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Peer Review

Review of: "Artificial Intelligence (AI), Extended Phenotypes, and the Bio-Evolutionary Anthropocene Hypothesis"

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This article addresses a genuinely interesting and timely question: how do AI systems, understood as extended human phenotypes, interact with and accelerate the transformations predicted by the Bio-Evolutionary Anthropocene Hypothesis? The theoretical framing is stimulating, and the attempt to connect evolutionary biology, the Technosphere concept, and AI development within a unified framework is ambitious and original. The writing is clear, and the argument flows logically from section to section.

That said, several aspects of the article would benefit from further development and precision.

On the central theoretical claim. The paper's core argument – that AI systems are expressions of the extended human phenotype – is stated repeatedly but not fully unpacked. The concept of the extended phenotype, as introduced by Dawkins (1982), refers to phenotypic effects of genes expressed outside the organism's body. Applying this concept to AI is intellectually interesting, but the analogy deserves more rigorous treatment. In what specific sense does AI qualify as an extended phenotype rather than, say, a technological artifact or a cultural product? How does this framing differ from, or add to, existing frameworks in the philosophy of technology (e.g., Stiegler's tertiary retention, or Clark and Chalmers' extended mind thesis)? Engaging more explicitly with these adjacent discussions would strengthen the article's theoretical foundation. Related to this, the central claim – that AI systems are expressions of the extended human phenotype and therefore depend on human existence – is reiterated throughout almost every section without substantial elaboration or new nuance. This repetition, particularly in sections 2 and 4, risks weakening rather than reinforcing the argument. A more selective, progressively deeper treatment of this idea would make the paper more effective.

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On the Bio-Evolutionary Anthropocene Hypothesis and the scope of the argument. The article presents itself as a commentary on the Bio-Evolutionary Anthropocene Hypothesis (Pena-Rodrigues and Lira, 2019), but the hypothesis itself is never summarised for the reader. A brief, self-contained description of its main predictions would make the article more accessible and self-sufficient for readers unfamiliar with the original paper. More broadly, while relevant, some sections (e.g., section 5) read more as a general ethical reflection on AI and socio-political consequences than as a contribution to the evolutionary framework developed in the preceding sections. The connection to the Bio-Evolutionary Anthropocene Hypothesis is left implicit. Strengthening this link or repositioning this material would improve the article's internal coherence.

On the treatment of AI types. Section 2 introduces a useful distinction between ANI, AGI, and ASI. However, the discussion of AGI and ASI remains speculative and is not clearly distinguished from that of current AI systems. The article would benefit from being more explicit about which claims apply to existing AI (ANI) and which are projections about future systems, as the relationship between AI and extended phenotypes may differ significantly depending on the level of autonomy involved.

On unclear allusions. Two references in section 5 require clarification. The title "Fallacies and The Silence of the Lambs" is intriguing but unexplained. If the reference to the film carries a specific conceptual meaning relevant to the argument, this should be made explicit; otherwise, it risks appearing as an arbitrary literary allusion. Similarly, "Moltbook" is cited as an example of an AI social network, but no citation is provided: if it is a fictional or hypothetical example, it should be labeled as such; if it refers to a real system, a reference should be added.

Overall, this article raises thought-provoking questions at the intersection of evolutionary biology, philosophy of technology, and AI studies. With greater theoretical precision, reduced repetition, and a more explicit connection between its socio-political observations and the Bio-Evolutionary Anthropocene framework, it could make a meaningful contribution to the ongoing conversation about AI's role in the Anthropocene.

Declarations

Potential competing interests: No potential competing interests to declare.