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Homework 11 Research Paper, and Learning Report Summary

Research paper Section:

In order to understand what deep learning is, we first have to define it. What is it? How does it work? What applications is it used for? In short, deep learning is a field of artificial intelligence using neural networks, and algorithms based upon aspects of the human brain that perform a repeated task using reinforcement learning to analyze massive data sets. Deep learning works by using deep layers of a neural network, and specifically tailored algorithms in order to train the AI, and analyze massive data sets. The algorithms will usually dictate the level of analysis required, and the size of data sets will usually vary as well. However, with all of the complexity of the inner workings of deep learning, there are so many different applications for it. One of the most cutting edge applications of deep learning, is its use in the video game industry with the implementation of Deep Learning Super Sampling, a deep learning AI application developed by Nvidia to make a truly innovative rendering technique that uses a downscaled image resolution, and then implements the use of deep learning to upscale the image to the desired native resolution to be output with each frame to the display. This application of DLSS, and deep learning requires a GPU (Graphics Card) specifically from Nvidia as they have been specifically been designed with hardware to implement AI on the hardware level. With other applications of Deep learning still being developed, and dozens more still being used today. The field of Deep learning and AI could not be more attractive to get into.

With many different platforms to explore open source software, github is far and away, one of the biggest, and best platforms for it. Github is an open source platform where developers will utilize it to host their repositories for their software for use for free. Someone would want to use github in order to aid with project management, or to share source code developed for open source use. A big use case for big companies with a big workforce, would be to use github in order to provide a seamless cloud based platform for them to manage a big project. Things like a version control system, and the ability to seamlessly post source code into the company’s repository for future use, and seamless overall management of a company’s project safely, and securely on the cloud. There are so many different advantages to using github, some of which include version control for software, and the ability to seamlessly collaborate with other colleagues, and provide a way to seamlessly track changes in files, and provide a way to have clean workflow for a team on a project. However, there are some disadvantages to github, and using it, like the possibility of not having specific security measures that a company may require for certain projects while working on them. However, for high value intellectual property github may not have the type of security measures necessary to adequately protect private repositories. Another glaring drawback to using github is that it is much harder to install programs, or software outside of the repository. With a lot of issues with github, there are so many more advantages to using it.

Learning Report Summary:

I successfully completed the assignment, and was able to have it run without any errors, or really big problems, and was able to obtain the correct results for the program. I only used google to help as I ran into a small issue with the second portion of the coding section of the assignment as I ran into an issue with two lines of the code, and had to find the workaround that would help me not run into any issue with building the AI and build the model. I was able to learn how to build a deep learning model to help with image recognition, and be able to utilize AI to predict house prices, and even recognize animals within a picture. I followed the tutorials for creating the algorithms, and build, and train the models. I took around 6-8 hours over 2 days to complete the assignment, and found this assignment to be much harder than some others, but easier than a few of the previous assignments.