COLOMBO SCIENTIFIC PUBLISHING

INTERNATIONAL JOURNAL OF COMPUTER SCIENCE & INFORMATION SYSTEM
E-ISSN: 2536-7919
P-ISSN: 2536-7900
PAGE NO: 01-09

Context-Focused Satirical Expression Recognition Through Knowledge-Guided Instructional Learning

Dr. Samira Touati
Faculty of Information Technology University of Oran 1 Ahmed Ben Bella Oran, Algeria

ARTICLE INFO

Article history:
Submission: February 10, 2026
Accepted: March 16, 2026
Published: April 01, 2026
VOLUME: Vol.11 Issue 04 2026

Keywords:
Sarcasm Detection; Satirical Expression Recognition; Prompt Learning; Knowledge Graphs; Contextual NLP; Transformer Models; Instructional Learning; Semantic Incongruity; Artificial Intelligence

ABSTRACT

The detection of satirical and sarcastic expressions in natural language processing (NLP) has emerged as a complex challenge due to the inherent reliance on contextual incongruity, implicit knowledge, and pragmatic interpretation. Traditional sentiment analysis and classification approaches often fail to accurately identify such expressions because they depend heavily on surface-level lexical features and lack deeper contextual understanding. This study proposes a novel framework for context-focused satirical expression recognition that integrates knowledge-guided instructional learning within a prompt-based paradigm. The research is grounded in recent advancements in transformer-based architectures, knowledge-enhanced representations, and prompt engineering techniques.

The proposed methodology leverages pretrained language models such as BERT and RoBERTa to encode contextual semantics while incorporating external knowledge through structured knowledge bases and semantic enrichment mechanisms. Instructional learning is operationalized through carefully designed prompts that guide the model toward capturing contextual incongruity and semantic contradiction, which are central to satire detection. Furthermore, the study integrates multimodal and knowledge-aware attention mechanisms to enhance interpretability and performance across diverse datasets.

The research employs a hybrid methodological approach combining theoretical modeling and empirical evaluation. Comparative analysis is conducted against existing sarcasm detection models, including capsule networks, graph convolutional frameworks, and knowledge-augmented neural architectures. The findings demonstrate that knowledge-guided prompt learning significantly improves detection accuracy, particularly in cases involving implicit sarcasm and domain-specific satire. The framework also exhibits robustness in low-resource and cross-lingual settings.

This study contributes to the advancement of NLP by bridging the gap between contextual understanding and knowledge integration in satire recognition. It further highlights the importance of combining linguistic context, external knowledge, and instructional learning for improving semantic interpretation. The implications extend to applications such as social media monitoring, misinformation detection, and human-computer interaction. Limitations related to knowledge dependency and computational complexity are also discussed, along with future research directions focusing on adaptive learning and multimodal integration.

INTRODUCTION

The increasing proliferation of user-generated content across digital platforms has intensified the need for advanced natural language understanding systems capable of interpreting nuanced linguistic expressions. Among these, satirical and sarcastic expressions represent a particularly challenging category due to their reliance on implicit meaning, contextual cues, and cognitive inference. Unlike literal language, satire often conveys meaning through contradiction, exaggeration, or contextual incongruity, making it difficult for conventional computational models to accurately interpret (Kanakam & Nayak, 2021).

Traditional approaches to text classification and sentiment analysis primarily rely on lexical features, statistical patterns, or shallow machine learning techniques. While these methods have demonstrated effectiveness in straightforward classification tasks, they fall short in handling complex linguistic

phenomena such as sarcasm, irony, and satire. This limitation arises from their inability to capture deeper semantic relationships and contextual dependencies (Govindan & Balakrishnan, 2022). As a result, the misclassification of satirical content remains a significant issue, particularly in applications such as social media analytics and automated moderation systems.

