1 Overview

1.1 Environment

- The game is a single-agent environment.

- The game is a basic racing game where you have to turn and apply acceleration.

- The goal of the game is to complete the race as quickly as possible.

1.2 State space

The state space has 15 numbers in the following order:

- the current of laps remaining

- angle car is pointing

- x,y position of the car

- vx, vy velocity of the car

- the x,y locations of the next 5 checkpoints

1.3 Action space

The action space has 3 numbers in the following order:

- x,y target for where to aim the car (the car rotates up to 18 degrees per step)

- thrust $(0 - 100)$ the amount of thrust to apply forwards on the car

1.4 Rewards

- -1 per time step

- +10000 for completing the race (see below)

- -10000 for failing the race (see below)

1.5 Terminal States

The episodes ends in one of two ways:

1. Your car completes the race by finishing the final lap

2. Your car fails the race by not passing the next checkpoint for 100 steps