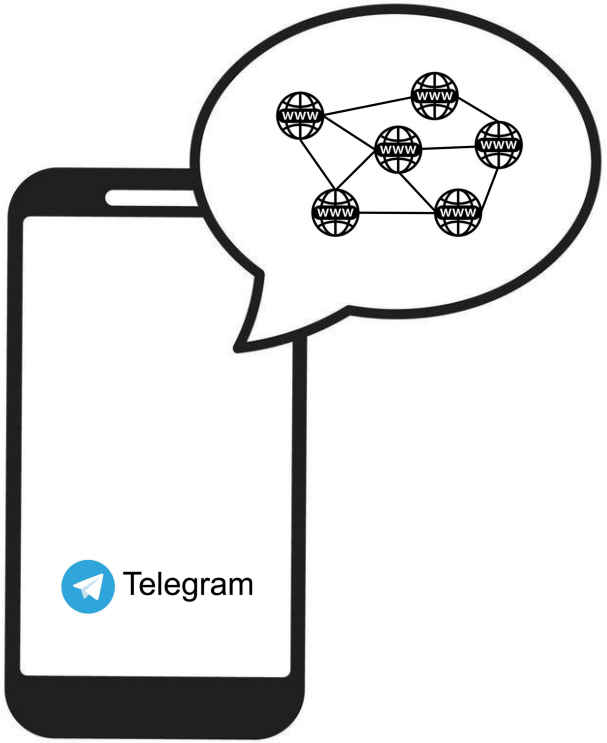
Universität Konstanz

Classifying Domains as Misinformation with a GNN



Raphaela Keßler

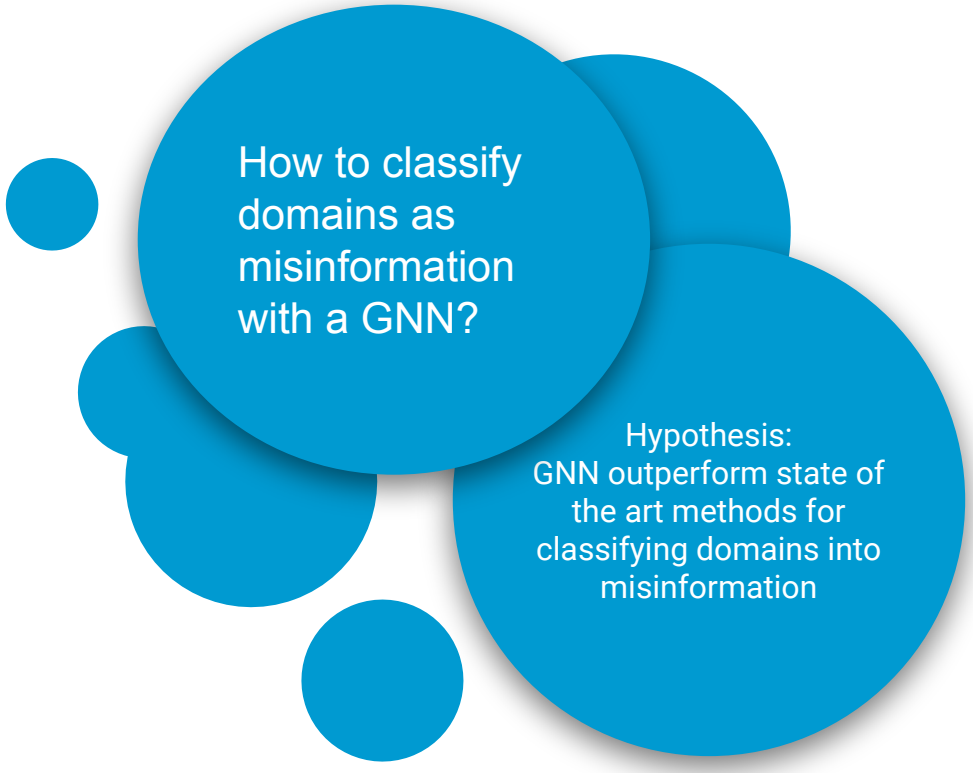
Konstanz, 30.07.24

Content

1. Research Question
2. Method
3. The Data
4. Work Plan & Challenges

1. Research Question

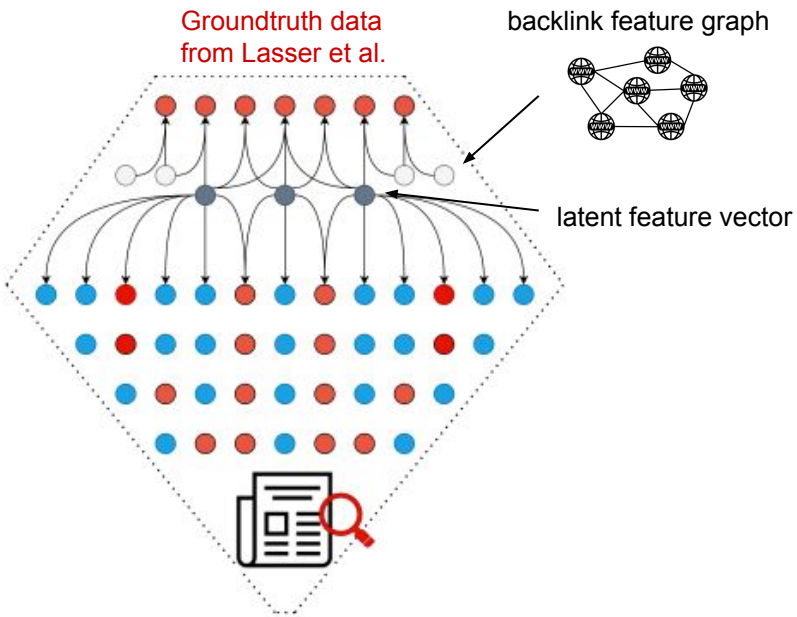
https://drsambailey.com/why-nobody-had-caught-or-got-covid-19/