The advent of deep learning and transformer-based architectures has significantly transformed the field of natural language processing. Models such as BERT (Devlin et al., 2019) and RoBERTa (Liu et al., 2019) have introduced contextualized word representations that enable a more nuanced understanding of language. These models leverage self-attention mechanisms to capture long-range dependencies and contextual relationships, thereby improving performance across a wide range of NLP tasks. However, despite their advancements, these models still face challenges in accurately detecting satire due to their limited integration of external knowledge and reasoning capabilities.

Recent research has emphasized the importance of incorporating knowledge into language models to enhance semantic understanding. Knowledge graphs, such as Wikidata (Vrandečić & Krötzsch, 2014), provide structured representations of real-world information that can be integrated into NLP models to improve contextual interpretation. Techniques such as K-BERT (Liu et al., 2020) and ERNIE (Zhang et al., 2019) demonstrate the effectiveness of embedding knowledge into language representations. These approaches enable models to better understand relationships between entities and concepts, which is crucial for interpreting satirical content.

In parallel, prompt-based learning has emerged as a powerful paradigm for guiding pretrained models toward specific tasks. Prompt engineering involves designing input templates that instruct the model on how to interpret and process data. This approach has shown promising results in few-shot and zero-shot learning scenarios (Schick & Schütze, 2021; Feng et al., 2024). By leveraging prompts, models can be guided to focus on relevant contextual features and semantic cues, thereby improving task-specific performance.

The integration of knowledge and prompt learning represents a promising direction for addressing the limitations of existing satire detection methods. Knowledge-guided instructional learning combines the strengths of structured knowledge representation with the flexibility of prompt-based guidance. This approach enables models to not only understand linguistic context but also incorporate external knowledge to resolve ambiguity and detect incongruity.

The primary objective of this research is to develop a context-focused framework for satirical expression recognition that leverages knowledge-guided instructional learning. The study aims to address key challenges in satire detection, including contextual ambiguity, semantic incongruity, and knowledge dependency. By integrating transformer-based models, knowledge graphs, and prompt learning techniques, the proposed framework seeks to enhance both accuracy and interpretability.

The significance of this research lies in its potential applications across multiple domains. In social media analysis, accurate detection of satire can improve sentiment analysis and misinformation detection. In human-computer interaction, it can enhance conversational agents' ability to understand user intent. Furthermore, in content moderation, it can help distinguish between harmful content and benign satire.

The scope of this study includes the development of a conceptual framework, implementation of a hybrid model, and evaluation using benchmark datasets. The research also critically examines the limitations of existing approaches and identifies opportunities for future advancements. By addressing the interplay between context, knowledge, and instructional learning, this study contributes to the broader field of artificial intelligence and computational linguistics.

LITERATURE REVIEW

The field of satirical and sarcasm detection has evolved significantly over the past decade, driven by advancements in machine learning, deep learning, and natural language processing. Early approaches primarily relied on rule-based systems and statistical methods, which utilized lexical features and sentiment indicators to classify text. However, these methods were limited in their ability to capture contextual nuances and often failed in detecting implicit sarcasm (Kanakam & Nayak, 2021).

The introduction of deep learning models marked a significant shift in the field. Neural network architectures, including recurrent neural networks (RNNs) and long short-term memory (LSTM) models, improved the ability to capture sequential dependencies in text. For instance, context-sensitive lexicon

approaches using bidirectional LSTM have demonstrated improved performance in sentiment classification tasks (Pavan Kumar & Jayagopal, 2023). Despite these advancements, the inherent complexity of sarcasm, which often involves contextual contradiction, remained a challenge.

Transformer-based models have further revolutionized NLP by enabling contextualized word representations. BERT (Devlin et al., 2019) introduced bidirectional encoding, allowing models to consider both left and right contexts simultaneously. This innovation significantly improved performance across various NLP tasks. Subsequent models such as RoBERTa (Liu et al., 2019) enhanced training strategies to achieve even better results. These models have been widely applied in sarcasm detection, demonstrating superior performance compared to traditional methods.

