AI Thinking:

A framework for rethinking artificial intelligence in practice

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Abstract

Artificial intelligence is transforming the way we work with information across disciplines and practical contexts. A growing range of disciplines are now involved in studying, developing, and assessing the use of AI in practice, but these disciplines often employ conflicting understandings of what AI is and what is involved in its use. New, interdisciplinary approaches are needed to bridge competing conceptualisations of AI in practice and help shape the future of AI use. I propose a novel conceptual framework called AI Thinking, which models key decisions and considerations involved in AI use across disciplinary perspectives. The AI Thinking model addresses five practice-based competencies involved in applying AI in context: motivating AI use in information processes, formulating AI methods, assessing available tools and technologies, selecting appropriate data, and situating AI in the sociotechnical contexts it is used in. A hypothetical case study is provided to illustrate the application of AI Thinking in practice. This article situates AI Thinking in broader cross-disciplinary discourses of AI, including its connections to ongoing discussions around AI literacy and AI-driven innovation. AI Thinking can help to bridge divides between academic disciplines and diverse contexts of AI use, and to reshape the future of AI in practice.

1. Introduction

Artificial intelligence has been positioned as a key driver of global change through a fourth industrial revolution, and AI advances are actively transforming how we process, analyse, and learn from information (1–3). The increasing relevance of AI across disciplines and sectors has led to a wide variety of views on the nature of this transformation, but it is most often envisioned through a technological lens: self-contained AI technologies that change (or replace) the processes we use to work with information. However, the technology-centric perspective that drives much of AI development and innovation fails to capture important aspects of the complex,

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