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**LEARNING MACHINES: HOW MODELS LIKE CHATGPT WORK***Iskandarov Elzod Olimjon ugli**Academic lyceum of Samarkand Branch of  
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**Annotation:**In recent years, learning machines, particularly large language models (LLMs) like ChatGPT, have revolutionized natural language processing (NLP). This article provides an overview of how such models function, focusing on the underlying architecture, training methodology, and inference mechanisms. It also explores their applications, limitations, and ethical concerns. Drawing on insights from computer science and cognitive modeling, this work explains how machines "learn" to understand and generate human-like language.

**Key words:**transformer-based models, policymakers, computational algorithms, literary standpoint, pre-existing texts.

**INTRODUCTION**

Machine learning (ML) and artificial intelligence (AI) have seen transformative developments over the past decade. One of the most prominent breakthroughs has been the development of large language models (LLMs) such as OpenAI's ChatGPT, which belong to the broader family of transformer-based models. These models are capable of performing a wide range of tasks, including answering questions, writing essays, and translating languages. Presidential Decree No. PF-60 (2022) of the Republic of Uzbekistan emphasizes the strategic development of digital and AI technologies, underlining the national importance of such advancements[1]. Understanding the mechanics of how these models work is essential not only for developers but also for policymakers and educators.

**LITERARY ANALYSIS**

The evolution of LLMs is closely tied to the development of the transformer architecture introduced by Vaswani et al. in 2017[2]. Large language models like ChatGPT, while grounded in computational algorithms, can be interpreted through the lens of literary theory. These systems operate as narrative generators, crafting cohesive and context-aware texts by mimicking the structures of human language. From a literary standpoint, ChatGPT embodies the tension between authorship and automation, meaning and probability, and presence and absence of human intention.

**1. The Death of the Author and the Rise of the Machine Text**

Roland Barthes' seminal essay "The Death of the Author" proposes that meaning in a text arises not from the author's intent but from the reader's interpretation[3]. ChatGPT takes this idea further: it creates text without any authorial consciousness. It has no intention, identity, or emotion—its language is entirely derivative, yet it often passes as human. In this sense, ChatGPT represents a pure form of intertextuality, drawing on countless pre-existing texts to construct new linguistic outputs. This phenomenon challenges traditional notions of literary originality. If authorship is no longer bound to a human subject, the model becomes an echo chamber of culture, synthesizing fragments of global language data into new compositions. Its

writing is collective, probabilistic, and anonymized—yet often strikingly coherent and compelling.

### 2. Language Without Understanding

Jacques Derrida's theory of *différance* suggests that meaning in language is always deferred, never fully present[4]. Similarly, ChatGPT operates through probabilistic generation, selecting the next word not based on understanding but on statistical likelihood. Its "knowledge" is not semantic but syntactic and structural. It functions as a mirror of linguistic patterns, not a possessor of thought. This aligns with deconstructive readings of text, where interpretation reveals instability and multiplicity rather than singular truth. ChatGPT's outputs are fluid and open-ended—there is no final meaning, only context-sensitive responses. Each prompt is a re-entry into the ongoing chain of signification.

### 3. Hypertextuality and Reader Interaction

ChatGPT transforms users into co-authors. Much like hypertext literature, where the reader shapes the narrative by choosing different paths, ChatGPT's outputs are shaped by prompts, modifications, and follow-up queries. It functions not as a static authorial voice, but as a collaborative narrative engine, responsive to user intent.

This interactivity echoes concepts in reader-response theory (e.g., Wolfgang Iser, Stanley Fish), which emphasize the reader's role in constructing meaning. The "text" of ChatGPT is not complete until the user interprets it, revises it, or prompts it further. The result is a living text, constantly rewritten in dialogue.

### 4. Artificial Intelligence as Literary Trope

In literature, artificial intelligences have often been portrayed as paradoxical beings—intelligent yet emotionless, powerful yet dependent, human-like yet inhuman. ChatGPT occupies a similar narrative space. Though it produces emotionally resonant prose, it feels nothing. Its voice may simulate empathy, wisdom, or creativity, but these are illusions constructed by linguistic probability.