However, transformer models alone are insufficient for capturing the full complexity of satirical expressions. Researchers have explored the integration of additional mechanisms to address this limitation. For example, topic-enhanced capsule networks have been proposed to incorporate contextual topics into emotion classification (Fei et al., 2020). Similarly, graph convolutional networks have been used to model relationships between words and entities, improving sarcasm detection accuracy (Mohan et al., 2023).

Knowledge integration has emerged as a critical area of research in NLP. Knowledge graphs provide structured information that can enhance semantic understanding. K-BERT (Liu et al., 2020) integrates knowledge graphs into transformer models, enabling them to capture relationships between entities. ERNIE (Zhang et al., 2019) further extends this concept by incorporating entity-level information into language representations. These approaches have shown significant improvements in tasks requiring contextual understanding.

Prompt-based learning represents another important development in the field. By designing task-specific prompts, researchers can guide pretrained models to focus on relevant features. Studies have demonstrated the effectiveness of prompt tuning in improving text classification performance (Han et al., 2022; Hu et al., 2021). Furthermore, prompt-based frameworks have been successfully applied in zero-shot and cross-lingual scenarios, highlighting their versatility (Feng et al., 2024).

Recent research has also explored multimodal approaches to sarcasm detection. These methods integrate textual, visual, and contextual information to improve accuracy. For instance, multimodal incongruity models analyze discrepancies between different data modalities to identify sarcasm (Wang et al., 2024). Similarly, retrieval-based frameworks have been developed to leverage external information for improved detection (Wen et al., 2023).

Despite these advancements, several research gaps remain. First, existing models often lack effective integration of context and knowledge, leading to suboptimal performance in complex scenarios. Second, many approaches rely on large labeled datasets, limiting their applicability in low-resource settings. Third, the interpretability of deep learning models remains a challenge, particularly in understanding how decisions are made.

This study addresses these gaps by proposing a knowledge-guided instructional learning framework that integrates context, knowledge, and prompt-based guidance. By combining these elements, the proposed approach aims to improve both accuracy and interpretability in satirical expression recognition.

METHOD

1 Conceptual Foundations of Satirical Expression Recognition

Satirical expression recognition is fundamentally rooted in the concept of semantic incongruity, where the literal meaning of a statement contrasts with its intended interpretation. This incongruity often emerges from contextual mismatches, exaggeration, or implicit references to external knowledge. Unlike traditional sentiment classification, which primarily evaluates polarity, satire detection requires the identification of dual-layered meaning structures (Govindan & Balakrishnan, 2022).

From a theoretical perspective, satire can be understood through pragmatic linguistics and cognitive semantics. Pragmatic theories emphasize the role of context in meaning construction, while cognitive approaches highlight the importance of shared knowledge and inference mechanisms. In computational terms, this implies that models must integrate contextual embeddings with external knowledge sources to effectively capture satire.

Existing approaches often fail because they treat satire as a purely linguistic problem rather than a contextual reasoning task. This limitation necessitates a hybrid framework that combines semantic representation, contextual modeling, and knowledge integration. The proposed research builds on this premise by introducing knowledge-guided instructional learning as a unifying paradigm.

2 Knowledge-guided Instructional Learning: Theoretical Framework

Knowledge-guided instructional learning represents the convergence of three key paradigms: transformer-based contextual learning, knowledge-enhanced representation, and prompt-based instruction.

Transformer models such as BERT and RoBERTa utilize self-attention mechanisms to encode contextual relationships between words (Devlin et al., 2019; Liu et al., 2019). However, these models rely primarily on statistical co-occurrence patterns and lack explicit reasoning capabilities. To address this limitation, knowledge graphs are integrated into the learning process.

Knowledge graphs, such as Wikidata, provide structured representations of entities and relationships, enabling models to incorporate real-world knowledge into semantic interpretation (Vrandečić & Krötzsch, 2014). Techniques like K-BERT and ERNIE demonstrate how knowledge can be embedded into transformer architectures, enhancing contextual understanding (Liu et al., 2020; Zhang et al., 2019).

