

An AI-based multiplayer platform for Tetris/Puyo Puyo through reinforcement learning - User Manual

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1. Dependencies

The game itself requires multiple dependencies listed below to build the exe. These dependencies are needed to run the game just from the file or to build the executable. But we have also packaged the game in a prepackaged exe for convenience in the repository. Each of these dependencies can be installed via python pip.

This installation is done for each of these like so:

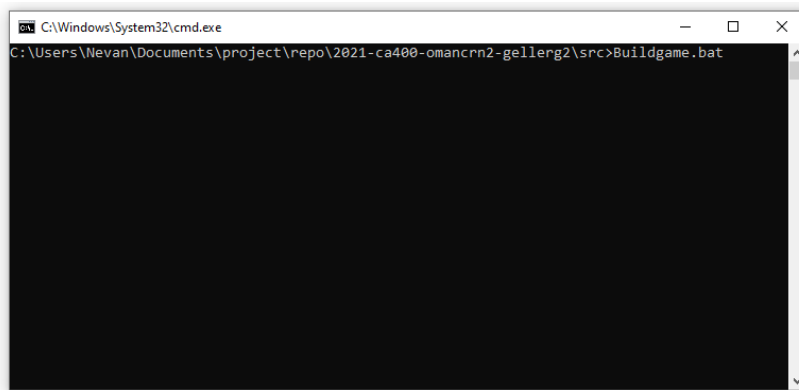
```
>pip install pygame==2.0.1_
```

python - 3.7.9
pygame - 2.0.1
pyinstaller - 4.3
h5py - 2.10.0
keras - 2.2.4
numpy - 1.29.2
tensorflow - 1.13.1

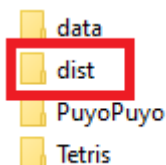
conda - 4.9.2

2. Building & Running the Game

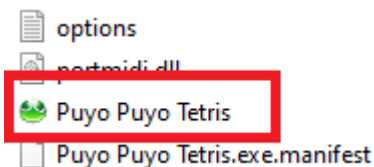
To build the game you need to have all the dependencies above installed and have python running on your path. You then need to run the batch file named "Buildgame" or "Buildgame.bat". This can be done by opening the src directory of the downloaded repository and clicking on the "Buildgame" file. It can also be run by opening a command prompt to the src directory and running the command "Buildgame.bat" like so:



This will run the bat file which make take some time to resolve but once finished will create another directory named "dist" like so:



Inside this directory there is another directory for the game named "Puyo Puyo Tetris". Inside the "Puyo Puyo Tetris" directory will be many files to start the game you need to search and locate the executable file file in the directory which should look like so:



This can be run by just double clicking on the file and the game should run.

3. Playing the Game

The game can be played in several different ways depending on what players want. But should you want to learn the basics of each game and the controls

for each, you can click on the “How to Play” button (shown on left) and should you wish to return to the main menu you can click on the arrow button in the top left corner of the screen (shown on right).



How to Play!



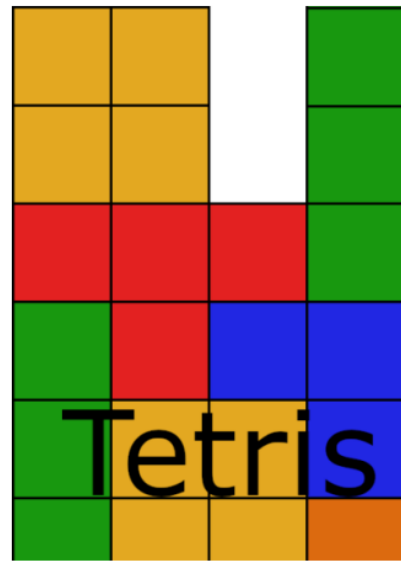
The different game modes available to the are split into:

3.1 SinglePlayer

Single Player games can be played and accessed easily from the main menu when the game first starts up. Simply click on the Single Player button located here in the image below:



