THE NEW STAGE OF ARTIFICIAL INTELLIGENCE: TOWARDS HUMAN-CENTERED INTELLIGENT SYSTEMS

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Abstract

This article explores the emerging paradigm of human-centered artificial intelligence (AI), focusing on the development of intelligent systems that prioritize human values, ethics, and social well-being. As AI technologies advance, there is a growing need to design systems that not only enhance efficiency and automation but also respect human agency and ensure fairness, transparency, and accountability. The study examines the transition from data-driven and algorithm-centered AI to human-centered intelligent systems, where interdisciplinary collaboration and ethical governance play a crucial role. The research highlights practical examples in healthcare, education, and governance, where human-centered AI contributes to improved decision-making, inclusivity, and social trust.

Keywords: Artificial Intelligence, Human-Centered Design, Ethics, Intelligent Systems, Machine Learning, Digital Transformation, Human-AI Interaction.

Introduction

Artificial Intelligence (AI) has entered a new era characterized by its integration into all aspects of human life. From smart homes and healthcare diagnostics to autonomous vehicles and decision-support systems, AI is becoming an inseparable part of modern society. However, as AI becomes more powerful, it also raises ethical, social, and philosophical challenges regarding privacy, fairness, and accountability. Consequently, the shift toward human-centered AI represents a fundamental evolution—placing human values, emotions, and needs at the core of intelligent system design.

Literature Review

The concept of human-centered AI has evolved from human-computer interaction research and cognitive science. According to Shneiderman (2020), human-centered AI emphasizes the creation of systems that empower users rather than replace them. Russell (2019) argues that AI should be designed to remain under meaningful human control. Scholars such as Floridi and Cowls (2021) emphasize that AI ethics must be guided by principles of beneficence, non-maleficence, autonomy, and justice. The European Commission (2021) also introduced the 'Ethics Guidelines for Trustworthy

AI,' focusing on transparency, accountability, and human oversight. Together, these frameworks underline that human-centered AI is not only a technological challenge but also a cultural and ethical transformation.

Theoretical Framework

This research adopts a multidisciplinary approach, combining perspectives from computer science, ethics, and social sciences. The framework is based on three key dimensions: (1) Human values and ethics, (2) Technological design, and (3) Policy and governance. Human-centered AI is defined as an integrated system where machine intelligence collaborates with human cognition to enhance decision-making, creativity, and well-being.

The analysis also draws upon frameworks developed by UNESCO (2023) and OECD (2022), which emphasize the alignment of AI systems with sustainable development goals (SDGs) and human rights. Through a comparative review of AI applications in different domains, the paper identifies patterns and principles that contribute to responsible and inclusive innovation.

Discussion

Human-centered AI aims to create a symbiotic relationship between humans and machines. In education, AI can personalize learning experiences, but it must preserve teachers' roles as mentors and evaluators. In healthcare, AI-based diagnostic systems can enhance accuracy but must ensure patient consent and data privacy. Similarly, in governance and public administration, AI tools can support decision-making but must remain transparent and accountable to citizens.

Recent advancements in explainable AI (XAI) and affective computing have made it possible to design systems that can interpret and respond to human emotions. For example, conversational agents like ChatGPT or emotion-recognition systems in smart environments demonstrate how empathy and contextual awareness can be integrated into AI systems. However, challenges remain in bias mitigation, cross-cultural understanding, and the protection of human autonomy in automated decision-making.

To achieve truly human-centered AI, collaboration between engineers, psychologists, ethicists, and policymakers is essential. It requires new educational models that train students not only in coding and algorithms but also in ethics, philosophy, and design thinking. Institutions like Qarshi State Technical University are adopting interdisciplinary courses that encourage future engineers to design technologies aligned with human-centered principles.

Conclusion

The evolution of artificial intelligence toward human-centered intelligent systems represents a transformative shift in technology and society. Such systems prioritize human well-being, inclusivity, and ethical governance while maintaining high levels

of innovation and efficiency. To fully realize this vision, AI development must integrate ethical design, transparent algorithms, and active human participation. By doing so, humanity can harness AI not as a replacement for human intelligence but as a collaborative partner that enhances creativity, empathy, and collective progress.

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