

Chapter 3 Gap Analysis and Problem Formulation

3.1 Research Gaps

The literature studied illustrate numerous efforts are done to identify rumour among online social media and there are further several challenges which are as follows:

- Cross platform validation including individual and associative data is missing.
- Another challenge is the language. Most of the work for rumour detection is performed on English plain text, it is challenging to detect rumour other than English language.
- Based on the literature most of the rumour detection task performed on Twitter platform. Creation of automated rumour detection algorithm and then check their performance among different platform is still a challenging task.

3.2 Problem Statement

- Based on the literature and analysis following problem statements have been identified.
- There is the need of social content and text based data feature classification for the better identification of source impact.
- There is the need of method hybridization for better multidimensional rumour classification.
- There is the need of inclusion of cross platform with cross data validation.

3.3 Objectives

- To study the existing framework to detect the rumour over social network.
- To propose and design a new framework for social networks.
- Testing and evaluation of the proposed framework.

3.4 Methodology to achieve Objectives

This section illustrates the methodology to achieve the objectives. The detailed steps to achieve the implementation of the proposed framework are defined in chapter 4. Figure 3.1 illustrates the flowchart for the proposed work that is used to achieve the defined objective.

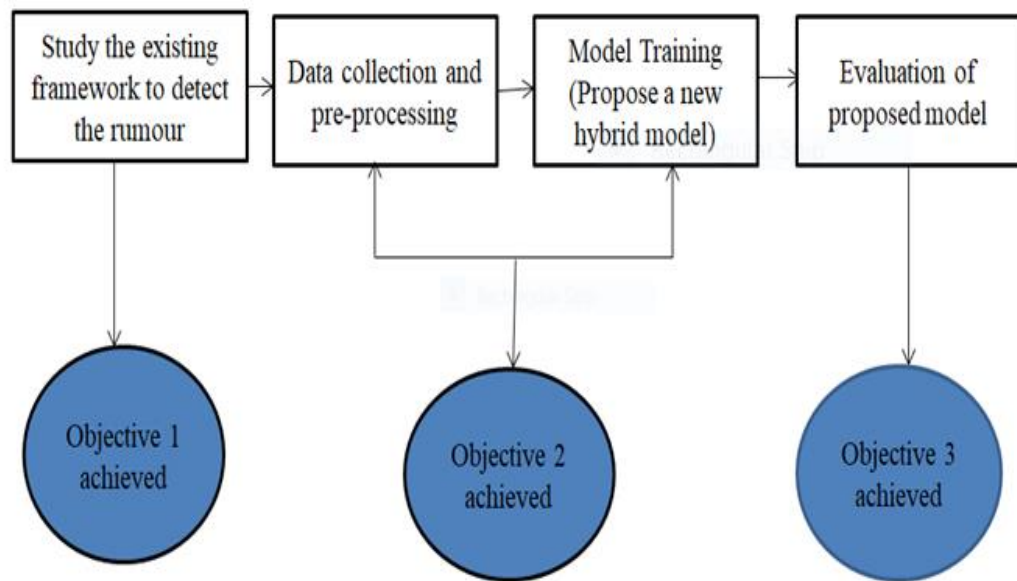


Fig. 3.1. Methodology of proposed work

Objective 1: - To study the existing framework to detect the rumour over social network.

To achieve the objective 1 following activities are done:

1. We have studied the latest papers of rumour detection.

2. Secondly bibliometric analysis is done by collecting the data from the Web of Science database during 1989-2021. 2935 records were fetched to identify publications trends, main journals, most cited articles, most productive country, prominent authors and institutions. Further net map analysis of the data is done to know the past, present and future growth of the rumour detection field.

Objective 2: - To propose and design a new framework for social networks.

To achieve objective 2 various steps are followed:

1. In the first phase of this study data is collected from online platform.
2. In next step data pre-processing, feature extraction is performed.
3. After data cleaning process various machine learning and deep learning algorithms are experimented on the dataset.
4. A hybrid model is developed by combining deep learning approaches.

Objective 3:-Testing and evaluation of the proposed framework.

To achieve third objective, the proposed hybrid model is compared based on its precision, recall, f1-score and accuracy with the previous research using the same dataset.

3.5 Chapter Summary

The chapter define the research gaps identified from the literature review. Problem statement and objective are also defined. A brief description to achieve the objective is also illustrated in this chapter.