# Article information:

Reinforcement learning for robot research: A comprehensive review and open issues - Tengteng Zhang, Hongwei Mo, 2021  
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# Article summary:

1. Reinforcement learning (RL) is an important branch of machine learning that has made significant breakthroughs in robot applications, such as industrial manufacturing, board games, robot control, and autonomous driving.

2. RL can realize sequential decision-making under uncertainties through end-to-end learning and has led to highly automated and intelligent robotics.

3. Challenges and open issues in RL for robotics include performance improvement, sampling efficiency, convergence difficulties, and the need for autonomous decision-making and control. DL approaches have effectively solved some problems but cannot replace RL in these areas.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

作为一篇综述文章，该文对强化学习在机器人领域的应用进行了概述和总结。然而，在其内容中存在一些偏见和不足之处。

首先，该文过于强调强化学习在机器人领域的优势和进展，而忽略了其他机器学习方法的应用。例如，深度学习在机器人视觉方面的应用也取得了显著进展，但该文只是简单提到了一下，并没有深入探讨。

其次，该文未能充分考虑到强化学习在实际应用中可能面临的风险和挑战。例如，在自动驾驶领域，由于强化学习算法可能会出现不可预测的行为，因此需要对其进行谨慎评估和测试。然而，该文并未提及这些问题。

此外，该文还存在一些宣传内容和偏袒现象。例如，在介绍相关研究时，作者只列举了几个知名研究机构和公司的成果，并未涵盖更广泛的研究成果。此外，在讨论优化控制理论时，作者过于简单地将其与强化学习等同起来，并未深入探讨它们之间的区别和联系。

综上所述，该文虽然对强化学习在机器人领域的应用进行了概述和总结，但存在一些偏见和不足之处。未来的研究应该更加全面地考虑到各种机器学习方法的应用，并充分评估其可能面临的风险和挑战。

# Topics for further research:

* Other machine learning methods in robotics
* Risks and challenges of reinforcement learning in practical applications
* Balanced coverage of research achievements
* Differences and connections between optimization control theory and reinforcement learning
* Comprehensive consideration of various machine learning methods
* Evaluation of potential risks and challenges in practical applications

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