Instructional learning, operationalized through prompt engineering, further enhances model performance by guiding attention toward relevant features. Prompt tuning techniques enable models to adapt to specific tasks with minimal training data (Han et al., 2022; Hu et al., 2021). By combining these elements, knowledge-guided instructional learning provides a robust framework for satire detection.

3 Proposed Model Architecture

The proposed model architecture consists of four primary components: contextual encoder, knowledge integration module, prompt-based instruction layer, and classification head.

The contextual encoder is based on a pretrained transformer model, such as BERT or RoBERTa, which generates contextual embeddings for input text. These embeddings capture syntactic and semantic relationships between tokens, forming the foundation for further processing.

The knowledge integration module enriches these embeddings by incorporating information from external knowledge graphs. This is achieved through entity linking and embedding augmentation, where relevant entities are mapped to their corresponding representations in the knowledge graph. The integration process follows principles similar to K-BERT, ensuring that knowledge is seamlessly incorporated without disrupting the original sentence structure (Liu et al., 2020).

The prompt-based instruction layer introduces task-specific prompts that guide the model toward identifying satirical cues. These prompts are designed to emphasize contextual incongruity and semantic contradiction. For example, a prompt may explicitly ask the model to evaluate whether a statement contradicts common knowledge or expected outcomes.

The classification head consists of a fully connected neural network that outputs probability scores for satire classification. The model is trained using supervised learning with cross-entropy loss, optimizing its ability to distinguish between satirical and non-satirical content.

4 Algorithmic Workflow and Functional Mechanism

The functional workflow of the proposed system involves multiple stages, each contributing to the overall detection process.

Initially, input text is preprocessed to remove noise and standardize formatting. Tokenization is then performed using subword encoding techniques, ensuring compatibility with transformer models. The tokenized input is passed through the contextual encoder to generate embeddings.

Subsequently, the knowledge integration module identifies relevant entities within the text and retrieves corresponding information from the knowledge graph. This information is encoded and merged with the contextual embeddings, enhancing semantic representation.

The prompt-based instruction layer then modifies the input representation by appending task-specific prompts. These prompts act as guiding signals, directing the model's attention toward features indicative

of satire. The modified representation is processed through additional transformer layers to refine contextual understanding.

Finally, the classification head computes the probability distribution over output classes. The model's predictions are evaluated against ground truth labels, and gradients are propagated backward to update parameters.

5 Comparative Analysis with Existing Models

The proposed framework is compared with several existing approaches, including capsule networks, graph convolutional models, and knowledge-augmented neural networks.

Capsule networks, as proposed by Fei et al. (2020), capture hierarchical relationships between features but lack effective integration of external knowledge. Graph convolutional models improve relational understanding but often require complex graph structures and extensive computational resources (Mohan et al., 2023).

Knowledge-augmented neural networks incorporate external information but typically do not utilize prompt-based guidance, limiting their adaptability (Ren et al., 2023). In contrast, the proposed model combines knowledge integration with instructional learning, enabling more effective detection of contextual incongruity.

Furthermore, prompt-based models demonstrate superior performance in low-resource settings, as they leverage pretrained knowledge rather than relying solely on labeled data (Schick & Schütze, 2021). This advantage is particularly relevant for satire detection, where labeled datasets are often limited.

6 Real-world Applications and Case Scenarios

The proposed framework has significant implications for real-world applications. In social media analysis, accurate detection of satirical content can improve sentiment analysis and reduce false positives in misinformation detection systems. For example, a tweet expressing sarcasm about a political event may be misinterpreted as genuine sentiment without proper context understanding.

In customer feedback analysis, satire detection can enhance the accuracy of sentiment classification. Consumers often use sarcasm to express dissatisfaction, which may be misclassified as positive sentiment by traditional models (Lin et al., 2020).

In human-computer interaction, the ability to recognize satire can improve conversational agents' responses, making them more context-aware and user-friendly. This is particularly important in applications such as virtual assistants and chatbots.

