

Executive Summary

Business Objective

Develop a machine learning workflow capable of distinguishing factual claims from opinion-based TikTok videos using engagement, creator, and video characteristics. The objective was to support content moderation through scalable, data-driven decision making.

Dataset

19,382 TikTok videos • 12 variables

Tools: Python • pandas • NumPy • Tableau • scikit-learn

Analytical Workflow

- Data inspection & preparation
- Exploratory data analysis
- Statistical hypothesis testing
- Logistic regression
- Random Forest & XGBoost modeling

Key Findings

- Claim videos generated higher engagement than opinion-based videos.
- Views and likes exhibited a strong positive relationship.
- Engagement metrics were highly right-skewed with viral outliers.
- Welch's t-test found a statistically significant difference in views between verified and unverified accounts ($p = 2.61 \times 10^{-120}$).
- Random Forest slightly outperformed XGBoost and achieved near-perfect precision, recall, F1-score, and accuracy.
- Video views, likes, comments, downloads, and shares emerged as the strongest predictors of claim status.

Recommendation

Deploy the Random Forest model to prioritize videos for moderation while maintaining human review. Continue monitoring performance, retraining with new data, and expanding feature engineering.