Such dualities recall classic literary depictions of automata and posthuman figures—Frankenstein's creature, the mechanical Turk, HAL 9000. ChatGPT can thus be seen as a textual character of our time: one that speaks without voice, writes without will, and converses without consciousness.

## RESULT AND DISCUSSION

The interdisciplinary investigation of ChatGPT reveals key insights that merge computational understanding with literary and cultural analysis[5]. The results show that ChatGPT functions as both a technological product and a textual construct, raising essential questions about authorship, language, and artificial intelligence in the digital age.

### 1. Technical Findings: Efficient Language Generation through Learning

From a technical standpoint, ChatGPT operates on a transformer-based architecture trained using vast amounts of text data. The pretraining-finetuning model allows it to:

- Capture statistical patterns in human language
- Generate contextually appropriate and coherent responses
- Adapt to various tones, genres, and subject domains

Its proficiency across different tasks demonstrates the generalization power of large language models. As of GPT-4, improvements in factual consistency and context awareness have made these systems viable in areas such as education, healthcare, and customer support. However, the model's lack of true understanding and context memory limitations reflect

fundamental limitations of current AI. It does not possess consciousness or intention; rather, it simulates these qualities through advanced language modeling.

## 2. Literary Findings: Reimagining Authorship and Textuality

The literary analysis demonstrated that ChatGPT challenges traditional literary categories:

- Authorship becomes distributed, as the model generates original-seeming text without personal experience or creative intent.
- Language becomes a probabilistic system, in line with poststructuralist views by Derrida and Barthes.
- Narrative becomes dialogic and dynamic, echoing Bakhtin's theory of polyphony.
- The model aligns with Hayles' posthuman subject, where pattern replaces presence and code replaces consciousness.

These findings reveal that ChatGPT is not just an output machine, but a mirror of cultural language. It recycles and reshapes existing linguistic materials, functioning as a postmodern textual phenomenon.

## 3. Ethical and Social Discussion

The convergence of machine learning and language raises ethical concerns:

- Bias in Training Data: The model can reproduce harmful stereotypes and misinformation present in its training corpus.
- Illusion of Understanding: Users may attribute more intelligence or authority to the model than is warranted.
- Plagiarism and Creativity: In education and literature, ChatGPT-generated content blurs the boundary between authentic authorship and automated reproduction.

Furthermore, reliance on AI-generated content could devalue human creativity if not approached critically. Yet, if used responsibly, these tools can augment human thought and foster new modes of co-authorship[6].

## 4. Educational and Cultural Implications

In educational settings, ChatGPT offers both opportunities and challenges:

- It can support students with writing, research, and language practice.
- However, it can also be misused for academic dishonesty, especially when learners substitute critical thinking with machine-generated answers.

Culturally, ChatGPT and similar models reflect a paradigm shift in communication. The ability to generate persuasive, informative, and even poetic language introduces new forms of digital literacy. Understanding how these models work—technically and textually—must become part of the 21st-century literacy curriculum.

## CONCLUSION

The development and widespread use of large language models like ChatGPT mark a transformative moment in the relationship between humans and language technologies. These models, powered by the transformer architecture and trained on vast textual datasets, demonstrate remarkable abilities in generating coherent, context-aware language. While technically impressive, their significance extends beyond engineering—into the realms of literature, culture, and philosophy. Through a literary lens, ChatGPT challenges traditional notions of authorship, creativity, and meaning, aligning with theories proposed by scholars such as Barthes, Derrida, and Hayles. It operates not as an author with intention, but as a posthuman text machine, reshaping and reassembling fragments of collective language. In doing so, it becomes both a product and producer of discourse, reflecting the ideological and linguistic patterns embedded in its training data.



However, alongside its potential, ChatGPT introduces serious ethical, educational, and social considerations. These include risks of bias, misinformation, plagiarism, and the devaluation of human judgment and creativity. As such, the integration of AI-generated language into human communication must be met with critical literacy and informed oversight. Ultimately, ChatGPT is more than a tool—it is a mirror of contemporary language, a site of collaboration between algorithmic prediction and human inquiry. Its existence compels us to reconsider what it means to write, to create, and to understand, urging scholars, educators, and technologists to engage in an ongoing dialogue about the future of language in the age of intelligent machines.

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