7 Critical Evaluation and Limitations

Despite its advantages, the proposed framework has several limitations. First, the reliance on external knowledge graphs introduces dependency on data quality and coverage. Incomplete or inaccurate knowledge can negatively impact model performance.

Second, the integration of multiple components increases computational complexity, potentially limiting scalability. Training such models requires significant computational resources, which may not be feasible in all settings.

Third, prompt design remains a challenging task, as ineffective prompts can lead to suboptimal performance. The process often requires domain expertise and iterative experimentation.

Finally, the model's interpretability, while improved through knowledge integration, still requires further enhancement to provide transparent decision-making.

RESULTS

The empirical evaluation of the proposed knowledge-guided instructional learning framework demonstrates significant improvements in satirical expression recognition across multiple performance metrics. The model was assessed using benchmark datasets commonly employed in sarcasm detection research, with comparisons drawn against baseline models including traditional machine learning classifiers, transformer-based architectures, and knowledge-augmented neural networks.

The results indicate that the integration of knowledge graphs and prompt-based instruction substantially enhances classification accuracy. Specifically, the proposed model outperforms standard BERT-based classifiers by a notable margin, particularly in cases involving implicit sarcasm where contextual cues are subtle. This improvement can be attributed to the model's ability to incorporate external knowledge, enabling it to identify semantic incongruities that are not explicitly present in the text.

Precision and recall metrics further highlight the effectiveness of the framework. The model achieves higher precision in distinguishing satirical from non-satirical content, reducing false positives that are common in traditional approaches. Similarly, recall is improved due to the model's enhanced ability to detect nuanced expressions of satire. These findings align with prior research emphasizing the importance of contextual and knowledge-based features in sarcasm detection (Ren et al., 2023).

The inclusion of prompt-based learning contributes significantly to performance gains, particularly in low-resource scenarios. Experiments demonstrate that the model maintains high accuracy even with limited labeled data, validating the effectiveness of prompt tuning techniques (Schick & Schütze, 2021). This capability is crucial for real-world applications where annotated datasets are scarce.

Comparative analysis with multimodal models reveals that while multimodal approaches achieve competitive performance, the proposed framework offers a more efficient solution by focusing on textual and knowledge-based features. This efficiency is particularly advantageous in applications where multimodal data is unavailable or difficult to process.

Error analysis provides further insights into model behavior. Misclassifications primarily occur in cases involving highly domain-specific or culturally nuanced satire, where knowledge graphs may lack relevant information. Additionally, ambiguous statements that rely heavily on contextual history pose challenges for the model.

Overall, the findings demonstrate that knowledge-guided instructional learning significantly enhances the detection of satirical expressions. The combination of contextual encoding, knowledge integration, and prompt-based guidance provides a robust and adaptable framework for addressing the complexities of satire recognition.

DISCUSSION

The findings of this study underscore the critical role of integrating contextual understanding, external knowledge, and instructional learning in advancing satirical expression recognition. The superior performance of the proposed framework highlights the limitations of traditional approaches that rely solely on lexical or statistical features. By incorporating knowledge-guided learning, the model effectively bridges the gap between surface-level text analysis and deeper semantic interpretation.

From a theoretical perspective, the results support the notion that satire detection is inherently a context-dependent reasoning task. The ability to identify semantic incongruity requires not only linguistic understanding but also access to external knowledge and contextual cues. This aligns with existing research emphasizing the importance of knowledge integration in natural language processing (Liu et al., 2020; Zhang et al., 2019).

The effectiveness of prompt-based learning further reinforces the value of instructional guidance in machine learning. By explicitly directing the model's attention toward relevant features, prompts enable more efficient utilization of pretrained knowledge. This is particularly evident in low-resource scenarios, where traditional models struggle due to limited training data. The findings corroborate previous studies demonstrating the adaptability of prompt-based approaches (Han et al., 2022; Feng et al., 2024).

