# Abstract

Pull request (PR) review is critical in open-source software development, influencing project quality and collaboration. While technical correctness is often emphasized, the role of sentiment in PR discussions remains underexplored. This study investigates the impact of developer sentiment in code reviews on PR success, specifically whether positive sentiment correlates with higher merge rates. A dataset of 1,000 PRs from GitHub repositories was collected and analyzed using transformer-based sentiment analysis models, including DistilBERT, DeBERTa, and CodeBERT, fine-tuned on software engineering-specific datasets. PR sentiment was determined using a majority voting mechanism based on classified comments and reviews. A Chi-square test of independence was applied to assess the relationship between sentiment and PR success, with Cramér’s V used to measure the strength of association. The findings suggest … that this research contributes to the growing field of software engineering sentiment analysis and offers insights for improving review processes in open-source development.

**Keywords:** software engineering, machine learning, NLP, sentiment analysis, transformer models, DistilBERT, DeBERTa, CodeBERT, pull requests, code reviews, open-source development, PR success