

Warsaw University of Technology

FACULTY OF  
MATHEMATICS AND INFORMATION SCIENCE



# Master's diploma thesis

in the field of study Computer Science and Information Systems  
and specialisation Artificial Intelligence

Reinforcement Learning for playing arcade fighting game

Huaiyu Du

student record book number 317102

thesis supervisor

Dr. Rafał Janusz Jóźwiak

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## **Abstract**

### ENGLISH TITLE

Reinforcement learning (RL) is one of three basic machine learning paradigms, alongside supervised learning and unsupervised learning. Reinforcement learning algorithms have become very popular in the field of simple computer games, and games like chess, GO, and Atari have become testbeds of testing deep reinforcement learning algorithms. However, classical arcade fighting game would be a challenging because of the complexity of the command system and combo system. Expect basic moves such as jump, kick

**Keywords:** Reinforcement learning, KOF97, Arcade game



## **Streszczenie**

POLISH TITLE

TODO.

**Słowa kluczowe:** slowo1, slowo2, ...



# Contents

|                                       |           |
|---------------------------------------|-----------|
| <b>Introduction</b>                   | <b>11</b> |
| <b>1. Game Introduction</b>           | <b>12</b> |
| 1.1. Command System                   | 12        |
| 1.2. Combo System                     | 12        |
| <b>2. Environment Setup for KOF97</b> | <b>13</b> |
| 2.1. Interact With Arched Emulator    | 13        |
| 2.2. Action Space                     | 13        |
| 2.2.1. •                              | 13        |
| 2.3. Observation Space                | 13        |
| 2.4. Reward System                    | 13        |
| <b>3. Proposed network structure</b>  | <b>14</b> |
| <b>4. Experiment</b>                  | <b>15</b> |
| 4.1. LSTM Model                       | 15        |
| 4.2. Stacked features + CNN Model     | 15        |
| <b>5. Conclusion</b>                  | <b>16</b> |





## Introduction

TODO

## **1. Game Introduction**

KOF '97 is a fighting game produced by SNK for arcade in 1997. Comparing with its pioneer Street Fighter 2, KOF '97

### **1.1. Command System**

### **1.2. Combo System**

## 2. Environment Setup for KOF97

### 2.1. Interact With Arched Emulator

### 2.2. Action Space

#### 2.2.1. •

### 2.3. Observation Space

### 2.4. Reward System

### 3. Proposed network structure

## 4. Experiment

### 4.1. LSTM Model

### 4.2. Stacked features + CNN Model

## 5. Conclusion

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## List of symbols and abbreviations

nzw.    nadzwyczajny

\*       star operator

~       tilde

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## List of Figures

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## List of appendices

1. Appendix 1
2. Appendix 2
3. In case of no appendices, delete this part.