Risk Aversion and Guided Exploration in Safety-Constrained Reinforcement Learning

Yang, Q.

DOI

Publication date

2023

Document Version

Other version

Citation (APA)

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Propositions

accompanying the dissertation

RISK AVERSION AND GUIDED EXPLORATION IN SAFETY-CONSTRAINED REINFORCEMENT LEARNING

by

QISONG YANG

1. Safety in reinforcement learning is not absolute, and should be defined based on varying risk requirements. (this dissertation)

2. A reinforcement learning agent should take the distribution of cost-return into account to attain risk control in safety. (this dissertation)

3. In safe reinforcement learning problems, it is impossible to ensure safety during training when learning without prior knowledge. (this dissertation)

4. A task-agnostic safe exploration policy can be exploited to solve unknown subsequent tasks. (this dissertation)

5. The most time-consuming work to solve practical problems with reinforcement learning is not algorithm selection but reward design.

6. Off-policy reinforcement learning algorithms are not always more sample-efficient than on-policy ones.

7. Researchers of reinforcement learning should pay more attention to real-world users of their algorithms.

8. Reinforcement learning will be the most popular machine learning paradigm.

9. COVID-19 will have a lasting and comprehensive impact on human civilization.

10. If China wants to improve its development in football, more young people need to get involved.

These propositions are regarded as opposable and defendable, and have been approved as such by the promotor Dr. M.T.J. Spaan and copromotor Dr. S.H. Tindemans.