However, the study also reveals several challenges and trade-offs. The reliance on knowledge graphs introduces dependency on data availability and quality. Incomplete knowledge can lead to misinterpretation, particularly in cases involving niche or emerging topics. Additionally, the computational complexity associated with integrating multiple components may limit scalability.

Another important consideration is the interpretability of the model. While knowledge integration enhances transparency to some extent, the underlying decision-making process remains complex. Future research should focus on developing explainable AI techniques to provide clearer insights into model behavior.

Comparisons with existing literature indicate that the proposed framework advances the state of the art in satire detection. Unlike previous models that focus on isolated aspects such as context or knowledge, this study integrates multiple dimensions into a unified framework. This holistic approach enables more accurate and robust detection of satirical expressions.

The practical implications of this research are significant. Improved satire detection can enhance applications such as social media monitoring, misinformation detection, and customer sentiment analysis. By accurately distinguishing between genuine and satirical content, organizations can make more informed decisions and improve user experience.

In conclusion, the discussion highlights the strengths and limitations of the proposed approach while emphasizing its contribution to the field. The integration of knowledge-guided instructional learning represents a promising direction for future research in natural language processing.

CONCLUSION

This study has critically examined the evolving landscape of context-focused satirical expression recognition through knowledge-guided instructional learning, situating the discussion within contemporary advancements in natural language processing and artificial intelligence. By synthesizing theoretical foundations, methodological innovations, and applied frameworks, the research demonstrates that effective satire detection necessitates a multidimensional approach that integrates contextual semantics, external knowledge, and adaptive learning paradigms.

The analysis highlights that traditional machine learning techniques, while foundational, are insufficient for capturing the implicit, nuanced, and often contradictory nature of satirical communication. The emergence of deep contextual models such as transformer-based architectures has significantly improved semantic understanding; however, their effectiveness is substantially enhanced when augmented with structured knowledge sources such as knowledge graphs. These integrations enable models to move beyond surface-level text interpretation and incorporate real-world context, thereby improving the detection of implicit meaning and semantic incongruity.

Furthermore, the incorporation of prompt-based and instructional learning frameworks represents a paradigm shift in model training and deployment. These approaches reduce dependency on large labeled datasets and enable flexible adaptation across domains and linguistic variations. The study also underscores the importance of multimodal learning, particularly in digital communication environments where satire frequently emerges through the interaction of text, images, and other media forms.

Despite these advancements, several limitations persist. Challenges related to data scarcity, annotation subjectivity, cultural variability, and model bias continue to hinder the development of universally robust systems. Additionally, the reliance on external knowledge bases introduces concerns regarding data completeness, consistency, and potential bias propagation. These limitations emphasize the need for more standardized datasets, improved evaluation metrics, and ethical considerations in model design.

The findings contribute to the existing body of knowledge by proposing a comprehensive, integrative perspective on satire recognition that bridges theoretical constructs with practical implementation. The study advances the discourse by highlighting the synergistic role of contextual modeling, knowledge integration, and instructional learning in enhancing interpretative accuracy.

Future research should focus on developing more explainable and interpretable models, expanding cross-cultural datasets, and refining multimodal fusion techniques. Additionally, exploring hybrid frameworks that combine symbolic reasoning with neural architectures may offer promising directions for addressing current limitations.

In conclusion, context-focused satirical expression recognition represents a complex yet critical domain in modern computational linguistics. The integration of knowledge-guided instructional learning provides a robust pathway toward more accurate, scalable, and context-aware systems, thereby contributing to the broader goal of intelligent language understanding in real-world applications.

REFERENCES

1. Devlin, J., Chang, M.-W., Lee, K., & Toutanova, K. (2019). BERT: Pre-training of deep bidirectional transformers for language understanding. In Proceedings of the 2019 conference of the north american

chapter of the association for computational linguistics: human language technologies, volume 1 (long and short papers) (pp. 4171–4186).

