

Social Network Analysis of Twitter Bots

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1 Introduction

The context includes: the general field (e.g., literature, history, archaeology, tourism, biology, forensics, religious studies); the specific application (e.g., literary analysis, quantitative history, genetics, virology, forensics intelligence, tourism planning, biblical quantitative studies).

2 Problem and Motivation

What are the problems you want to address? Why are those problems important (impact, theoretical and/or practical needs, etc.)? What are the main contributions of the project?

3 Datasets

How did you gather the data? Did you digitise it? How? Is the material publicly available? What tools did you use 1) to handle (store, manipulate) the data and 2) to compute measures on the data?

Twibot-22 Paper [2].

4 Validity and Reliability

How closely does the model of your dataset represent reality (validity)? How does the way you treat the data affect the reproducibility of the study (reliability)?

5 Measures and Results

What measures did you apply (brief explanation of how they work)? How do they relate to the intent of the study? Why are they relevant? What is the connection among the gathered data, the applied measures, and the properties found?

The experiments were conducted on an NVIDIA GeForce RTX 3090 GPU (24GB VRAM).

Reputation [1].

6 Conclusion

Qualitative analysis of the quantitative findings of the study.

7 Critique

Do you think your work solves the problem presented above? To which extent (completely, what parts)? Why? What could you have done differently to answer your research problems (e.g., gather data with additional information, build your model differently, apply alternative measures)?

The *follower* and *following* connections may not represent meaningful relations for bot detection, as the TwiBot-22 dataset lacks a clear separation between human and bot accounts in this aspect.

References

- [1] David M. Beskow and Kathleen M. Carley. You are known by your friends: Leveraging network metrics for bot detection in twitter. In Babak Akhgar, Hamid R. Arabnia, and Petra Saskia Bayerl, editors, *Open Source Intelligence and Cyber Crime*, pages 53–88. Springer, 2020.
- [2] Shangbin Feng, Zhaoxuan Tan, Herun Wan, Ningnan Wang, Zilong Chen, Binchi Zhang, Qinghua Zheng, Wenqian Zhang, Zhenyu Lei, Shujie Yang, Xinshun Feng, Qingyue Zhang, Hongrui Wang, Yuhan Liu, Yuyang Bai, Heng Wang, Zijian Cai, Yanbo Wang, Lijing Zheng, Zihan Ma, Jundong Li, and Minnan Luo. Twibot-22: Towards graph-based twitter bot detection, 2022.