Theoretical Reinforcement Learning Notes

Liangyawei Kuang

11st Feb 2022

Please email me at kriskongloveyou@gmail.com if you find any typos or errors. I do appreciate it!

Hong Kong University of Science and Technology

Theoretical Reinforcement Learning Notes

Liangyawei Kuang

Abstract

A kind reminder: This notes are mainly for reinforcement learning (RL) researchers who want to have a deep understanding in some basic RL concepts and related topics from a theoretical perspective. For those novices in this area, I recommend you read Csaba Szepesvári's RL book (2010) (about 100 pages) or the most famous RL book (2018) (about 500 pages) by Richard S. Sutton and Andrew G. Barto before you read my notes. Of course, you can also take my note as your first RL book and take the two books I mentioned above as references if you have a strong math background.

Updating...

To my mum Jing Liang and my dad Zisheng Kuang with my forever love!

Acknowledgements

Contents

List of Figures

List of Tables

Chapter 1

Reinforcement Learning Fundamentals

Updating...

Chapter 2

Action-Value Estimation

Updating...

Chapter 3

Policy Gradient

Updating...

Appendix A

Appendix Title

Updating...

References

Sutton, R. S., & Barto, A. G. (2018). *Reinforcement learning: An introduction.* MIT press.

Szepesvári, C. (2010). Algorithms for reinforcement learning. *Synthesis lectures on artificial intelligence and machine learning*, *4*(1), 1–103.