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Leveraging Factored State Representations for Enhanced Efficiency in Reinforcement Learning

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Propositions

accompanying the dissertation

Leveraging Factored State Representations for Enhanced Efficiency in Reinforcement Learning

by

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1. Simulators need only replicate the world to the level of detail that intelligent agents can perceive it (Chapters 3 and 4).

2. Learning from a biased yet consistent (low variance) estimate of the return yields superior outcomes compared to learning from the true return when it exhibits high variance (Chapter 4).

3. Excessive abstraction, even when exact, can lead to overfitting (Chapters 5 and 6).

4. Plain reward maximization leads to mere observation-action memorization instead of fostering intelligent behavior (Chapter 6).

5. In addition to maximizing reward, agents should actively intervene in the environments to stress test their learned representations.

6. Deep theoretical insights cannot be conveyed solely through equations.

7. The reviewing system inadvertently encourages complexity rather than clarity.

8. Future research should strive for artificial specialized intelligence, as opposed to artificial general intelligence.

9. The primary risk AI faces at present is falling short of expectations.

10. AIs abstract not.

These propositions are regarded as opposable and defendable and have been approved as such, by the promotors Frans A. Oliehoek and Matthijs T. J. Spaan.