

Algorithmic Authors in Academia: Blurring the Boundaries of Human and Machine Knowledge Production (short paper)

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הופעתו של המחבר האלגוריתמי באקדמיה: טשטוש הגבולות בין כתיבה אנושית וכתיבת מכונה (מאמר קצר)

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Abstract

Algorithms are now integral to academic life, promising benefits like cost-savings and personalized services while raising ethical challenges related to surveillance, commodification, and algorithmic governance. However, the emergence of large language models (LLMs) that produce human-like text has raised new questions. These LLMs exceed mere assistance by autonomously generating content, blurring the boundaries between human-authored work and machine-generated outputs. This research examines the destabilization of traditional perceptions regarding knowledge production in academia as an exclusive domain of human intellect, examining the complex relationships forming in light of the emergence of "Algorithmic Author".

While existing research mainly addresses LLMs' outputs and their implications, this study adopts the social construction of technology (SCOT) framework to examine how the Algorithmic Author is socially constructed, enacted, and interpreted by various academic actors. Drawing from a 12-month ethnographic study at a public research university and 24 in-depth interviews with faculty and graduate-students, the article presents two levels of discourse: the university's internal political-public dialogue, revealing contrasting narratives of the Algorithmic Author as a threat and a disruptive innovation; and academics' efforts to explain their daily interactions with the Algorithmic Author, blending anthropomorphic and technomorphic elements. The findings highlight how diverse narratives emerging within academia influence the perception of the Algorithmic Author and views on knowledge generation and academic identity.

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Algorithms have become central to the everyday fabric of academic life. Scholars have shown that while the use of algorithms in higher education is growing, promising benefits like cost-savings and personalized services, it also raising ethical challenges related to surveillance, commodification, and algorithmic governance (Komljenovic & Robertson, 2016; McConvey et al., 2023; Williamson, 2018). However, the emergence of ChatGPT and other large language models (LLMs) that produce human-like text has raised new questions. Unlike other writing technologies, these LLMs do more than assist; they can autonomously generate content, blurring the boundaries between human authored work and machine-generated outputs. Accordingly, this article examines the destabilization of traditional perceptions regarding knowledge production as an exclusive domain of human intellect, delving into the complex relationships forming between algorithms and the 'academic subject'.

The use of the term Algorithmic Author is not coined to anthropomorphize technology. Instead, it is inspired by Foucault's (2017) critical analysis of the dynamic social and political functions the concept of "author" assumes within various discourses. In line with Foucault's critique of the conventional understanding of the "author" as a stable entity, we outline the dynamic and changing functions of the Algorithmic Author.

Since the introduction of ChatGPT in Nov' 22, there has been an outpour of work on the impact of LLMs on higher education. We argue that most of these studies adopt an outputs-focused perspective, concentrating predominantly on the tangible outputs generated by LLMs and the potential benefits and challenges they introduce. This focus often leads to a portrayal of algorithms as mere tools external to the cultural fabric of academia, inadvertently overshadowing their "intrinsic cultural" essence. Consequently, these studies view algorithms as entities existing "in" culture rather than as integral components "of" culture, shaping and being shaped by societal practices and meanings that can be engaged with empirically (Seaver, 2017).

To address this gap, this article examines the formation and social construction of the Algorithmic Author within the academic realm. In doing so, this study aligns with the Social Construction of Technology (SCOT) theory, which emphasizes that the development and understanding of technology are shaped by the social, cultural, and political contexts in which they are embedded (Pinch and Bijker, 1970; Van Baalen, 2016). SCOT theory allows us to examine the co-production of social reality, where algorithms are not merely neutral tools but are enacted and made sense of by different social groups, each with their own interpretations, interests, and power dynamics.

In this article, we discuss the daily interactions of academics with the algorithmic author and their efforts to explain these engagements, given the premise that the algorithmic author does not operate independently. Algorithmic writing is intrinsically the outcome of a human-machine "companionship" (Borch & Hee Min, 2022), or as we term it, "co-authorship." Throughout this partnership, humans consistently "repair" (Collins, 2010) algorithmic outputs. As Neyland's (2016) ethnographic analysis demonstrated, making algorithms accountable often means enacting them in a certain way – giving them qualities that make them legible to groups of people in specific contexts. The goal is thus to explore how AI systems, such as ChatGPT, in collaboration with certain groups of users, "enact" academic authorship, and how this enactment is coordinated with other enactments within the academy (Seaver 2017).

Using a qualitative phenomenological approach, this research is grounded in 12 months of ethnographic fieldwork at an Israeli research public university, which included closely tracking

relevant media coverage and academic publications dealing with LLMs, participating in relevant academic events, and conducting 24 in-depth semi-structured interviews with Graduate students (15) and faculty (9). The interviews centered on interviewees' everyday experience of using LLMs as part of their academic work.

Our analysis revealed two primary levels of discourse related to the Algorithmic Author. The first level pertains to the university's internal political-public dialogue. Within this realm, we identified two prevailing narratives, each representing different social factions within the university. In public statements made by the senior management of the university, Chat-GPT is often depicted as a potential threat, with concerns raised about its implications for academic integrity and originality. On the other hand, during gatherings and conferences of the university's R&D unit, Chat-GPT is hailed as a "disruptive innovation", accentuating its potential to revolutionize academic writing and research methodologies. We argue that these debates surrounding the algorithmic author highlight the contrasting roles it plays in different academic sectors and its political function in altering epistemic views on knowledge production.

The second level of discourse centers on the efforts of research students and faculty in explaining the Algorithmic Author and their daily interactions with it. Within this context, we demonstrate that the "explainability" endeavor encompasses a unique form of human-machine interaction, blending two main concepts: LLMs as "super-position" and LLMs as "Babel library". From the "super-position" perspective, LLMs were described as entities that can form contextual understanding and generate knowledge in a manner similar to human beings. This approach highlights the active dialogue between humans and machines, portraying LLMs as mechanisms for crafting culturally relevant and personalized knowledge. In contrast, in the "Babel library" view, LLMs were described as a beacon of absolute universal knowledge, with humans merely searching for the right prompt or entry. Taken together, these two levels explore how diverse narratives emerging within the academic sphere influence not only the perception of the Algorithmic Author but also the views of academics on knowledge generation and academic identity.

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