

Towards Understanding and Detecting Fake Reviews in App Stores

— Martens & Maalej (Empirical Software Engineering)

Summary

Combined qualitative and large-scale quantitative study of fake/incentivized app reviews: (i) interviewed / surveyed 43 fake-review providers; (ii) compared ~60k fake reviews against ~62M App Store reviews; (iii) built classifiers to detect fake reviews.

Key insights

- Fake-review providers are diverse (paid services, organized campaigns); fake reviews differ statistically from genuine ones (timing bursts, reviewer behaviour, rating distribution, app characteristics).
- Applying the classifier across the App Store suggests a non-trivial fraction of reviews may be fake (authors report diagnostic estimates and caution about over/under estimation).
- Classifier performance was strong on labelled imbalanced test data (high recall and AUC in paper experiments), indicating automated detection is feasible.

Practical implications

- App-store operators and third-party analytics can and should deploy detection models to flag suspicious review bursts and reviewer accounts.
- Developers and researchers should treat review-derived signals with caution; filter or weight reviews by trustworthiness before using them for decisions.

Limitations/cautions

- Labelled ground truth for fake reviews is hard to obtain; classifiers depend on the quality of labeled training data and may misclassify coordinated legitimate campaigns or benign bursts. Authors recommend transparency and ongoing validation.