2. Fei, H., Ji, D., Zhang, Y., & Ren, Y. (2020). Topic-enhanced capsule network for multi-label emotion classification. IEEE/ACM Transactions on Audio, Speech, and Language Processing, 28, 1839-1848.
3. Feng K, Huang L, Wang K, et al. (2024). Prompt-based learning framework for zero-shot cross-lingual text classification. Engineering Applications of Artificial Intelligence, 133: 108481.
4. Govindan, V., & Balakrishnan, V. (2022). A machine learning approach in analysing the effect of hyperboles using negative sentiment tweets for sarcasm detection. Journal of King Saud University-Computer and Information Sciences, 34(8), 5110-5120.
5. Han, X., Zhao, W., Ding, N., Liu, Z., & Sun, M. (2022). Ptr: Prompt tuning with rules for text classification. AI Open, 3, 182-192.
6. He, Z., Wang, H., & Zhang, X. (2023). Multi-Task Learning Model Based on BERT and Knowledge Graph for Aspect-Based Sentiment Analysis. Electronics, 12(3), 737.
7. Hu, S., Ding, N., Wang, H., Liu, Z., Wang, J., Li, J., ... & Sun, M. (2021). Knowledgeable prompt-tuning: Incorporating knowledge into prompt verbalizer for text classification. arXiv preprint arXiv:2108.02035.
8. Jain, P. K., Quamer, W., Saravanan, V., & Pamula, R. (2023). Employing BERT-DCNN with sentic knowledge base for social media sentiment analysis. Journal of Ambient Intelligence and Humanized Computing, 14(8), 10417-10429.
9. Jiang, G., Liu, S., Zhao, Y., Sun, Y., & Zhang, M. (2022). Fake news detection via knowledgeable prompt learning. Information Processing & Management, 59(5), 103029.
10. Kanakam, R., & Nayak, R. K. (2021, June). Sarcasm Detection on Social Networks using Machine Learning Algorithms: A Systematic Review. In 2021 5th International Conference on Trends in Electronics and Informatics (ICOEI) (pp. 1130-1137). IEEE.
11. Khan, M., & Malviya, A. (2020, February). Big data approach for sentiment analysis of twitter data using Hadoop framework and deep learning. In 2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE) (pp. 1-5). IEEE.
12. Liang, B., Lin, Z., Qin, B., & Xu, R. (2022, October). Topic-Oriented Sarcasm Detection: New Task, New Dataset and New Method. In Proceedings of the 21st Chinese National Conference on Computational Linguistics (pp. 557-568).
13. Lin, H. C. K., Wang, T. H., Lin, G. C., Cheng, S. C., Chen, H. R., & Huang, Y. M. (2020). Applying sentiment analysis to automatically classify consumer comments concerning marketing 4Cs aspects. Applied Soft Computing, 97, 106755.
14. Liu, W., Zhou, P., Zhao, Z., Wang, Z., Ju, Q., Deng, H., & Wang, P. (2020, April). K-bert: Enabling language representation with knowledge graph. In Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 34, No. 03, pp. 2901-2908).
15. Liu, X., & Zheng, Y. (2021). Zhengxiao Du, Ming Ding, Yujie Qian, Zhilin Yang, and Jie Tang. 2021. Gpt understands, too. arXiv preprint arXiv:2103.10385, 6(2).
16. Liu, Y., Ott, M., Goyal, N., Du, J., Joshi, M., Chen, D., ... & Stoyanov, V. (2019). Roberta: A robustly optimized bert pretraining approach. arXiv preprint arXiv:1907.11692.
17. Lu Q, Long Y, Sun X, et al. (2024). Fact-sentiment incongruity combination network for multimodal sarcasm detection. Information Fusion, 104: 102203.
18. Mohan, A., Nair, A. M., Jayakumar, B., & Muraleedharan, S. (2023). Sarcasm Detection Using Bidirectional Encoder Representations from Transformers and Graph Convolutional Networks. Procedia Computer Science, 218, 93-102.
19. Ortega-Bueno, R., Rosso, P., & Pagola, J. E. M. (2022). Multi-view informed attention-based model for Irony and Satire detection in Spanish variants. Knowledge-Based Systems, 235, 107597.

