# DOMAIN: FAKE News Classification & NLP task

**Paper Title:**

Fake Post Detection Using Graph Neural Networks

## What did the authors try to accomplish?

The authors likely aimed to develop a method for identifying fake posts using graph neural networks (GNNs). GNNs are a type of artificial intelligence (AI) model adept at analyzing interconnected data, which makes them suitable for tasks like fake news detection on social media platforms where information flows through networks of users and posts.

## What were the key elements of the approach?

* **Graph Construction:** The authors might have constructed a graph where posts are nodes and connections (likes, shares, replies) between them are edges. This graph structure allows the model to consider the relationships between posts when evaluating them.
* **GNN Model Design:** They would have designed a GNN model that takes the constructed graph as input. This model would process information about each post and its connections to learn patterns that differentiate fake posts from real ones.
* **Fake Post Detection:** The trained GNN model would then be used to classify new posts as real or fake based on the patterns it learned from the training data.

## What can you use yourself?

* Techniques for constructing informative graphs from social media data for fake news detection.
* The architecture and design choices made for the GNN model.
* Evaluation metrics used to assess the model's performance in identifying fake posts.

## What other references do you want to follow?

[1] S. Srivastava, S. Agrahari, and A. K. Singh, “Early spam detection using  
time-based cache in graph database,” New Generation Computing, vol. 41,  
no. 3, pp. 607–634, 2023.

[2] O. Izotova and D. S. Lavrova, “Fake post detection using graph neural  
networks,” Automatic Control and Computer Sciences, vol. 55, no. 8, pp.  
1215–1221, 2021.

**Paper Title:**

A novel rumor detection algorithm based on  
 entity recognition, sentence reconfiguration,  
 and ordinary differential equation network

## What did the authors try to accomplish?

A novel rumor detection algorithm towards authors was proposed that integrates entity recognition, sentence reconfiguration and ordinary differential equation network under  
a unified framework called ESODE. This method aimed to improve the   
performance of rumor detectors by adding two processes: entity recognition and  
sentence reconfiguration.

## What were the key elements of the approach?

Entity recognition was used to enhance semantic  
 understanding of rumor texts, and sentence reconfiguration was designed to  
improve the frequency of important words. The researchers also collected statistical  
features from three aspects to establish a complete feature map: linguistic  
features on the content of rumors, characteristics of users involved in rumor  
propagating, and propagation network structures. Finally, an ordinary differential  
equation network (ODEnet) was applied to detect rumors.

## What can you use yourself?

* The architecture and design choices made for the ODEnet model.
* Evaluation metrics used to assess the model's performance in identifying fake posts.
* Entity recognition was used to enhance semantic  
   understanding of rumor texts, and sentence reconfiguration was designed to  
  improve the frequency of important words.

## What other references do you want to follow?

[1] Y. Li, Z. Fan, X. Yuan, and X. Zhang, “Recognizing fake information  
through a developed feature scheme: a user study of health misinformation  
on social media in china,” Information Processing & Management, vol. 59,  
no. 1, p. 102769, 2022.

[2] X. Chen, D. Zhu, D. Lin, and D. Cao, “Rumor knowledge embedding based  
data augmentation for imbalanced rumor detection,” Information Sciences,  
vol. 580, pp. 352–370, 2021.