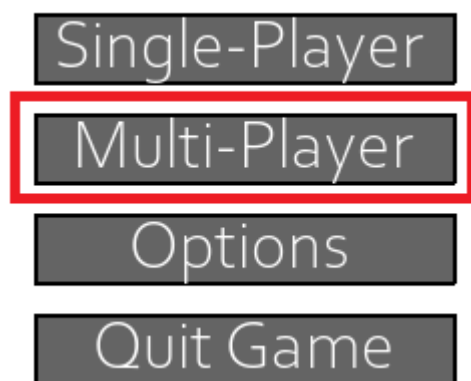
Once selected you can choose to play the Singleplayer version of either Puyo Puyo or Tetris by clicking on the images showing both games which look like so:



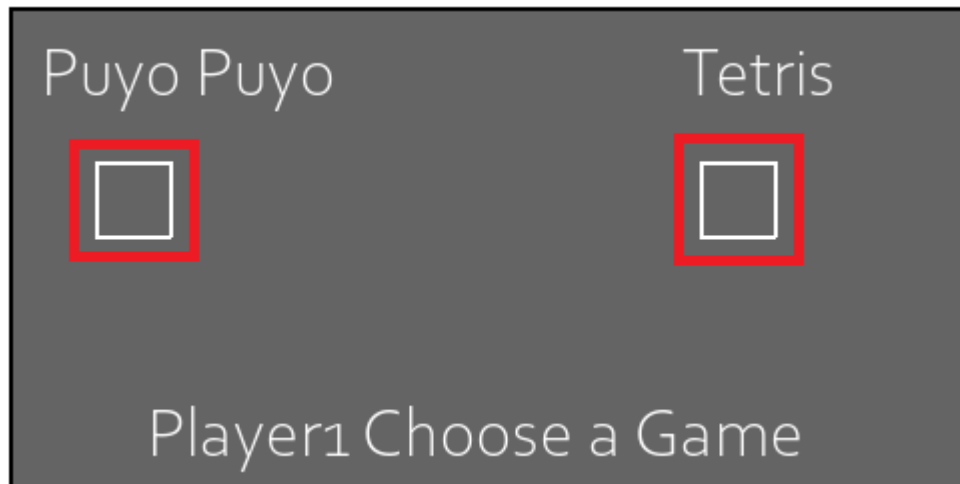
After clicking the selected game will start and once the game has finished you will be brought back to the main menu screen.

3.2 Multiplayer / AI

Multiplayer games and game playing with an AI can be played and accessed easily from the main menu when the game first starts up similar to that of Singleplayer. Simply click on the Multiplayer button shown in the image below:



The Multiplayer and AI games are split into two different parts based around the two games and the AI opponent. Each Player selects the game they want to play by clicking on the small square below the words Puyo Puyo or Tetris with player 1 on the left and player 2 on the right, as shown like so:



Once each player selects their preferred game the Multiplayer game without any AI can be started by clicking on the Start Game button at the bottom middle of the screen shown below:



Should you wish to have one or more of the games played by an AI, then you can select which player(s) will be played by an AI by clicking on the small square button on either side of the board depending on which player is wanted to be an AI as shown:



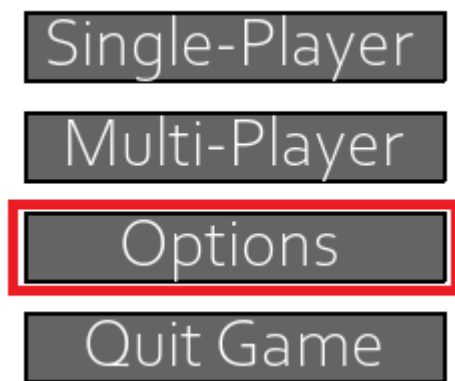
The game can then be started as normal by clicking the Start game button in the middle of the screen. Again should you want to learn how to start a Multiplayer/AI game or the controls for the games, you can click on the "Multi-player Info" button shown below.



Multi-Player Info!

3.3 Options

The game contains several options available to the player which are the screen size / full screen options and the ability to turn off the in game music. These options can be access by clicking on the Options button in the main menu shown in the image below:



The game gives you access to four different screen sizes which can be changed simply by clicking on the buttons labeled with the specific size you want shown below. Should you want to make the window full screen the button for that is located in the middle below the screen size options.



Should you wish to turn on or off the in game music you can do so by clicking on the Sound On/Off button located at the bottom of the options screen like shown below:

Audio On/Off



Audio On/Off

