

Analysis of Job Offers to Measure Gender Barriers through Natural Language Processing and Soft Computing Techniques

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Abstract-

Gender-biased language is still traced in job advertisements. Legal requirements to avoid direct gender-biased adjectives, and the usage of special software to detect and substitute gender-based words, scale up the issue more than solve it. The veil of discrimination on gender in job advertisements becomes more sophisticated with each succeeding level of its official and technical (including AI) prevention. This paper is mainly focused on the application of natural language processing (NLP) to detect gender-biased and discrimination of candidates by analyzing job offers posted online. NLP is an Artificial Intelligence tool that was applied in combination with Term Frequency-Inverse Document Frequency (TF-IDF) and Latent Dirichlet Allocation (LDA) to analyze the type of language used in job advertisements, detect the most relevant words used in the ads, and ultimately detect gender-bias. The main objective of this work is to provide equal access to employment opportunities from the very initial stage of the recruitment process. In addition, clustering techniques were applied to create groups based on the target public and the type of language used, providing evidence of gender-biased practices. The system was tested using a database of 2000 job ads in four different sectors: nursery, secretarial, managerial, and engineering.

Index Terms- Gender-biased job advertisement; natural language processing; artificial intelligence; equal opportunities; text classification techniques; machine learning

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