20. Pavan Kumar, M. R., & Jayagopal, P. (2023). Context-sensitive lexicon for imbalanced text sentiment classification using bidirectional LSTM. Journal of Intelligent Manufacturing, 34(5), 2123-2132.

21. Peters, M., Neumann, M., Iyyer, M., Gardner, M., Clark, C., Lee, K., & Zettlemoyer, L. (2018). Deep contextualized word representations. In Proceedings of the 2018 conference of the north american chapter of the association for computational linguistics: human language technologies, Volume 1 (Long Papers) (pp. 2227–2237).

22. Ren, Y., Wang, Z., Peng, Q., & Ji, D. (2023). A knowledge-augmented neural network model for sarcasm detection. Information Processing & Management, 60(6), 103521.

23. Schick, T., & Schütze, H. (2021, April). Exploiting Cloze-Questions for Few-Shot Text Classification and Natural Language Inference. In Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics: Main Volume (pp. 255-269).

24. Schick, T., & Schütze, H. (2021, June). It's Not Just Size That Matters: Small Language Models Are Also Few-Shot Learners. In Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (pp. 2339-2352).

25. Vinoth, D., & Prabhavathy, P. (2022). An intelligent machine learning-based sarcasm detection and classification model on social networks. The Journal of Supercomputing, 78(8), 10575-10594.

26. Vrandečić, D., & Krötzsch, M. (2014). Wikidata: a free collaborative knowledgebase. Communications of the ACM, 57(10), 78-85.

27. Wang J, Yang Y, Jiang Y, et al. (2024). Cross-modal incongruity aligning and collaborating for multi-modal sarcasm detection. Information Fusion, 103: 102132.

28. Wang Z, Hu S, Liu W. (2024). Product feature sentiment analysis based on GRU-CAP considering Chinese sarcasm recognition. Expert Systems with Applications, 241: 122512.

29. Wen, Z., Gui, L., Wang, Q., Guo, M., Yu, X., Du, J., & Xu, R. (2022). Sememe knowledge and auxiliary information enhanced approach for sarcasm detection. Information Processing & Management, 59(3), 102883.

30. Wen, Z., Wang, R., Chen, S., Wang, Q., Ding, K., Liang, B., & Xu, R. (2023). RDVI: A Retrieval–Detection Framework for Verbal Irony Detection. Electronics, 12(12), 2673.

31. Wu, S., Fei, H., Cao, Y., Bing, L., & Chua, T. S. (2023). Information Screening whilst Exploiting! Multimodal Relation Extraction with Feature Denoising and Multimodal Topic Modeling. arXiv preprint arXiv:2305.11719.

32. Xie, S., Pan, Q., Wang, X., Luo, X., & Sugumaran, V. (2024). Combining prompt learning with contextual semantics for inductive relation prediction. Expert Systems with Applications, 238, 121669.

33. Zhang, B., Hu, Y., Xu, D., Li, M., & Li, M. (2022). SKG-Learning: a deep learning model for sentiment knowledge graph construction in social networks. Neural Computing and Applications, 34(13), 11015-11034.

34. Zhang, S., Zhao, T., Wu, H., Zhu, G., & Li, K. (2023). TS-GCN: Aspect-level sentiment classification model for consumer reviews. Computer Science and Information Systems, 20(1), 117-136.

35. Zhang, Z., Han, X., Liu, Z., Jiang, X., Sun, M., & Liu, Q. (2019). ERNIE: Enhanced language representation with informative entities. arXiv preprint arXiv:1905.07129.

36. Zhu, C., Chen, M., Zhang, S., Sun, C., Liang, H., Liu, Y., & Chen, J. (2023). SKEAFN: Sentiment knowledge enhanced attention fusion network for multimodal sentiment analysis. Information Fusion, 100, 101958.