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ARTIFICIAL INTELLIGENCE AND LITERATURE: A DUAL-EDGED SWORD IN RESEARCH AND EDUCATION

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Summary: This paper explores the role of artificial intelligence (AI) in literary research and education. It examines how AI tools enhance textual analysis, support students and educators, and the risks of overreliance on such technologies. Although AI introduces efficiencies, it also raises concerns regarding academic integrity, cultural bias, and the erosion of critical thinking. The paper concludes by recommending balanced integration and the development of ethical frameworks to preserve the humanistic core of literary studies.

Key words*: artificial intelligence, literary research, education, Natural language processing, Stylometry*

VEŠTAČKA INTELIGENCIJA I KNJIŽEVNOST: MAČ SA DVE OŠTRICE U ISTRAŽIVANJU I OBRAZOVANJU

Sažetak: Ovaj rad istražuje ulogu veštačke inteligencije (VI) u oblasti književnih istraživanja i obrazovanja. Analizira se na koji način alati zasnovani na VI unapređuju tekstualnu analizu, pružaju podršku studentima i nastavnicima, kao i rizici preteranog oslanjanja na takve tehnologije. Iako VI doprinosi efikasnosti, otvara i brojna pitanja u vezi sa akademskim integritetom, kulturnom pristrasnošću i smanjenjem sposobnosti kritičkog mišljenja. Rad se zaključuje

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preporukom o uravnoteženoj integraciji VI i razvoju etičkih okvira, kako bi se sačuvala humanistička suština književnih studija.

Ključne reči*: veštačka inteligencija, književna istraživanja, obrazovanje, obrada prirodnog jezika, stilometrija*

1. INTRODUCTION

The intersection of artificial intelligence (AI) and the humanities has sparked both excitement and apprehension. In literature studies, AI is increasingly used to analyze texts, assist students with learning, and help educators manage curricular demands. However, this shift also poses philosophical, practical, and ethical questions about the nature of humanistic inquiry, authorship, and scholarly rigor (Bulut et al., 2024; Jebaselvi, 2024).

2. AI IN LITERARY RESEARCH

AI has revolutionized the way scholars conduct literary analysis. With the aid of natural language processing (NLP), researchers can now analyze vast corpora of texts in ways that were previously unimaginable. Key applications include:

2.1. Text Mining and Distant Reading

AI has enabled "distant reading", a method that uses computational tools to analyze literary trends and themes across large corpora (Moretti, 2013). Natural language processing (NLP) algorithms help scholars detect narrative patterns, track sentiment, and visualize intertextual relationships at scale (Jebaselvi, 2024).

NLP is a subfield of artificial intelligence (AI) and computational linguistics focused on enabling machines to understand, interpret, generate, and manipulate human language. In simple terms, NLP allows computers to "read" and "write" in ways that mimic human communication.

The Core Goals of NLP are to:

- Understand the meaning of text or speech (semantics, syntax, pragmatics).
- Generate human-like language responses (e.g., chatbots, machine translation).

- Analyze large volumes of language data (text mining, sentiment analysis).
- Translate language from one form to another (e.g., English to German).

Why NLP matters in literary studies is that in the context of literature and education, NLP opens up new possibilities for: Distant reading of large corpora, Sentiment and theme analysis, Character and plot mapping, Automatic summarization and classification, Comparative stylistics, and Keyword and topic extraction. For example, researchers have used NLP to explore gender dynamics in Victorian novels, or emotional arcs in Shakespearean plays.

There are certainly challenges in NLP:

- Ambiguity: Words and phrases often have multiple meanings (e.g., "bank" of a river vs. a financial institution).
- Contextual complexity: Literature often uses irony, metaphor, and subtext-hard for machines to parse.
- Bias: NLP models can reflect biases present in their training data.
- Low-resource languages: Tools are often optimized for English, with limited support for other languages or dialects.
- Data quality: OCR errors or inconsistent formatting can impair analysis of digitized literary texts.

2.2. Authorship Attribution and Stylometry

Stylometric analysis powered by machine learning can attribute anonymous texts, assess authorial consistency, and explore stylistic evolution (Ferrer et al., 2020). These methods rely on lexical, syntactic, and structural markers to make probabilistic inferences.

Eder, M. et al. (2016) explain Stylometry as the quantitative analysis of writing style. It involves using statistical methods to examine linguistic patterns in texts, such as word frequency, sentence length, syntax, and punctuation. Stylometry aims to identify authorship, detect plagiarism, study literary evolution, or compare stylistic features across texts or genres.

