

Review Form 3

Journal Name:	Asian Journal of Research in Computer Science
Manuscript Number:	Ms_AJRCOS_130610
Title of the Manuscript:	A Review of Reinforcement Learning: Current Trends and Future Prospects in Autonomous Systems
Type of the Article	reinforcement learning (RL), focusing on its applications in autonomous systems

PART 1: Comments

	Reviewer’s comment	Author’s Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	This manuscript provides a comprehensive and timely review of reinforcement learning (RL) in the context of autonomous systems, offering critical insights into both its potential and current limitations. By synthesizing recent studies from 2021 to 2024, it highlights key trends in RL such as sample efficiency, scalability, safety, and the integration of advanced technologies like deep learning. The manuscript also underscores the importance of addressing emerging challenges such as ethical concerns, interpretability, and the real-world validation of RL applications, making it an essential resource for researchers and practitioners aiming to advance RL in practical, safety-critical domains like robotics and autonomous driving. Furthermore, the paper offers a forward-looking perspective, identifying key research areas that can guide future innovations in RL, positioning it as a valuable contribution to the ongoing development of intelligent autonomous systems.	Thanks reviewer.
Is the title of the article suitable? (If not please suggest an alternative title)	Yes	Thanks reviewer.

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Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	<p>The abstract provides a good overview of the manuscript's focus on reinforcement learning (RL) for autonomous systems, including key challenges and trends. However, a few suggestions could enhance its clarity and comprehensiveness:</p> <ol style="list-style-type: none">Mention of Specific Domains: While the abstract touches on general applications like robotics, self-driving cars, and smart grids, it might benefit from a more explicit mention of how RL is currently being used or tested in these domains. For example, "applications in autonomous vehicles, robotics, and clinical decision-making" could give the reader a clearer sense of the real-world relevance of the work.Clarification of Emerging Issues: The abstract discusses emerging issues like sample efficiency, scalability, and safety but could expand a bit on why these issues are critical for the real-world application of RL. A sentence that connects these challenges to the limitations they impose on practical deployments would be helpful.Explanation of Trends: The abstract briefly mentions current trends like hierarchical frameworks, multi-agent systems, and deep learning, but it might be clearer if it directly linked these trends to how they address the challenges mentioned earlier. For example, stating how these trends are specifically helping to overcome issues like scalability or safety would create a more direct link between the problems and solutions discussed in the manuscript.Ethical and Interpretability Concerns: The abstract mentions ethical concerns and interpretability but could briefly expand on why these are becoming more prominent in RL research, especially as the field matures and is applied in safety-critical areas like autonomous driving and healthcare.Future Prospects: While the abstract mentions future prospects, it might be beneficial to emphasize specific areas of innovation or research that could potentially transform RL's use in autonomous systems, such as "advancements in explainable RL and human-centered design."	<p>This paper reviews how reinforcement learning (RL) is used in autonomous systems like robotics, self-driving cars, and smart grids. It focuses on important challenges such as sample efficiency, scalability, and safety, and explores modern methods like deep reinforcement learning, model-based approaches, and multi-agent systems. The paper also highlights both the potential and the limitations of RL, based on recent studies from 2021 to 2024. It discusses future opportunities for improving RL, like making it safer and using human feedback to improve results. Overall, the paper shows how RL could shape the future of autonomous systems, but also stresses that there are still challenges to overcome for practical, real-world use.</p>
Is the manuscript scientifically, correct? Please write here.	The manuscript appears to be scientifically sound, with a clear understanding of reinforcement learning (RL) and its application in autonomous systems.	Thanks reviewer.
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The references provided appear to be comprehensive and relatively recent, with studies spanning the last several years, from 2021 to 2024.	Thanks reviewer.
Is the language/English quality of the article suitable for scholarly communications?	Yes	Thanks reviewer.
Optional/General comments	<p>There are no direct ethical issues explicitly discussed in the manuscript.</p> <p>There do not appear to be any explicit references to competing interests.</p>	The paper offers a comprehensive review of reinforcement learning in autonomous systems, with obvious connections to ongoing studies and real-world uses. A few tweaks to its depth, clarity, and organization could increase its overall impact. The purpose of this list of recommendations is to assist improve the article and increase its value to the scholarly community.

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	