

Page Title:

Social media bot detection with deep learning methods: a systematic review

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1 Summary

The paper provides a systematic review of deep learning (DL) methods used for detecting social media bots. It aims to compare the effectiveness of these methods and identify gaps for future research.

1.1 Motivation

The authors aim to understand the effectiveness of DL methods in detecting social media bots, considering the increasing sophistication of these bots.

1.2 Contribution

The paper presents a comprehensive survey of DL techniques used for bot detection, providing a refined taxonomy of features used in these studies.

1.3 Methodology

The paper uses a systematic literature review (SLR) approach, following guidelines by Kitchenham and Charters. It specifies five research questions to guide the review, searches three major databases (Google Scholar, Scopus, and ScienceDirect) using various search terms related to social bot detection and deep learning, and applies inclusion and exclusion criteria to select relevant papers. The paper uses Rayyan Intelligent Systematic Review software for an organized screening of the papers. It analyses 40 papers published between 2000 and 2021, presenting a comprehensive summary of the datasets, features, deep learning models, performance measures, and comparisons.

1.4 Conclusion

The paper concludes that DL techniques are efficient for bot detection, outperforming traditional machine learning techniques. It also identifies key factors influencing the performance of DL models.

2 Limitations

2.1 First Limitation

The paper only focuses on deep learning techniques for social media bot detection, and does not compare them with other non-machine learning methods, such as structure-based, crowdsourced, hybrid, or graph-based techniques. This may limit the scope and comprehensiveness of the review.

2.2 Second Limitation

The paper does not provide any empirical evaluation or benchmarking of the deep learning models on a common dataset, but only relies on the reported performance measures from the original studies. This may introduce some bias and inconsistency in the comparison, as different studies may use different datasets, evaluation metrics, and experimental settings.

3 Synthesis

The paper provides a useful overview of DL methods for social media bot detection. It suggests potential applications and future scopes, such as developing more robust DL models, applying DL methods to other domains, and enhancing the explainability of DL models.