Stylometry dates back to the 19th century, when scholars like Augustus de Morgan and Thomas Mendenhall began measuring sentence length and word frequencies (Grzybek, 2007). The 20th century saw stylometry applied in high-profile authorship debates, such as the Federalist Papers and disputed Shakespearean texts. In the digital era, it has evolved into a data-driven field thanks to computational linguistics and AI.

Common Stylometric features that are being analyzed are:

- Function words (e.g., "and," "but," "the") - authors tend to use them unconsciously, making them reliable markers;
- Average sentence/word length; Vocabulary richness (e.g., type-token ratio);
- Punctuation patterns; N-grams - sequences of n words or characters;
- Syntactic structures and part-of-speech distributions.

The main application of Stylometry is authorship attribution (Stylometry has been used to resolve literary disputes: Confirming co-authorship of works like The Federalist Papers. Suggesting that certain disputed plays were co-written by Shakespeare and others.) This has been done by:

- Plagiarism Detection: By comparing known and suspect texts, stylometric tools can identify stylistic anomalies indicating copied or ghostwritten material.
- Literary Evolution and Style Development (Researchers use stylometry to track how an author's style changes over time, or to distinguish early and late periods in a writer's career.)
- Genre and Period Classification: Machine learning models trained on stylometric features can classify texts by genre (e.g., gothic, romantic) or historical period.
- Forensic Linguistics: Stylometry is used in legal contexts to identify anonymous authors or verify the authenticity of written evidence.

There are without a doubt the limitations and challenges to be considered:

- False positives: Stylometric similarity does not prove authorship with certainty.
- Genre and topic interference: Style can be shaped by content or genre, not just personal preference.
- Small sample sizes: Stylometry is more reliable with larger text corpora.

2.3. Semantic and Sentiment Analysis

Semantic and sentiment analysis are two key techniques in AI-driven literary research. They fall under the broader field of NLP and are especially useful for identifying patterns of meaning, emotion, and tone in literary texts. AI models like GPT-4 and BERT are used to extract semantic meaning and emotional tone from texts. While they offer useful insights, these models may struggle with genre nuance or cultural specificity (Ju, 2023).

In literary research, semantic analysis helps scholars understand what a text is about, how ideas are related, and how meaning shifts across passages or characters (Bartlett, 2023). With the help of AI tools, researchers can discover themes or motifs across novels or authors, track symbolic or conceptual relationships (e.g., how "freedom" is associated with "death" in Romantic poetry) or compare semantic shifts of words over time (e.g., how "virtue" was used in the 17th vs. 19th century).

Sentiment analysis detects and quantifies the emotional tone of a text - whether it's positive, negative, or neutral (Mata et al, 2021). More advanced models can classify specific emotions like joy, anger, fear, or sadness. It can assist researchers in analyzing the emotional arc of a novel, character, or chapter (e.g., positive to tragic in King Lear), comparing sentiment trends across genres (e.g., tragedy vs. romance), studying gendered emotion expression (e.g., how male and female characters are written emotionally), or revealing psychological states of characters through their language (e.g., in stream-of-consciousness novels).

However, there are limitations to keep in mind when using AI tools for a semantic and sentiment analysis of a literary work. For example, there is the issue of misunderstanding of irony and ambiguity: AI often misses sarcasm or double meanings. There is also the problem with context sensitivity, cultural nuance and poetic and figurative language (AI struggles with metaphor, allegory, and symbolic layers).

3. CHALLENGES AND RISKS IN AI LITERARY RESEARCH

In addition to the benefits, when using AI in literary research, numerous risks and challenges must be taken into account. For example, AI can be bias: It may favor dominant cultures, languages, and genres. Also, it can suffer from a loss of nuance, which means that irony, metaphor, or intertextuality can be misread or

ignored. There is also the problem of overreliance: Overuse of AI can lead to surface-level interpretations or dilute critical rigor. The ethical concerns and the lack of transparency also must be taken into consideration when using AI tools for literary research: AI-generated outputs may obscure human authorship or marginalize lesser-known voices, since AI tools may not reveal how results are generated.

4. AI FOR STUDENTS AND TEACHERS

AI is becoming a valuable pedagogical assistant in literature education. For students, AI offers tools such as Grammarly and ChatGPT that assist with grammar correction, style refinement, and brainstorming. These tools can make complex literary texts more accessible through summaries, paraphrases, and guided explanations (Azeem & Abbas, 2025).

Educators benefit from AI through automated grading, personalized feedback, and data-driven curriculum design. AI can generate quizzes, discussion questions, and even multimedia content tailored to a text's themes or period (Bulut et al., 2024). These tools can save time and improve responsiveness to student needs.

