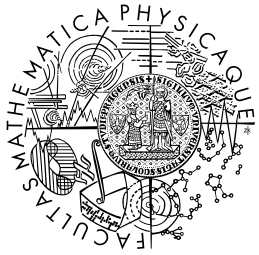

FACULTY
OF MATHEMATICS
AND PHYSICS
Charles University

MASTER THESIS

František Dostál

Fitness and novelty in evolutionary reinforcement learning

Name of the department

Supervisor of the master thesis: Mgr. Roman Neruda, CSc.
Study programme: Mgr.
Study branch: Artificial Inteligence

Prague 2023

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Dedication.

Title: Fitness and novelty in evolutionary reinforcement learning

Author: František Dostál

Katedra teoretické informatiky a matematické logiky: Name of the department

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Abstract: Novelty is a novel aproach to modeling selection criteria in evolutionary algorithms and has been proven as viable technique of avoiding pitfalls of false optima in tasks abundant with them, such as solving mazes. Rather than closing the topic however, this finding opened other problems to explore: How to properly apply novelty in tasks that yield slightely better to conventional aproaches? How to properly model behavioral space nessessary for novelty computation? In this thesis we investigate use of novelty in selected reinforcement learnig tasks, it's combinations with classical fitness and propose behavior space models for the respective RL tasks.

Keywords: evolution novelty fitness behavioral space

Contents

Introduction

1. Evolutionary algorithms

1.1 Fitness based algorithms

1.1.1 Evolutionary Strategies

1.1.2 Differential Evolution

1.2 Novelty

1.2.1 Pure Novelty

2. Enviroments

2.1 Gymnasium

2.1.1 CartPole

2.1.2 Moon Landing

3. Comparison criteria

4. Experiments

Conclusion

List of Figures

List of Tables

List of Abbreviations

A. Attachments

A.1 First Attachment