CS8803: ACRL, Spring 2019: Homework 2

This assignment ay be completed in teams of up to 3 students.

Due: Wednesday, March 27th, 3pm

1 The Problem

The goal of this project is to build a Tetris-playing learner. The assignment is straightforward: build a learning algorithm that improves through experience. Your goal should be to build a learner that can clear approximately 10,000 lines before losing. You have wide latitude to design a player. Think carefully about how to specify the cost function, the state representation, and the learning algorithm itself. The game is implemented in java, and you must use the included implementation of the game. However, you may wrap the java code in any language of your choosing. If you choose to program in something other than java, matlab, python, or C++, please clear this choice with the TA first. We must be able to run your code.

2 System Description

You will work with a simplified version of the game of Tetris. In Tetris, a random sequence of Tetriminos fall down the playing field. The objective of the game is to manipulate Tetriminos by rotating and shifting them so that they form a solid horizontal line with no gaps. When such a line is formed, it disappears and any blocks above it fall down to fill the space. In the simplified game, there are no dynamics, you simply rotate and shift the Tetrimino and then place them.

3 What to Turn in

Turn in a zip file containing your code and a 4 page report describing what you implemented. In the report, you should describe what you used as a cost function and why, how you represented state and why, a detailed description of your approach, and report how well your agent did (what is the highest number of lines cleared?)