

Review of: "The functional unit of neural circuits and its relations to eventual sentience of artificial intelligence systems"

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Potential competing interests: No potential competing interests to declare.

Abstract:

1. Equimerec: which combine 'the threshold logic unit' and 'the feedback control loop'. The new term does not have a basis of linguistic source.
2. the functional units' essence relies on backpropagation connections: backpropagation is controversial as a misconduct in research ethics. See <https://ui.adsabs.harvard.edu/abs/2022arXiv221116350W/abstract>
3. cemi: not understandable.
4. The abstract did not clearly mention two key components of any research paper: novelty and importance. "the authors argue that the potential emergence of self-awareness in AI systems deserves due attention" this is not new.

Introduction:

5. generative language models: they are based on the deep learning misconduct according to the paper in 2.

The 'equimerec unit' has the 'back propoagation' connections:

6. The learning process of a neural network begins with assigning random values of the weights of connections between neurons. Then the network is trained. See controversy in 2.
7. Thanks to the principle of backpropagation, neural networks are able to learn from data samples, and the resulting modifications of connection weights allow more and more accurate predictions of the result for new data. This thank is controversial, as it seems to be the root of misconduct.
8. This brief description of the functioning of backward connections, typical for the considerations of artificial intelligence system creators, does not, however, take into account the emphasized significance of resonant oscillations during the

implementation of mental imagery: If the base is wrong, adding "The feedback connections in natural human neural circuits are probably important for emergence of self-awareness" seems to be baseless.

9. Authors of groundbreaking works on contemporary, highly advanced artificial intelligence systems, known as "Deep Learning", "Reinforcement Learning", "Transfer Learning" and "Generative Adversarial Networks", "Convolutional neural networks", "Recurrent neural networks" emphasize that their operation is based on backpropagation algorithms: The authors of this paper do not seem to be aware of the controversy about such works. See 2.

Moving towards conscious artificial intelligence systems:

10. Thus, the described elements of the functional unit of neuronal circuits, which are backward connections, are probably a necessary condition for the development of self-aware artificial intelligence systems: Not new, no detail either.

11. [26]: it seems that the work has been published earlier. The difference from this paper is not clear. Some major figures in this papers are also in [26].

12. In [26]: Figure 5. Symbolic illustration of the essence of Roger Penrose and Stuart Harmeroff's 'Orch OR' theory: The mechanisms in the figure appears to be too vague and simple for the subjects of [26].