2. Method

Graph Neural Network

+ Co-occurrences of URLs in Telegram chats build the graph
+ Misinformation can form monological belief systems (GraphSage for sampling neighborhood subgraphs?)
+ node classification for labeling domains as misinformation

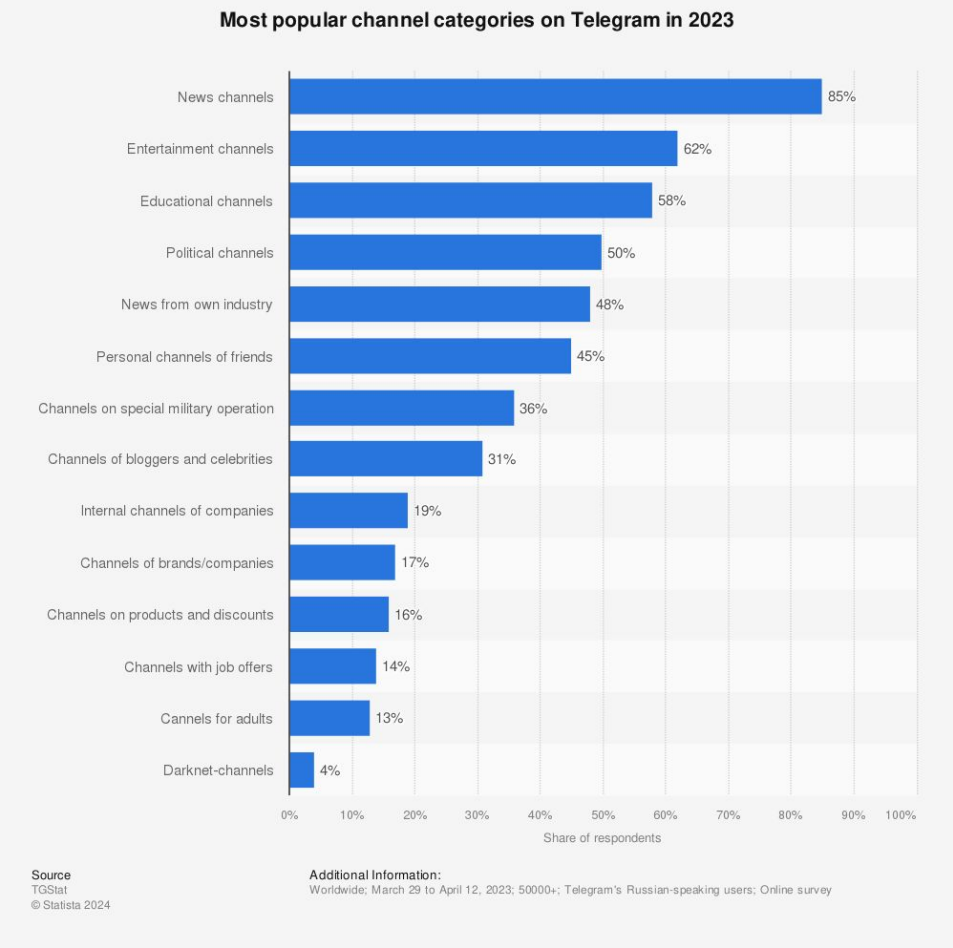


Possible Features:

- headings of articles
- chat description
- reposts
- spreading speed
- sentiment of chat message
- emotional reactions

Carragher et al. 2024, https://doi.org/10.1184/R1/25174193.v1

3. The Data



Telegram

Telegram:

- free instant messaging service
- third most downloaded messenger worldwide
- 800 million monthly active users
- end-to-end encryption and high user privacy level

