

Poznan University of Technology
Faculty of Computing
Institute of Computing Science

Bachelor's thesis

**VIZAI-RL : VISUAL INFORMATION ZDOOM-BASED
ARTIFICIAL INTELLIGENCE REINFORCEMENT LEARNING
FRAMEWORK**

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Poznań, 2016

Tutaj przychodzi karta pracy dyplomowej;
oryginał wstawiamy do wersji dla archiwum PP, w pozostałych kopiach wstawiamy ksero.

Streszczenie

Wspaniała praca dyplomowa. Istna perfekcja. Komputer gra w grę komputerową jak normalny użytkownik komputera.

Abstract

Abstract's content.

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Chapter 1

Introduction

1.1 Motivation

TODO Deep Learning and Convolutional Neural Networks have become very popular in the last couple of years. DeepMind is a huge inspiration. Only 2D games have been researched so far, that's why we want to create a framework using 3D environment. Games are great for simulating 3 dimensional world and are perfect setting for Reinforcement Learning.

Stuff to mention:

- Deep Neural Networks
- Visual Learning, Convolutional Nets, AI
- Reinforcement Learning
- DeepMind atari
- 2D and 3D games

1.2 Aims and scope

TODO

- opensource lightweight, 3d, fps game/engine,
- total control over the game processing,
- customizable resolution, rendering parameters etc
- spectator mode (human is playing, agent is watching),
- custom scenarios support and creation,
- reinforcement learning friendly API (state, action, reward),
- support for Linux, Windows, OS X, main focus on Linux,
- C++ core, API in python, perhaps in lua, java etc.

Chapter 2

Framework

2.1 Used Technologies

2.2 Architecture

2.3 Problems

2.4 Solutions and Decisions

Chapter 3

Application Programming Interface

Chapter 4

Scenarios

4.1 Motivation

4.2 Tools

4.3 Scenarios

4.3.1 Basic

4.3.2 Deadly Corridor

4.3.3 Defend the Center

4.3.4 Defend the Line

4.3.5 Health Gathering

4.3.6 My Way Home

4.3.7 Predict Position

4.3.8 Take Cover

Chapter 5

Framework

5.1 Setting

5.2 Results

Chapter 6

Framework

6.1 Achieved Goals

6.2 Future Work

Bibliography

Appendix A

GitHub

The thesis and the VIZIA OR WHATEVER framework are not-so-publicly available on the github server:

<https://github.com/Marqt/Vizia/>



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Typeset using L^AT_EX in Computer Modern.

Bib_T_EX:

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@mastersthesis{ VIZAI,  
  author = "Michał Kempka \and Grzegorz Runc \and Jakub Toczek \and Marek Wydmuch",  
  title = "{VIZAI-RL : Visual Information ZDoom-based Artificial Intelligence  
Reinforcement Learning Framework}",  
  school = "Poznan University of Technology",  
  address = "Pozna{\'}n, Poland",  
  year = "2016",  
}
```