

Advanced AI Techniques for Analyzing Consumer Survey Responses

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Abstract. The paper investigates the application of advanced artificial intelligence (AI) techniques for analyzing consumer survey responses, aiming to predict customer preferences, sentiment, and the likelihood of future product usage. The research integrates methods from pattern recognition, machine learning, and data mining to extract valuable information from company surveys. Natural language processing (NLP) tools are used for linguistic tasks such as morphology, parsing, and semantics. The study explores ensemble learning algorithms, including bagging, boosting, and stacking, to improve classification accuracy. A case study on television services employs a cross-sectional, quantitative survey using self-reported questionnaires distributed online via GoogleForms. Statistical models like Principal Component Analysis (PCA) are applied to the analysis of survey responses, while linguistic models are customized for processing open-text responses. The study also updates the previously developed Clasask algorithm, ensuring its compatibility with scikit-learn's estimator modules, enhancing its performance in ensemble machine learning methods. This approach demonstrates the potential of AI to support NLP tasks and improve decision-making in analyzing consumer behavior.