

# **Theoretical Reinforcement Learning Notes**

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Please email me at [kriskongloveyou@gmail.com](mailto:kriskongloveyou@gmail.com) if you find any typos or errors. I do appreciate it!



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## 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 (about 100 pages)[2] or the most famous RL book (about 500 pages)[1] 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.

Updating...

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

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Updating...

# Contents

Abstract	i
Dedication	ii
Acknowledgements	iii
Table of Contents	iv
List of Figures	v
List of Tables	vi
1 Reinforcement Learning Fundamentals	1
2 Action-Value Estimation	2
3 Policy Gradient	3
A Appendix Title	4
Bibliography	5

# List of Figures

# List of Tables

# Chapter 1

## Reinforcement Learning Fundamentals

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# Chapter 2

## Action-Value Estimation

# Chapter 3

## Policy Gradient

# Appendix A

## Appendix Title

# Bibliography

- [1] Richard S Sutton and Andrew G Barto. *Reinforcement learning: An introduction*. MIT press, 2018.
- [2] Csaba Szepesvári. “Algorithms for reinforcement learning”. In: *Synthesis lectures on artificial intelligence and machine learning* 4.1 (2010), pp. 1–103.