Despite its benefits, AI in literary and educational contexts also poses serious concerns:

- Cognitive Offloading: A growing body of research suggests that AI tools may reduce students' critical thinking when overused. MIT and Wharton studies found diminished retention and reasoning among students who relied heavily on AI for writing and analysis (Washington Post, 2025).
- Academic Integrity and Plagiarism: Generative AI raises complex issues around originality and authorship. According to Turnitin, over 11% of submitted student papers contain more than 20% AI-generated content, and existing detection tools often produce false positives (Wired, 2024).
- Cultural and Algorithmic Bias: AI systems are trained on large corpora that often reflect dominant cultural norms. This bias risks marginalizing non-Western literary traditions and reinforcing existing epistemic hierarchies (Ferrer et al., 2020).
- Hallucinations and Misinformation: AI models can generate false or fabricated content, known as "hallucinations," which poses a danger in academic contexts where factual accuracy is critical (Wikipedia, 2025).

5. RECOMMENDATIONS FOR RESPONSIBLE USE

Educators should teach students how to engage critically with AI tools, focusing on prompt design, bias detection, and the evaluation of AI outputs (Springer, 2025). Assessment strategies should assume the presence of AI and adapt accordingly. Oral exams, in-class writing, and creative analysis tasks help preserve academic integrity (The Guardian, 2025). Institutions should develop guidelines for AI usage in teaching, research, and publication. Disclosure of AI assistance should be mandatory in all academic work (Azeem & Abbas, 2025).

Rather than replacing human judgment, AI should augment interpretation and facilitate learning. Educators can frame AI as a tool for scaffolding rather than solving literary problems.

When using AI tools in teaching, educators should include the following aspects for responsible use:

5.1. Promote AI Literacy and Critical Thinking

AI literacy refers to the ability to understand, critically evaluate, and effectively use AI tools. In literature and education, this means teaching students and educators how AI works, what it can and cannot do, and how to use it ethically and thoughtfully. Without critical training, users may blindly trust AI outputs, leading to shallow or inaccurate scholarship.

Practical recommendations:

- Integrate AI education into literature and humanities curricula (e.g., workshops, modules on AI bias, limitations, and ethical use).
- Teach students how to evaluate AI-generated content, compare it with human interpretations, and spot hallucinations or inaccuracies.
- Emphasize that AI tools should be used for exploration, not explanation—they are best as aids in brainstorming, outlining, or expanding ideas, not as final authorities.

Example: Ask students to compare a human-written literary analysis with one generated by ChatGPT and critique both for depth, nuance, and accuracy.

5.2. Design Assessments and Research Assignments with AI in Mind

Traditional assignments (e.g., essays, summaries, thematic analyses) can now be completed - at least superficially - using AI, which threatens originality and skill development.

- Design AI-aware assessments: prioritize open-ended, personalized, or in-class responses that are difficult to automate.
- Incorporate oral presentations, reflective journals, or annotations where students explain their process and thinking.
- Encourage meta-assignments, where students use AI but must critique, improve, or reflect on the AI's output.

Example: Assign students to use AI to analyze a poem, then write a critique of the AI's reading using literary theory.

5.3. Establish Transparent Ethical and Academic Integrity Policies

Clear guidelines help prevent academic dishonesty and provide consistency in how AI use is handled across classrooms and institutions.

- Require disclosure when AI tools are used in student assignments or research papers.
- Differentiate between AI-assisted and AI-generated content.
- Establish consequences for misuse or plagiarism involving generative AI.
- Encourage citation of AI tools (e.g., APA now allows for citation of ChatGPT when used transparently).

Goal: Align AI use with academic integrity standards.

CONCLUSION

AI offers powerful new methods for analyzing literature - allowing scholars to work at previously unimaginable scales, uncover patterns, and explore texts from new angles. However, its use should always be complemented by human judgment, critical theory, and cultural sensitivity. In literary research, AI is best viewed not as a replacement for the humanist, but as a collaborative tool in the interpretive process.

It is a fact, that AI has the potential to enrich literary research and education by offering new methodologies and reducing administrative burdens. However, unchecked reliance on AI can erode critical thought, introduce bias, and blur the boundaries of authorship. A human-centered, ethically informed approach is essential for leveraging AI's potential while safeguarding the core values of literary studies.

While AI offers extraordinary tools, literature - as a field - is about empathy, ambiguity, and cultural context. No algorithm can fully capture a reader's emotional resonance with a novel or the moral dilemma in a character's arc.

Responsible use means treating AI as a partner, not a proxy. It's a map - not the journey.

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