

Diagram

Description automatically generated

How to turn corners

1. Brake to maximum capacity at your braking point
2. Move your vision to the apex point
3. Turn-in your car at the turn-in point
4. Make the apex of the ideal racing line
5. Begin to introduce the accelerator
6. Open up steering to the corner’s exit point

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Poponut’s reward function:

import math

def reward\_function(params):

*# Read input variables*

    waypoints = params['waypoints']

    closest\_waypoints = params['closest\_waypoints']

    heading = params['heading']

*# Initialize the reward with typical value*

    reward = 1.0

*# Calculate the direction of the center line based*

    next\_point = waypoints[closest\_waypoints[1]]

    prev\_point = waypoints[closest\_waypoints[0]]

*# Calculate the direction in radius, arctan2(dy, dx)*

    track\_direction = math.atan2(

        next\_point[1] - prev\_point[1], next\_point[0] - prev\_point[0])

*# Convert to degree*

    track\_direction = math.degrees(track\_direction)

*# Calculate the difference between the track direction and the heading direction of the car*

    direction\_diff = abs(track\_direction - heading)

*if* direction\_diff > 180:

        direction\_diff = 360 - direction\_diff

*# Penalize the reward if the difference is too large*

    DIRECTION\_THRESHOLD = 10.0

*if* direction\_diff > DIRECTION\_THRESHOLD:

        reward \*= 0.5

*return* float(reward)