**Proposal Title: AI-Powered Resume Screening System**

**Domain of Interest:** Human Resource Management/Talent Acquisition

**Problem Definition:** Recruiters manually analyze many resumes, requiring an effective and accurate screening process (Higgins, 2019; Harsha et al. 2022). A study found that recruiters spend 23 hours evaluating resumes for one job. This lengthy process highlights the need for more efficient screening (Khatal et al. 2021).

**How AI will fit for solving the problem:** AI-powered resume screening speeds up recruiting, scales, and reduces bias (Blessing 2025). Natural Language Processing and Machine Learning algorithms will be used to evaluate large resumes and identify the most qualified candidates based on given criteria.

**Hypotheses:** AI-powered resume screening system can reduce screening time by 60% while improving the accuracy and efficiency of candidate shortlisting and human bias in the recruitment process.

**Proposed Agent design to solve the problem using AI techniques**

Take in resumes in multiple format

Use Name Entity recognition for extraction of skills, experience and other key attributes

Text classification for skill matching

Use of ranking systems/models based on job requirement

The built models will be evaluated for efficiency with alongside a working prototype designed that lets resumes be uploaded in order to test the concept for deployment.

**Aim and Objectives**

The aim of this project is to build an efficient AI-powered resume screening system. The objectives include

Develop an automated resume system that can read resume content accurately

Apply classification model and ranking models for candidate-job matching

Carry out performance evaluation on the built system and assess bias reduction in the screening process

**Dataset description (include URL of data source)**

A secondary data containing different job roles and experience levels collected on Kaggle will be used for this study. https://www.kaggle.com/datasets/gauravduttakiit/resume-dataset

**References**

Blessing, M., 2025. *AI-Powered Resume Screening: Benefits and Challenges* [online]. Available from: https://www.researchgate.net/publication/388688179\_AI-Powered\_Resume\_Screening\_Benefits\_and\_Challenges.

Harsha, T. M., Moukthika, G. S., Sai, D. S., Pravallika, M. N. R. and Anamalamudi, S., 2022. Survey on Resume Screening Mechanisms. *International Journal of Computer Science and Engineering*, 9 (4), 14–22.

Higgins, G., 2019. *Screening the Managerial Applicant: A Descriptive Screening the Managerial Applicant:* [online]. The Aquila Digital Community . Available from: https://aquila.usm.edu/cgi/viewcontent.cgi?article=2703&context=dissertations.

Khatal, N., Chaughule, S. and Mangaonkar, N., 2021. Resume Screening Bot Using RPA. *Advances in Intelligent Systems and Computing*, 723–732.