

Review of: "Applications of Deep reinforcement learning in MEMS and nanotechnology"

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Potential competing interests: No potential competing interests to declare.

This paper concerns how DRL can be used to enhance MEMS and nanotechnology. This work is poorly written and does not provide an adequate point of view on the topic.

Please, consider the following points:

1. The use of words such as "optimal", "best", or "more excellent" should be contextualized or avoided.
2. In the introduction, it is stated that "The agent performs activities in the environment and receives feedback through benefits or costs, enabling it to learn the best ways to accomplish particular objectives.". This is not generally true, since what is actually learned are the best actions conditioned to how the rewards were set.
3. "They have benefits like more diminutive size, less power usage, and better functioning." With respect to?
4. In the introduction, group the sentence in the middle of the first paragraph related to nanofabrication with the last part.
5. Why do you consider DRL and not e.g. evolutionary algorithms?
6. The text is full of vague sentences, e.g., "Numerous benefits can be gained by utilising DRL to overcome the difficulties experienced in MEMS and nanotechnology applications.". They add no value to the paragraphs they are inserted in.
7. You state: "Second, by continuously learning from real-time data, DRL can increase process efficiency in manufacturing.". However, it is not true that DRL algorithms have this capability. If mentioning facts related to continual learning algorithms, they should be adequately explained and supported with references.
8. An example of how a DRL model can actually be set up in terms of actions, rewards, and punishments would improve the paper.
9. In all the applications, there are sentences like "A team from XXX" without any reference. Moreover, the referenced articles barely refer to the topic and are not recent. Some do not rely on DRL (e.g., Leinen et al. do not use a deep network; Singh et al. based their design and optimization on Taguchi analysis coupled with the COMSOL Multiphysics).
10. The final part is vague and does not add value to the text.

Minor comments:

- There is a double heading in the list
- Once defined the acronym DRL, do not use the extended version.

