*AI-Augmented Chrome Extension for Proactive Detection of Deceptive Job Listings on Naukri.com*

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*Abstract*—The rapid growth of online job portals like Naukri.com has made job searching more accessible but has also led to an increase in fraudulent job listings, exposing job seekers to scams and misinformation. Many deceptive employers post misleading job descriptions, demand upfront payments, or collect personal data for malicious purposes. To address this issue, we propose an AI-powered Chrome extension that detects and flags potentially deceptive job postings, enhancing job seekers' safety and trust in online recruitment. Our solution leverages natural language processing (NLP) and machine learning (ML) to analyze job descriptions, employer details, and other relevant factors, assessing the credibility of job listings in real time. The extension provides users with alerts, risk scores, and insights based on historical data, scam indicators, and user feedback. A continuously evolving dataset improves detection accuracy through adaptive learning mechanisms. Additionally, a user reporting feature allows job seekers to flag suspicious listings, further enhancing fraud identification. By empowering job seekers with valuable insights, our extension enables informed decision-making and reduces exposure to fraudulent job opportunities, contributing to a safer and more trustworthy digital recruitment ecosystem.

Keywords— Job fraud detection, online recruitment, AI, Chrome extension, natural language processing (NLP), machine learning (ML), scam detection, job portal security, fraudulent listings, risk assessment

# Introduction (*Heading 1*)

With the increasing reliance on online job portals like Naukri.com, job seekers are frequently exposed to fraudulent and deceptive job listings. Cybercriminals exploit these platforms by posting misleading job descriptions, impersonating legitimate companies, demanding upfront payments, and harvesting personal data for malicious purposes. These scams not only compromise job seekers' security but also erode trust in online recruitment platforms.

Traditional rule-based filtering mechanisms employed by job portals often fail to detect evolving fraud patterns, as scammers continuously adapt their techniques to bypass detection. The limitations of static rule-based methods necessitate the integration of more advanced AI-driven solutions that can dynamically analyze and identify fraudulent job postings.

To address this issue, we propose an AI-augmented Chrome extension that utilizes machine learning (ML) and natural language processing (NLP) techniques to assess the credibility of job postings in real time. By leveraging a combination of supervised and unsupervised learning models, our system aims to detect deceptive job listings based on various factors such as job description anomalies, employer credibility, and salary inconsistencies.

The proposed solution employs advanced text classification models, including deep learning-based transformers like BERT, alongside traditional ML algorithms such as logistic regression and random forests. Feature extraction techniques, such as Term Frequency-Inverse Document Frequency (TF-IDF), word embeddings (Word2Vec, FastText), and sentiment analysis, will be utilized to enhance fraud detection accuracy. Additionally, anomaly detection mechanisms using clustering algorithms like DBSCAN and Isolation Forest will help identify job postings that exhibit suspicious characteristics.

To further enhance reliability, the system will incorporate an adaptive learning mechanism, where flagged job postings contribute to continuous model retraining. A real-time risk scoring system, powered by ensemble learning techniques, will provide users with alerts and credibility insights. The inclusion of a user feedback loop will further refine the accuracy of the fraud detection model.

By integrating AI-driven classification models, real-time text analysis, and adaptive learning mechanisms, our project aims to create a secure and transparent job search experience. This initiative not only empowers job seekers with critical insights but also contributes to a more resilient digital recruitment ecosystem by proactively mitigating online job fraud.

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