

Chapter 15

Artificial Intelligence and Academic Scholarship

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ABSTRACT

The chapter examines the position of Artificial Intelligence (AI) in scholarship and education, including the evolution from simple rule-based systems to advanced machine learning systems. It emphasizes aspects of AI, such as technology-driven solutions (deep learning) and natural language processing (NLP), and their emerging impact on data analysis, content streamlining, and peer review. The chapter outlines the ethical implications (that is, replacing human intelligence and biases in AI algorithms) of applying and integrating scholarship in education and intellectual property. The chapter discusses potential barriers to AI-related issues with data quality, interpretability, and access concerning researchers from universities with limited funding opportunities. Overall, the chapter argues that AI promotes interdisciplinary collaborative work for scholarship in the human disciplines and causes us to reconceptualize scholarship differently, but ethical implications must be carefully considered.

DOI: 10.4018/979-8-3693-9795-4.ch015

INTRODUCTION

Artificial Intelligence (AI) does not merely indicate a technological revolution but a new fundamental force changing human experience in all realms of life, including education and academic research. In the past few decades, AI has advanced from simple rule-based systems to increasingly complex algorithms replicating human cognition and learning. The machine intervention of AI has permeated academic life, leading scholars to leverage AI's potential for a wide variety of purposes, everything from data analysis to content generation. The overall efficiency and accuracy AI brings to academic settings allows academic researchers to rapidly complete tasks—but it also opens new doors for imagination and creativity (Forsyth & Ponce, 2003). This chapter will provide a thorough overview of the present trajectory of AI as an emergent technology within academic scholarship, critically engaging and examining the historical evolution of AI, present uses of AI, ethical considerations, challenges towards the wider adoption of AI, and future aspirations. As innovations continue to develop, AI in reality presents both possibility and peril—from both a scholarly perspective as well as a human perspective—thus posing questions central to the long-term trajectory of academia and the role AI will play in its future.

Overview of Artificial Intelligence

Artificial Intelligence is the simulation of human intelligence processes via machines that are programmed to think, learn, and engage in tasks without human intervention (Topol, 2019). The development of AI involves the following technologies: machine learning, deep learning, natural language processing, robotics, and computer vision. Acting under the aegis of the above subfields, AI has been positioned to perform tasks that previously could only be done through human agency, such as adding in an image, recognizing speech, analyzing large data infographics, and even composing intelligible prose. Algorithm-driven and model-based, AI operates with data to identify patterns from numbers, photos, and text, engaging with a non-linear pathway of cognitive ability in models. In the realm of machine learning, AI operates by training algorithms utilizing data sets to identify relationships sufficiently enough between variables that the algorithm can again, continue to predict new data (LeCun et al., 2015). Deep learning, a specialized area of machine learning, encompasses the use of neural networks composed of many layers to extract interesting information from complex data including, for example, images and speech. Deep learning often produces human-comparable performance in a limited number of tasks. Natural language processing (NLP) equips machines to read and write human language, making it pertinent to academic work, especially in text analysis, automated writing, and content generation. With continuing rapid

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