Laboratório de Aplicações com Interface Gráfica

Class 1 Group 4

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3D Game Interface - Taiji

1 Taiji Game Description

The board game, called "Taiji" is made for two players, the white and the black. **Taijitus** are the pieces of the game. Each piece contains a black part and a white part. The white player starts playing and they change turns during the game, by each piece played. Whenever it is their turn to play, the player must place a **Taijitu** on the board, as long as there is free space to do so. A **Taijitu** can only be placed in an empty space of 2 connected squares. A square is considered connected to another square if it is horizontally or vertically adjacent (not diagonally). The game ends when there is no free space to place **Taijitus**. The player with the highest score wins the game. To get your score, find the size of the largest group of your color. To determine the size of a group, simply count the squares of the same color that make it up. In the event of a tie, the "Dark"player wins. There are many options for the game configuration, including different board sizes (7x7, 9x9 and 11x11), and different game modes (Player VS Player, Player VS Computer and Computer VS Computer). There are also two different types of the "bots- the random bot, which places a **Taijitu** randomly, and the intelligent bot, who tries to find the best move in order to increase their largest group.

1.1 Run the Program

- Open SICStus Prolog
- Open the server file (server.pl)
- Execute the command "server.". After running this command, the server will be opened.
- Open a local server (For example, with python or with the extension Live Server from Visual Studio Code)

1.2 User Instructions

Main Menu

When the scene is initialized, allows the user to choose the settings of the game.

It is possible to choose the type of the white player/player one, and the type of the black player/-player one, which can be one of three choices:

- Player, so the moves can be made by an actual player interacting with the board
- Random, which makes the computer choose the moves to make, in a random way
- Intelligent, which makes the computer choose the moves to make, in an intelligent way, where it chooses the best possible move to increase the size of their biggest group.

The user can also choose the board size, which can be small, medium or large. When the user is ready, he presses the play button, and the game starts.

Game Menu

During the game, the has access to the Game Menu, where he can do four different actions.

- Go back to the main menu.
- Restart the game with the same settings.
- Undo button, which allows the user to undo a move during the game. If the user is playing versus a bot it will undo both the bot move and the player move.
- Movie button, which shows the movie of the game since it started, showing all the moves made. If the game isn't over, the game can be still played after the end of the movie.

Dat GUI Interface

The WebGL interface is an alternative to the in-game menu, since the user can choose the game configurations there.

Besides this, the user can choose the camera view, toggle the screen lights, enable the environment sound, switch between two different scenes, and choosing the time of each game turn.