CONICET ISISTAN

INDIANA UNIVERSITY BLOOMINGTON

Do recommender systems make social media more susceptible to misinformation spreaders?

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The ACM Conference Series on Recommender Systems

Recommender systems and misinformation propagation

- **Recommender systems** play an important role as **mediators of information propagation**.

- They have been deemed as **one of the major culprits of misinformation spreading**.
  - **Disruptive consequences** in our society.

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  - Directly contribute to the **evolution of the social network structure**, affecting the information and the opinions users are exposed to.

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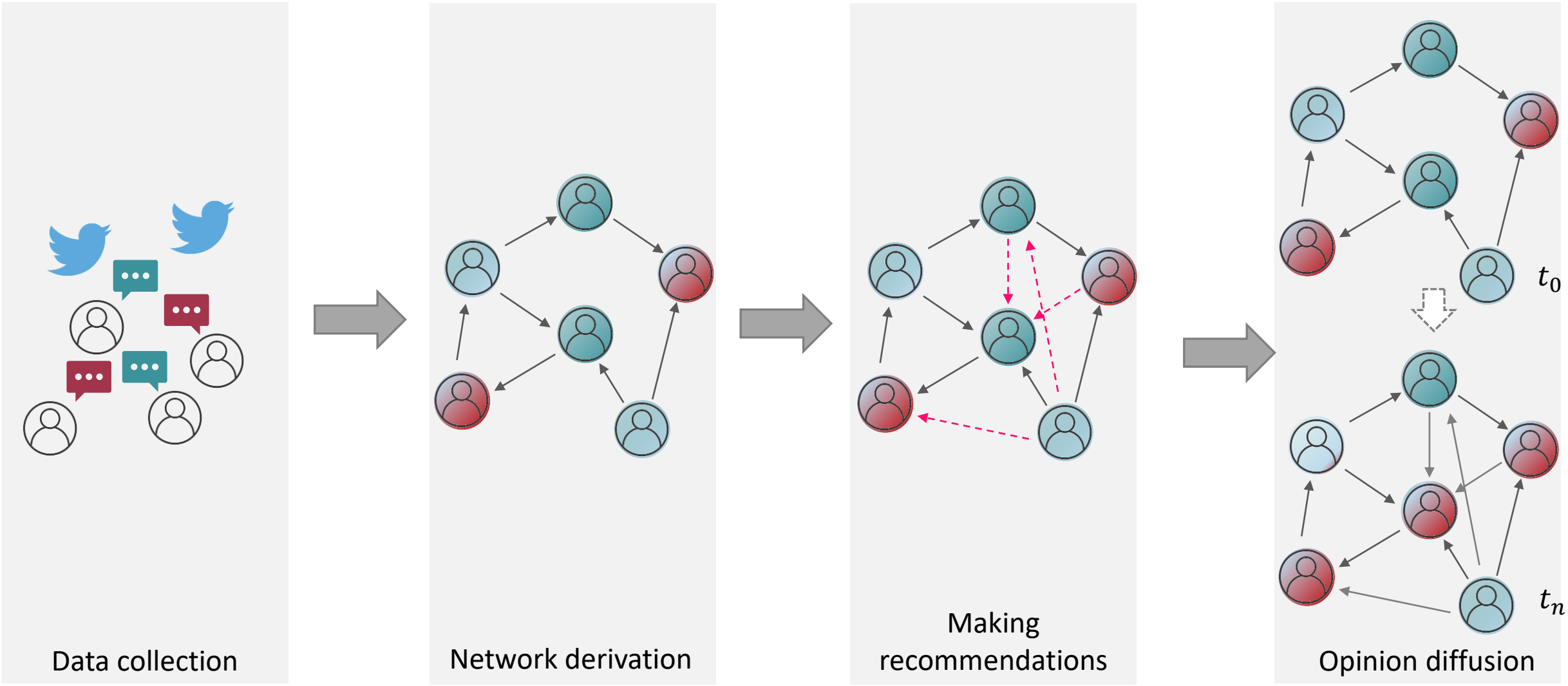
We combine **link prediction techniques** with an **opinion dynamics model** to simulate the behavior of individuals changing their opinions as a consequence of their interactions with their neighborhood, within a social network that is continuously evolving.

Recommender systems and misinformation propagation

Pipeline



Experimental evaluation

Results - Highlights

Recommenders fostering relevance	Recommenders fostering diversity/novelty
Topology Popularity	Content-based Random

RQ1. How do recommenders contribute to misinformation spreaders recommendations?

- The **best relevance performing** recommenders were **the ones recommending the fewest spreaders**.
- Recommenders with **increasing diversity/novelty** tended to **recommend the highest ratio of spreaders**.

RQ2. How do recommenders contribute to amplifying the influence of misinformation spreaders?

- Recommending a **large number of spreaders** does **not directly lead to a high conversion rate**.
- Recommenders **diversifying interactions** seemed to have a **stronger effect on spreaders presence and dynamics**.
- **Network topology** and **rewiring** seem to be the **greatest drivers for opinion spreading**.

Summary & conclusions

We presented a **preliminary exploration** to better understand how **user recommenders affect network dynamics** in terms of **misinformation spreader distribution and influence**.

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- Data is publicly available.

- Perform a more extensive evaluation with other data collections, recommenders and opinion models.
- Explore relaxed spreader definitions to evaluate continuous opinion models.
- Explore recommendations and their effect on misinformation spreading.
- Consider different follow/unfollow dynamics and densification scenarios.

Thanks!

Questions?

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