

Derivative-free reinforcement learning: a review

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Frontiers of Computer Science, DOI: [10.1007/s11704-020-0241-4](https://doi.org/10.1007/s11704-020-0241-4)

Background & Motivation

- The key issues in derivative-free optimization are in a quite similar situation of reinforcement learning, e.g., exploration and exploitation balance.

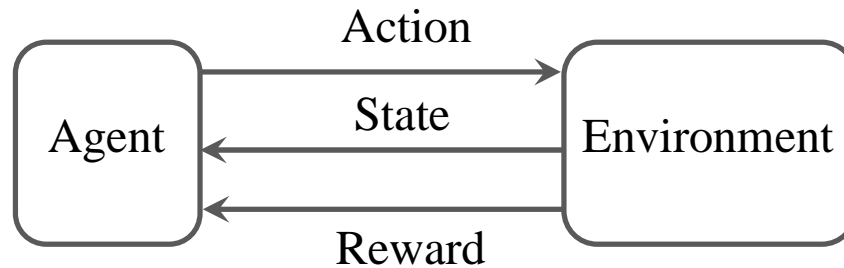


Figure 1: Interaction structure of reinforcement learning.

- The fusion of derivative-free optimization and reinforcement learning, termed as derivative-free reinforcement learning (DFRL), has many potentialities.
- However, recent survey on this topic is still lacking. This article reviews advances of DFRL to date.

Main Contributions

- We explain that derivative-free reinforcement learning (DFRL) is necessary and attractive from the aspects of optimization, exploration, and computation.

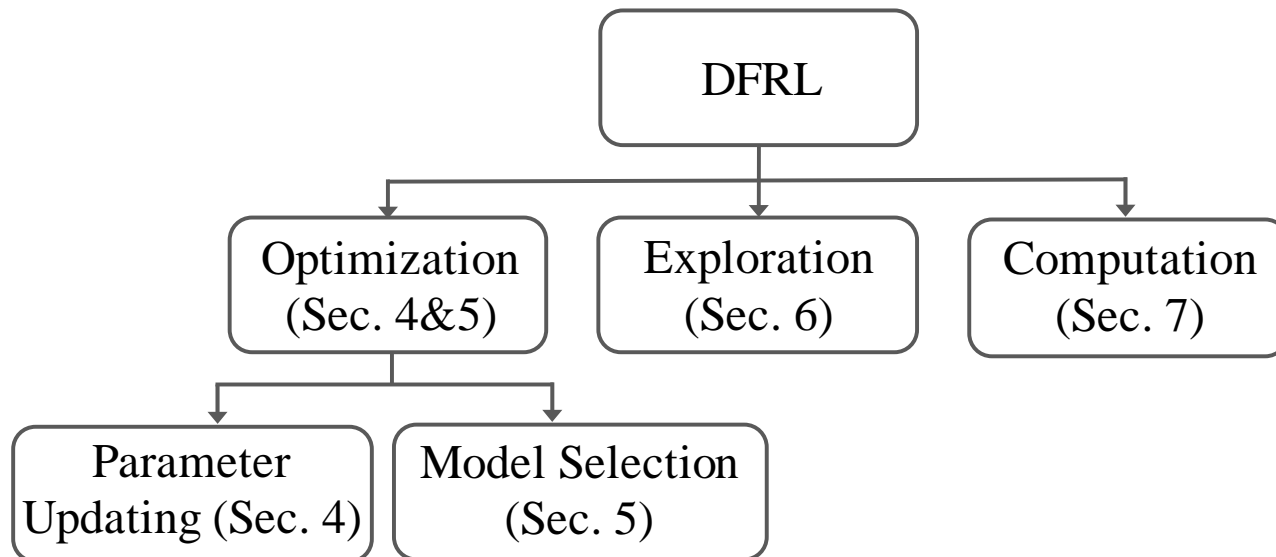


Figure 2: The organization of the works reviewed in the article.