

# Information diffusion analysis in online social networks based on deep representation learning

Chen, X.

# Citation

Chen, X. (2022, October 25). *Information diffusion analysis in online social networks based on deep representation learning*. Retrieved from https://hdl.handle.net/1887/3484562

Version:	Publisher's Version
License:	Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from:	https://hdl.handle.net/1887/3484562

Note: To cite this publication please use the final published version (if applicable).

### Propositions

#### pertaining to the thesis

## Information Diffusion Analysis in Online Social Networks based on Deep Representation Learning

## by Xueqin Chen

- 1. Understanding how information spreads through online social networks, as well as what elements drive the success of information diffusion, has significant implications for a wide range of real-world applications [This thesis, Chapter 1].
- 2. Both structural and temporal features are indispensable for the prediction of information diffusion using deep learning methods [This thesis, Chapter 4 & 5].
- 3. To improve both accuracy and efficiency in predicting how information spreads in social networks we need different types of data and an effective sampling method of past information diffusion [This thesis, Chapter 5].
- 4. Detecting a rumor by considering only its content is not enough, because rumors are intended to mimic real news. Instead, it is possible to detect a rumor by looking only at its diffusion pattern [This thesis, Chapter 6].
- 5. Users are the main contributors to rumors spreading on online social networks. Therefore, is effective to have fine-grained user information to better detect rumors [This thesis, Chapter 7].
- 6. In a wide range of scientific domains, graph neural networks are effective tools for handling data with more complicated structures, such as graph and manifold structures.
- 7. The performance of a deep learning-based model is highly dependent on the quality and quantity of the available data. It is important to develop more sophisticated learning models that can handle incomplete and sparse data.
- 8. Most of the current deep learning-based models are designed to solve one specific task, but there is an increasing need to develop a unified learning framework for solving different tasks.
- 9. The success of deep learning models in the future will be determined by how interpretable they are.
- 10. The way to a PhD is full of trials and hardships. When in doubt, remember the ancient poem of Lu You (1125–1209): "After endless mountains and rivers that leave doubt whether there is a path out, suddenly one encounters the shade of a willow, bright flowers and a lovely village."