
KompyuterM3chakrs

Week of (Date): July 19, 2019

Team Members Active this Week:

Keren Angeles

Nathan Bellew

Melanie Grumley

Weekly Update of Project/Research (Summarized by Team Lead):

This week the team was split off into groups for researching the topics for the Machine Learning project. Melanie was setup to revisit C++ code to compare it to the current python we are working with. This is was done with the hope of her being able to understand the objective of our overall goal with the Malicious Website URL code. The remainder of the team researched Keras-Tensorflow and created tests and experiments for training an ai to detect malicious urls.

Name: Nathan Bellew

Hours worked this week:

Please explain in detail what you worked on this week.

This week I directed the team into the optimization of our prior work on the Keras-Tensorflow code. I found that there was a way to make the code more efficient and gain a higher accuracy on all of the training session. With this optimization we managed to make all tests 5-10% more accurate.

What are the outcomes of your research and time for the week?

The code has been further optimized and it is nearly completed for the Keras-Tensorflow version. This means we will be able to move onto Pytorch-FastAI very shortly .

Please describe any roadblocks or difficulties you experienced in your research this week.

None, we really just spend a lot of time reading and note taking in between programming.

What are your next steps moving forward?

We will work on further optimizing the code that has been created and also begin the next set of AI frameworks. There is a chance that we will drop Theano, we have seen that the framework has been officially dropped by its developers but it might have become an open-source project.

Name: Melanie Grumley

Hours worked this week: 16

Please explain in detail what you worked on this week.

I learned about convoluted neural networks (CNNs) and recursive neural networks (RNNs). I also looked into why C++ isn't used in Machine Learning since it's faster than Python.

What are the outcomes of your research and time for the week?

I discovered that C/C++ is used in Machine Learning during the application stage of finalizing an AI. During the programming phase, C/C++ is slower and more difficult to work with when a programmer needs to make changes to an early system. By continuing to learn about neural networks, I understand better Dr. Basnet's project.

Please describe any roadblocks or difficulties you experienced in your research this week.

I didn't come across any new road blocks this week. I'm beginning to get a better understanding of computers in general.

What are your next steps moving forward?

Continue learning to the best of my ability.

Name: Keren Angeles

Hours worked this week:

Please explain in detail what you worked on this week.

This week I learned about Machine Learning as a side project for Dr. Basnet

What are the outcomes of your research and time for the week?

During this self study I learned about Machine Learning, Tensorflow and how to train machine in recognizing malicious URLs. In order to understand this process I watched tutorials and performed some experiments as well.

Please describe any roadblocks or difficulties you experienced in your research this week.

There were some bugs in the code that I still haven't figured out how to fix. The results showed that the training went well however the code for the predictions needs to be tweaked

What are your next steps moving forward?

Moving forward, now I have to attempt to replicate an experiment using either Tensorflow, Keras, or Theano.