3. The Data

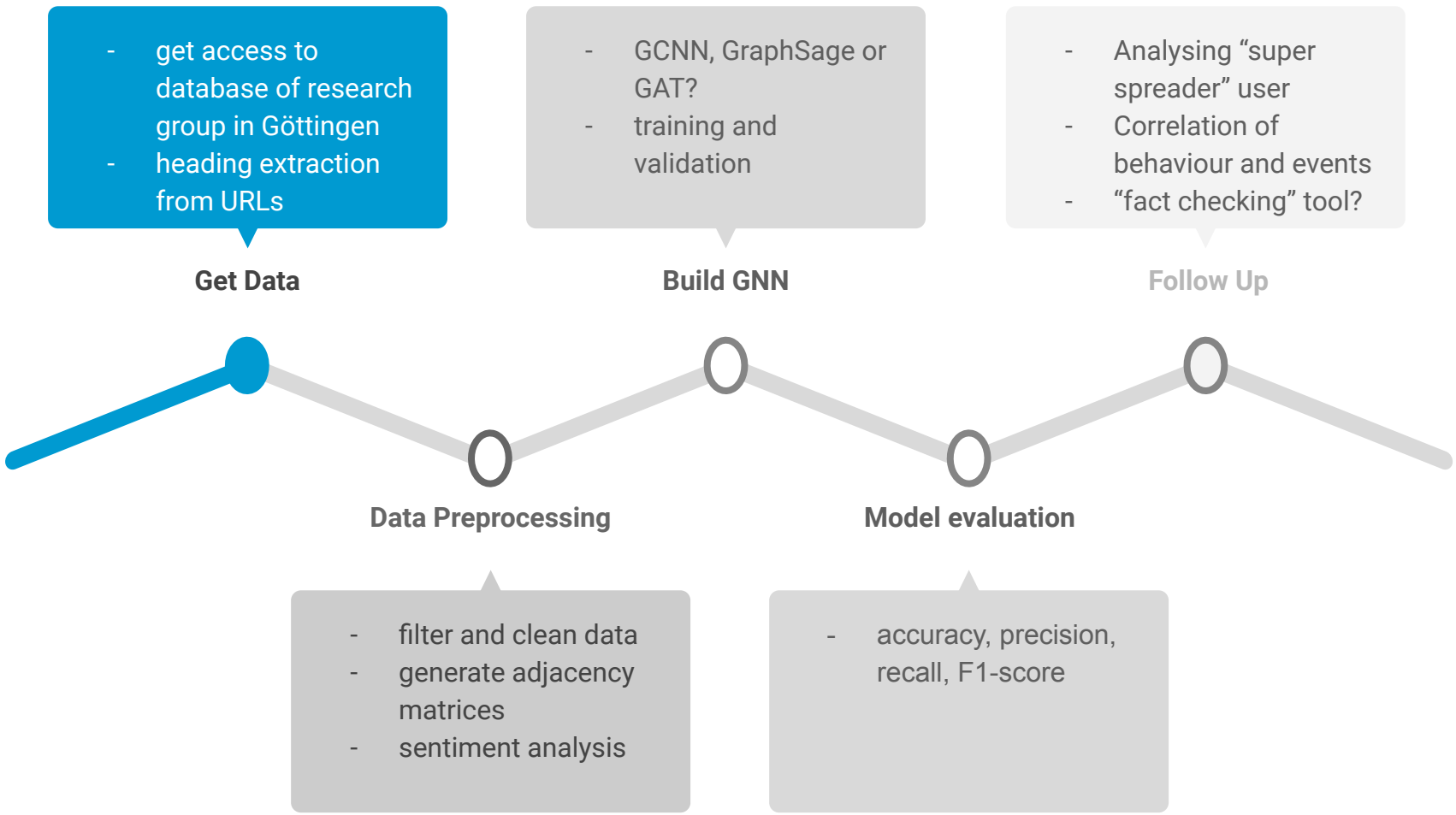
- Data from Priesemann Research Group in Göttingen
- Telegram Chat Data from 2020 - 2023
- Data includes
  - chats with names, description
  - URLs with timestamps
  - Chat x Url share matrix
  - 11 520 domain ratings from Lasser et al.

Word Cloud of Domains in URLs

	domain	pc1	afm	afm_bias	afm_min	afm
0	reuters.com	1.000000	0.962600	0.950100	0.950100	0.97
1	apnews.com	0.998049	0.960400	0.933400	0.933400	0.98
2	charitynavigator.org	0.985752	0.929423	0.934419	0.909962	0.92
3	rollcall.com	0.982851	0.916600	0.911500	0.911500	0.92
4	smithsonianmag.com	0.971184	0.891200	0.883200	0.883200	0.89
...	...	...	...	...	...	

Cut-out of Lasser at al. domain ratings

4. Work Plan & Challenges



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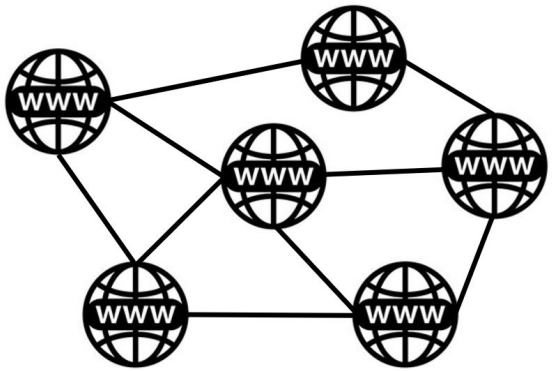
Thank You!



Questions or Advices?

Sources

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- https://www.skillademia.com/statistics/telegram-statistics/
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- A. Maulana and J. Langguth, doi: 10.1109/SNAMS60348.2023.10375407.
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