TRON Tournament

YCBS 277 - Final Project

Instructor: Joshua Durso-Finley

Due Date: August 16, 2019

Project Specifications

Your task for this project is to design an agent to play the game TRON. On the last day of class, a tournament will be held where participants will have the opportunity to pit their agents against each other.

Agent

This is an open ended project, therefore you may implement this agent using any technique we have discussed during the course. Furthermore, you should meet the following requirements:

1. Your agent must conform to the API provided in the assignment (so that we can use the same process to test everyone's agent).
2. Your agent must be implemented from scratch and not taken from a library (with the exception of utility modules such as `NumPy`).
3. Your agent must take less than 3 seconds to make a move.

TRON

TRON Light Cycles is a (1v1) player-versus-player game where the objective is to outmaneuver your opponent.

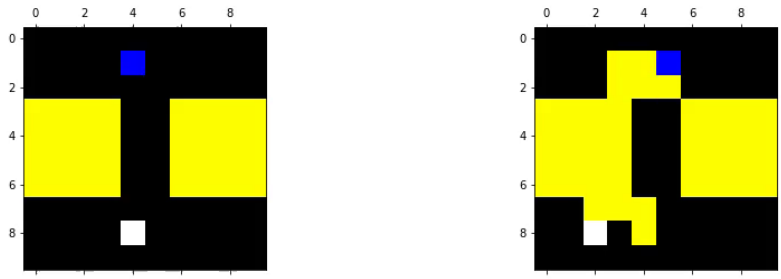
Each player controls a continuously moving character which navigates a 2D grid; upon moving, the player leaves behind a "wall" and the previously occupied tile becomes impassable to both players. At each game step, the player must choose to move either up, down, left, or right into an unobstructed tile.

Ultimately, the game is won by navigating in a manner which forces your opponent to run into a wall. In other words, the first player to run out of legal moves is the loser of the game.

Deliverables

Upon completion of the project, the following are to be submitted:

1. The source code (i.e., the Python notebook).
2. A brief (half page) write-up which summarizes your project (what did you implement, how well did your agent perform, what are some takeaways from your project, etc.). This should be submitted as a PDF document.



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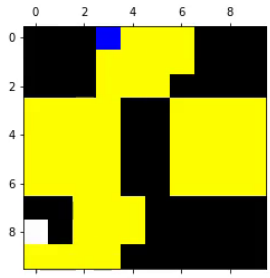

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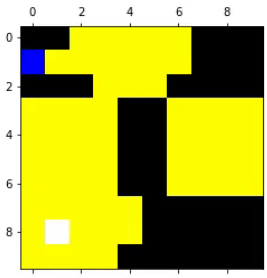

(d)

Figure 1: An example game of TRON. In this example, the white-block player corners themselves before the blue-block player does, and therefore loses the game.

Grading Scheme

The grading for this project will be determined by your agents performance in the tournament and the project write-up as follows:

- 60% - Performance: A grade will be assigned based on the performance of your agent compared to the instructors (very simple) baselines. Bonus marks will be awarded to students based on the performance of their agent in the tournament. **We are mainly looking to see that your agent functions properly, so please do not stress over this component!**
- 40% - Write-up: A grade will be assigned based on the quality and completeness of the write-up. A good submission should be clear, concise, and well organized.

If you have any questions, please feel free to contact the instructor or any of the teaching assistants. Have fun!