AI Truck Parking Game

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Year 4 2021/2022

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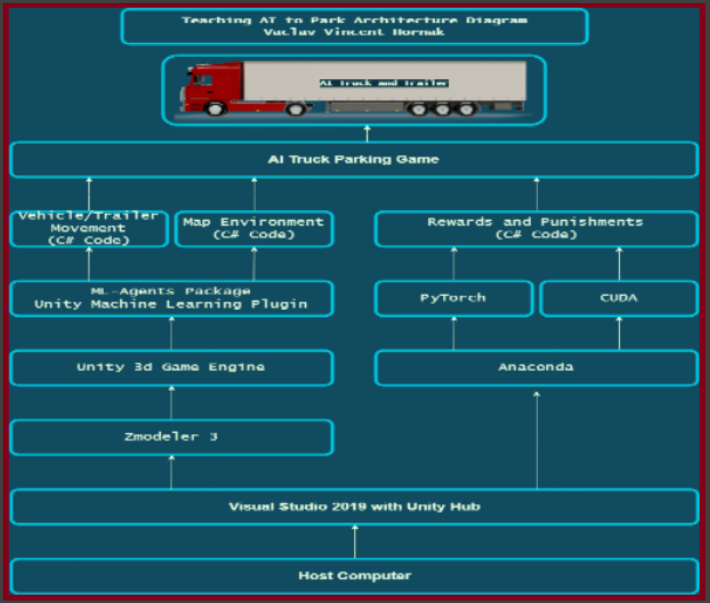
Introduction

During the time of picking my final year project, I looking for relevant problems in the world and how I could try implement something that would help with this issue once fully developed.

For my final year project, I decided to look into developing a game and within that game teach AI to reverse a trailer. The idea came from my hobby in truck simulation and the recent shortage of HGV drivers around Europe. I think this project can be developed and used to teach future driverse how to park with a large truck as it's a skill people struggle with.

The software I will be using for my project will be C# for my unity scripts that will run in my game. Python to the ML-Agents package which controls the learning aspect of the AI. I used Zmodeler 3 as my tool for building my models that will be used in my game. I decided to use these tools as I've worked with C# in my work placement with Avaya and I used Zmodeler 3 for my hobby where I create 3D models and python is something new to me that I have an interest in learning.

Architecture Diagram



Technologies

Summary

The goal of my AI Truck Parking Game is to create an environment in which a player/human can face off against a programmed AI to see who can park the truck faster and with more accuracy and see the comparison as the AI proceeds to get better and better through it's reward and punishment system. The AI begins in a slugish manner struggling to find it's way around while the player will be at a reasonable standard after a few goes.

With my research in machine learning I've found that the AI, given an infinite amount of time will perfect it's motions and after a certain point the player will not be able to match the speed and accuracy of the AI.

The type of machine learning that best applies to my project is, reinforcement learning. This simply put is teaching a machine based on a basic reowrd and punishment system and building on the brain of the AI also known as the neuralink. The AI will progressivly take from this neuralink and become smarter and smarter each time.

I hope to develop this project into a larger scale after college as I feel it is an area which is not touched and greatly interests me,