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Peer Review

Review of: "What Counts as Green AI? Mapping Efficiency, Sustainability, and Critical-Ecological Strands in a Fragmented Discourse"

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This paper explores the critical and timely concept of “Green AI,” particularly its multidimensional nature across three key strands: efficiency-driven, sustainability-driven, and critical-ecological. By constructing a typology or framework, the author seeks to synthesize these strands within a unified system to clarify and define their contested boundaries. This kind of work is both fundamental and has the potential to establish a new subfield. However, for research of such importance, an equally important question must be asked—is it necessary?

From reading the three strands, it appears that the efficiency-driven strand concerns how AI is powered, while the sustainability-driven strand addresses where AI should be applied. Although both can be described as forms of Green AI, they represent distinct conceptual domains. Therefore, the question arises: is there a real necessity to place them within a single framework? One way to justify this necessity lies in the degree of overlap among the strands—if these overlaps are substantial and carry significant implications, then synthesizing them would be worthwhile. However, the paper does not sufficiently address this aspect.

Another part of the paper that seems overstated is the discussion of the framework’s methodological and policy implications. The causal link between the proposed typology and these implications is not clearly established. Moreover, some of the suggested implications—such as bridging qualitative and quantitative approaches, promoting independent auditing and certification, and developing standardized reporting protocols—are relatively generic and applicable to many fields. It remains unclear how the proposed typology specifically leads to or necessitates these outcomes.

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Overall, although the writing is understandable, the paper is unclear about many core issues, while a large part of the paper remains generic rather than addressing specific and targeted issues.

Declarations

Potential competing interests: No potential competing interests to declare.