorithm, which means it does not make any assumption on underlying data.
- It is also called a lazy learner algorithm because it does not learn from the training set immediately instead it stores the dataset and at the time of classification, it performs an action on the dataset.

B. Why do we need a K-NN Algorithm?

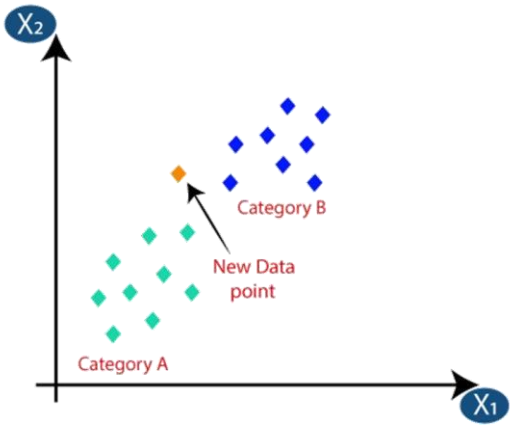
Suppose there are two categories, i.e., Category A and Category B, and we have a new data point x1, so this data point will lie in which of these categories? To solve this type of problem, we need a K-NN algorithm. With the help of KNN, we can easily identify the category or class of a particular dataset.



C. How does K-NN work?

The K-NN working can be explained based on the below algorithm:

- Step-1: Select the number K of the neighbours.
- Step-2: Calculate the Euclidean distance of K number of neighbours.
- Step-3: Take the K nearest neighbours as per the calculated Euclidean distance.
- Step-4: Among these k neighbours, count the number of the data points in each category.
- Step-5: Assign the new data points to that category for which the number of neighbours is maximum.
- Step-6: Our model is ready. Suppose we have a new data point, and we need to put it in the required category



ACKNOWLEDGMENT

We take this opportunity to express our wholehearted thanks and our profound respect to all those who guided and inspired us in the completion of this phase I project work.

We extend our sincere thanks to the Founder and Chairman of Hindusthan Educational and Charitable Trust Shri. T. S. R. Khannaiyann and the Managing Trustee Smt. Sarasuwathi Khannaiyann and Executive Trustee Secretary Mrs Priya Satish Prabhu for providing essential infrastructure.

We would like to reveal our profound thanks to our respected CEO Dr. K. Karunakaran and Principal Dr. J. Jaya who happens to be a striving force in all endeavours.

We would like to express our gratitude to the Head of the Department Dr. Shankar S for bringing out the project successfully and for strengthening the ray of hope.

We would like to express our sincere thanks and a deep sense of gratitude to our Guide Mr. Magesh D Assistant Professor, Computer Science and Engineering, for his valuable guidance, suggestions and constant encouragement which paved the way for the successful completion of the project work.

We express our immense pleasure and thankfulness to our Class Advisor, Mr. Jayaraj R, Assistant Professor and all other Faculty members of the Department of Computer Science and Engineering, technical staff and friends who helped us with the successful completion of this project.

We express our earnest gratitude to our family members who encouraged us and strengthened us in the perilous path, encountered during our task.

REFERENCES

[1] Bryman, A., Bell, E. (2003). Business Research Strategies in Business Research Methods, Oxford University Press.

[2] Cooper, R. G., (2001), Winning at new products, 3rd edition, ISBN-13:
978-0-7382-0463-5, ISBN- 10 0-7382-0463-3

[3] Cooper, R. G., Edgett, S. J., Kleinschmidt, E. J. (1997). Portfolio Management in NewProduct Development: Lessons from the Leaders - Part I., Research TechnologyManagement

[4] Goffin.G., Mitchell.R., (2010), Innovation Management Strategy and Implementation Using the Pentathlon Framework, (ISBN: 9780230205826)

[5] Levine, H. A., (2005), Project portfolio management: a practical guide to selecting projects, and maximizing benefits, 1st.ed.), ISBN-13 9780-7879-
7754-2, ISBN-10 0-7879-7754-3

[6] Project Portfolio Management - A Case Study at Transportation Industry, Final degree project 4G1187 (30 ECTS) The Royal Institute of Technology (KTH) KTH School of Technology and Health, Supervisor, KTH: Roland Langhe