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Cross-Domain Fake Review Detection Using a Weighted Stacking Ensemble with Domain **Adaptation and SMOTE**

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Abstract: Online reviews play a significant role in shaping consumer decisions, but the rise of fake reviews has created challenges in ensuring the credibility of these reviews. In this paper, we propose a novel cross-domain fake review detection model that combines Weighted Stacking Ensemble, SMOTE for class balancing, and domain adaptation to enhance the generalization of the model across different platforms (domains). Our approach leverages multiple base models (Random Forest, Gradient Boosting, and Logistic Regression) and a meta-model that combines the outputs of the base models for improved performance. We test our model on two well-known datasets-Yelp and Amazon-and demonstrate its superior accuracy and effectiveness compared to traditional fake review detection models.

Keywords: Cross-Domain Learning, Ensemble Learning, Stacking, Domain Adaptation



