Allocating Responsibility in AI-Supported Research: A Legal-Ethical Model of Accountability Based on the Duty to Explain

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Abstract:

The growing use of artificial intelligence in research processes—such as data analysis, statistical modeling, manuscript drafting, and hypothesis generation—has fundamentally transformed the structure of scientific responsibility. While discussions on research integrity increasingly emphasize transparency and disclosure of AI use, the question of who should be regarded as the responsible moral and legal agent remains insufficiently theorized.

This paper proposes a legal-ethical model of accountability for AI-supported research by reinterpreting responsibility through the concept of the duty to explain, originally developed in medical law to protect patient autonomy. In this framework, responsibility is not defined by technical control over AI systems, but by the obligation and capacity to justify research decisions to relevant stakeholders and institutions.

Using doctrinal analysis, the paper examines explanatory duties in medical law and applies their normative structure analogically to research contexts in which AI systems substantially influence outcomes. The analysis demonstrates that responsibility cannot be delegated to AI, even when its operations are opaque or highly autonomous. Instead, accountability must be assigned to human researchers who are institutionally positioned to provide explanations, ensure procedural fairness, and respond to challenges regarding research validity.

The paper argues that clarifying responsibility as an explanatory obligation strengthens research integrity by reducing structural ambiguity and reinforcing normative commitment. It concludes by proposing an accountability-centered governance framework for AI-supported research compatible with emerging AI governance regimes.