Jacob Centner

COSC 5550

Final Project Proposal

10/30/2018

Dino Runner

If you’ve ever lost connection to the internet while using Google Chrome, you probably know that there is a game built into the web browser to play while the internet is out. In this game, you are a dinosaur, and must jump over and duck under obstacles. As the game progresses, you move faster and faster, making it much harder not to hit something. The game is also challenging because once you have jumped, your trajectory is set; you cannot jump again until you land. Jumps must be precisely timed. A version of this game that can be played in the browser is available at <https://www.chromedino.com/> .

For my AI final project, I intend to build an AI that will successfully play this game. My criteria for success are simply that it plays better than I do (which is not saying much). The game includes a score counter which increases as the game goes on, so that will be the metric for success.

I plan to implement this AI in Python with a Convolutional Neural Network (CNN), using the TensorFlow GPU library (using Keras). Playing the game is essentially an application of computer vision (when does the AI jump or duck?), so a CNN should be ideal. I’ll use Selenium to interact with the webpage, and OpenCV to perform any image processing necessary. Note that the focus of my project is on writing the AI to play the game, not necessarily on using these particular tools. If I find that other libraries suit my needs better, or a different approach entirely, then I will adapt.

There are several potential challenges with this project. First, it will be seriously performance dependent as the game is very quickly paced. For that reason, I intend to use the GPU version of TensorFlow to significantly improve performance. Also, I have never used TensorFlow before except for the most basic of tutorials, so there may be a steep learning curve for me. Using TensorFlow GPU adds complexity to that. I have found some online resources that I hope will teach me enough to complete this project. OpenCV is also unfamiliar to me, although I know it easily has the capabilities I require.

I hope that by exposing myself to powerful tools like TensorFlow and practicing their application, I can move onto larger and more complex AI projects in the future.

See photo on next page

