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Design Project 1

Entry Log – Monday 12/3/2018

As of this morning, my finalized project idea for the term was approved and decided on. Moving forward, I will be working on creating a real time sign language translator, contained inside of an application that houses several other features such as games, leaderboards, and interactive learning experiences designed to allow the user to learn the alphabet in ASL sign language. My plan as of day one, with the research done so far, is to first utilize the OpenCV library in order to create a code that can track the motion of a user’s hand accurately using computer vision. With this code, I then plan to move forward in to training a CNN (utilizing something along the lines, if not directly, TensorFlow) to recognize the user’s hand signals and accurately match them to the correct letter of the alphabet. Once these base components are completed and tested, I then plan to take these concepts and expand the application to contain the above-mentioned components creating an interactive application that utilizes modern technology to teach user’s a useful skill in a fun and exciting way.

The initial issue with this project (as the initial plan was just the translator) is that the overall use of computer science skills was lacking. Training a CNN requires little computer science and does not showcase all of skills learned from my major. Because of this, I had to figure out ways to add to this project in order to incorporate more programming in to it. The initial plan as of now is to not only create the translator, but to create an entire application that houses several different features. These may include, but are not limited to, the translator itself, speed games, competitive games (pit users against each other to test their knowledge), leaderboards for these games, etc. Overall, turning what was originally the idea of a simple translator in to an entire interactive learning experience.

In the coming week, I hope to begin working on some of the base code and understanding the concepts that I will be working with on a better level. I want to familiarize myself with the libraries and resources I plan on using, as well as see if possibly something better is out there that I may work with. Below, I will link the beginning episode of a series that I am watching through in order to further my understanding of what I will be working with. As well as this, I want to be able to end the week with a timeline and plan of what I plan to accomplish and by when. Organization will be key in this project, as there are a lot of moving parts. The quicker I can get each part done, the larger and more impressive the final project I will be able to complete will be.

Intro to Neural Networks: <https://www.youtube.com/watch?v=aircAruvnKk&t=907s>

OpenCV: <https://opencv.org/>

TensorFlow: <https://www.tensorflow.org/>