



AI Driven Job Recommendation System on Education and Personal Preferences

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I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Science.



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DECLARATION

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Sri Lanka Institute of Information Technology or to any other institution for assessment for any other purpose.

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ABSTRACT

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Traditional career advising approaches have many disadvantages, including a narrow focus on individual assessments, standardized testing, ignoring unique circumstances of individuals, or assessment of labor market contexts or individuals. This paper describes the design and validation of an artificial intelligence (AI)-based career recommendation system that incorporates contextually relevant information including labor market trends and an individual's educational history, abilities, work experience, and preferences to deliver the most relevant career advice. The system uses a hybrid recommendation approach that utilizes both content-based and collaborative filtering, examining the attributes of the individual as well as information about similar users that diagnostic contexts. The recommendation system uses current labor market information that is accessed via available APIs and web scraping, providing current information relevant for the recommendations. The research uses a quantitative and experimental research design with about 1,000 participants that included students, recent graduates, and early-career workers. The system is powered by machine-learning algorithms including a neural network, decision trees, and ensemble approaches and evaluates using various understanding methods for understanding performance including precision, recall, and F1-score. The system was developed as a web application using Flask, and enables users to easily enter data, see visual recommendations, and provide feedback to improve evaluation. The final contributions of this research are the ability to deliver better approach to career decision-making using form of personalized advice, provide career development planning that aligns to market conditions, provide improved generic educational planning insights, and validate a hybrid way of filtering career information for use in career guidance.

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