The Role of Artificial Intelligence in Analyzing Narrative Structures in English Novels

(Section LJRHSS-G: Linguistic and Literature)

Ms. Vindya. K

ABSTRACT

Artificial Intelligence (AI) is transforming the analysis of narrative structures in literature, offering computational methods that complement traditional approaches. By leveraging tools such as Natural Language Processing (NLP), sentiment analysis, and machine learning, AI enables researchers to uncover patterns, themes, and character relationships in English novels at an unprecedented scale. This study investigates AI's role in literary analysis, emphasizing its ability to explore narrative structures while addressing algorithmic bias, reductionism, and ethical considerations. Using case studies from Pride and Prejudice, 1984, and Great Expectations, it demonstrates AI's transformative potential and proposes strategies for integrating computational tools with traditional literary methodologies.

Keywords: artificial intelligence, narrative analysis, natural language processing, literary studies, english novels, machine learning, computational literary analysis, sentiment analysis.

Classification: LCC Code: PN3383.C58

Language: English

Great Britain Journals Press

LJP Copyright ID: 573374
Print ISSN: 2515-5784
Online ISSN: 2515-5792

London Journal of Research in Humanities & Social Science

Volume 24 | Issue 16 | Compilation 1.0

The Role of Artificial Intelligence in Analyzing Narrative Structures in English Novels

Ms. Vindya. K

ABSTRACT

Artificial Intelligence (AI) is transforming the analysis of narrative structures in literature, offering computational methods that complement traditional approaches. By leveraging tools such as Natural Language Processing (NLP), sentiment analysis, and machine learning, AI enables researchers to uncover patterns, themes, and character relationships in English novels at an unprecedented scale. This study investigates AI's role in literary analysis, emphasizing its ability to explore narrative structures while addressing algorithmic bias, reductionism, and ethical considerations. Using case studies from Pride and Prejudice, 1984, and Great Expectations, it demonstrates AI's transformative potential and proposes strategies for integrating computational tools with traditional literary methodologies.

Keywords: artificial intelligence, narrative analysis, natural language processing, literary studies, english novels, machine learning, computational literary analysis, sentiment analysis.

Author: Assistant Professor, Department Of English, Daksha First Grade College, Mysuru, Karnataka, India.

I. INTRODUCTION

The analysis of narrative structures is a cornerstone of literary studies, crucial for interpreting themes, character development, and plot progression. Traditional methodologies, influenced by narratologists like Gérard Genette and Vladimir Propp, qualitative

AI offers a groundbreaking approach to literary studies, allowing researchers to analyze extensive datasets with precision and efficiency. Techniques like Natural Language Processing (NLP), sentiment analysis, and machine learning enable the identification of recurring motifs, character interactions, and thematic patterns across diverse narrative styles and historical contexts.

This paper explores how AI enhances the analysis of narrative structures in English novels, presenting a hybrid approach that combines computational and traditional literary methods. It also examines AI's limitations in interpreting complex literary elements and addresses ethical concerns regarding its use in the humanities.

II. LITERATURE REVIEW

2.1 Traditional Approaches to Narrative Analysis

Narrative analysis has long been shaped by the foundational works of theorists like Genette and Propp:

- Genette's Framework: Key concepts such as narrative voice, focalization, and time help analyze the interplay between the narrator and the story.
- Propp's Morphology: Propp's identification of 31 narrative functions in folktales provides a structural approach to understanding plot development.

While these methods are insightful, they lack scalability when applied to large corpora of texts.

2.2 Digital Humanities and AI in Literature

The integration of AI in literary studies marks a significant evolution:

- Matthew Jockers: Developed computational tools for analyzing narrative arcs and themes across numerous novels.

- Ted Underwood: Used AI to uncover stylistic changes over time, offering fresh perspectives on literary history.

AI techniques, such as topic modelling and sentiment analysis, have enriched traditional literary studies by revealing large-scale patterns.

2.3 Challenges in AI-Driven Literary Studies

Despite its potential, AI presents several challenges:

- Algorithmic Bias: Training datasets may reflect cultural and linguistic biases, affecting interpretive accuracy.
- Reductionism: Quantitative methods risk oversimplifying the nuanced nature of literary texts.
- Ethical Concerns: The reliance on computational tools raises questions about the interpretative role of human scholars.

III. METHODOLOGY

3.1 Data Collection

- Corpus: Fifty English novels were selected for their diversity in genre, style, and era, including *Pride and Prejudice* (Austen), *1984* (Orwell), and *Great Expectations* (Dickens).
- Sources: Texts were obtained from Project Gutenberg (public domain) and licensed academic archives for modern works.

3.2 Preprocessing

To prepare texts for analysis:

- Text Cleaning: Tokenization, punctuation removal, and elimination of stop words.
- Lemmatization: Conversion of words to root forms for consistency.
- Formatting: Conversion into machine-readable formats compatible with NLP tools.

3.3 Computational Techniques

- Natural Language Processing (NLP):
  - Sentiment analysis to map emotional arcs.
  - Named Entity Recognition (NER) to identify characters and relationships.
  - Dependency parsing for sentence structure analysis.
- Topic Modeling:
  - Latent Dirichlet Allocation (LDA) to uncover recurring themes.
- Network Analysis:
  - Graph-based methods to map character interactions.
- Machine Learning:
  - Supervised models for classifying narrative styles.

3.4 Validation

Results were cross-referenced with established literary critiques to ensure interpretive accuracy.

IV. RESULTS AND DISCUSSION

4.1 Key Findings

- Emotional Arcs:
  - *Pride and Prejudice*: Exhibited a comedic arc with a rising sentiment.
  - *1984*: Showed a decline in sentiment, reflecting its dystopian tone.
- Character Networks:
  - In *Great Expectations*, peripheral characters were found to play pivotal thematic roles.
- Thematic Clusters:
  - Dominant themes such as social class dynamics in Victorian novels and existentialism in modernist works were identified through topic modeling.

4.2 Implications

AI enables macroscopic literary analysis, uncovering trends that complement traditional close reading. A hybrid framework, combining computational and humanistic approaches, enriches literary interpretation.

4.3 Challenges and Limitations

- Interpretability: Abstract concepts like symbolism remain difficult for AI to decode.

- Bias: AI training data influenced sentiment analysis outcomes.

4.4 Ethical Considerations

To uphold academic integrity, AI analyses must be transparent and supervised. Collaboration between computational and humanistic scholars is essential for balanced interpretations.

V. CONCLUSION

AI is revolutionizing literary studies by offering scalable, data-driven methodologies to analyze narrative structures in English novels. While it is not a replacement for traditional literary criticism, AI complements human expertise, enabling innovative interpretations. Future research should focus on refining AI tools and fostering interdisciplinary collaboration to address its limitations and enhance its application in the humanities.

REFERENCES

1. Genette, G. (1980). *Narrative Discourse: An Essay in Method*. Cornell University Press.
2. Propp, V. (1968). *Morphology of the Folktale*. University of Texas Press.
3. Jockers, M. L. (2013). *Macroanalysis: Digital Methods and Literary History*. University of Illinois Press.
4. Underwood, T. (2019). *Distant Horizons: Digital Evidence and Literary Change*. University of Chicago Press.
5. Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). "Latent Dirichlet Allocation." *Journal of Machine Learning Research*, 3, 993–1022.
6. Hope, J., & Witmore, M. (2014). "The Literature Lab: Text Mining the Literary Canon." *New Literary History*, 45 (3), 293–317.
7. Moretti, F. (2005). *Graphs, Maps, Trees: Abstract Models for Literary History*. Verso.

This page is intentionally left blank