

**Name: Jason Zhou**

**Mentor: Dr. Dongjin Song**

**Status Report #: 26**

**Time Spent on Research This Week: 21**

**Cumulative Time Spent on Research: 205.25**

**Miles Traveled to/from Mentor This Week: 0**

**Cumulative Miles Traveled to/from Mentor: 0**

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**Monday, April 4th, 2022: (0.5 Hrs)**

On this day, I had my weekly Zoom meeting with my mentor. We went over AUC results I had obtained from my last status report. He suggest that I look over my code and see if there was anything that was out of place or causing any errors. If that was not the case, he also mentioned that the anomalous sound samples may be too similar for the model to discern them. Either way, an investigation will need to be done later.

**Tuesday, April 5th, 2022: (2 Hrs)**

As my mentor suggested, I spent a lot of time combing through the code I had written to try and find any mistakes or errors. However, I was not able to find any.

Afterward, I attempted to make multiple copies of my model with each one specialized to a certain machine type. I believed that if the models did not have as much information from other machine types to analyze, this would allow them to analyze more on the machine type that they were assigned, making it easier to learn. I spent the rest of my time that day separating the data files for each machine type and then saving them onto files for later use.

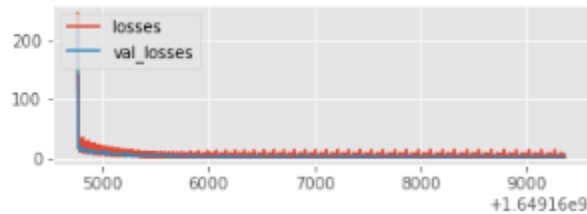
**Wednesday, April 6th, 2022: (3 Hr)**

Continuing from yesterday, I adapted code that I had made previously to aid in the use of the specialized models that I was creating. Then, I loaded the data and ran it through each model. Initially, I had a lot of trouble with the shape and dimensions of the data, so I had to spend time fine-tuning the parameters and inputs. After some, the models finished training, and I used the rest of my time testing the models and printing AUC graphs to measure their performance.

Overall, the specialized models did slightly better, but these improvements were not significant enough to warrant a major increase in accuracy.

**Thursday, April 7th, 2022: (2 Hrs)**

As a follow-up to yesterday's testing, I measured the loss graphs of each model to ensure that they were properly trained. Essentially, these loss graphs help me determine if a model still needs to be trained and improved.



(This is an example of the loss graphs that I mentioned earlier. For reference, the closer the orange and blue lines are, the less training a model still needs.)

As one can see, these two lines are already very close to one another and further training probably is not needed.

After confirming this, I took the time to record the results of AUC graphs and add them to the results section of my research article, and spent the rest of my time working on the discussion section and interpreting my results.

#### **Friday, April 8th, 2022: (0.5 Hrs)**

Before going to the Reading and Writing Center, I quickly took the time to review it and then later had it checked by Mrs.Cubanski.

#### **Saturday, April 16th, 2022: (1 Hrs)**

A couple of weeks ago, I had been asked by my mentor if I wanted to present my work to the computer science department at UConn for their Stemposium. Although I was greatly intimidated by the possibility of presenting to professionals, I ended up accepting because I would never grow as a person if I only did what I knew I was capable of.

On this day, I received an email saying that the time of their Stemposium would be April 20th from 6:00 to 7:30. Thus, I began writing a script for what I planned to say during the event. The hardest part will be to strike a good balance between the complicated and simple parts of my project. Specifically, how in-depth do I want to be in my explanations? There will be computer science professionals there, but I imagine not all of them will be well versed in machine learning because it is not necessarily their area of focus.

#### **Sunday, April 17th, 2022: (2 Hrs)**

On this day, I looked at what I had written the previous day, dumped it all in the garbage, and rewrote everything. Again, the hardest part was knowing how in-depth to go on

explanations but one other concern I had was the fluidity of my presentation. It should be free-flowing and easy to comprehend, but I had a hard time getting everything to connect well.

### **Monday, April 18th, 2022: (2 Hrs)**

I started off the beginning of this week by writing the beginning of my abstract for my research paper. This was challenging because I had to fit my entire paper into only a couple hundred words, similar to a college essay.

As for the UConn presentation that I was preparing for, unfortunately, I did not have much time to work on my presentation due to some other academic circumstances. However, I did manage to work out some of the rough edges I had been talking about the day before and outline the structure of the rest of the presentation. Now all that was left was to finish up the script and create the slideshow.

### **Tuesday, April 19th, 2022: (7 Hrs):**

On this day, I ended up doing most of the work on the presentation that I would have to give the very next day. I finished the script and then proofread it, fixing any of the misspellings, rough transitions, and bad explanations that I came across. Then, I divided each part of my speech into multiple parts that would each correspond to a slide in my presentation.

While doing this, I was also trying to memorize the script that I had written so that I would be able to speak fluently during my presentation. This was problematic for a couple of reasons but the most obvious one was that it was simply too much to remember, and I just did not have the time. In the end, I decided that I would probably need to directly read off the script during my presentation. The Stemposium was held virtually, which meant that I would be giving my presentation on Zoom (or some other virtual meeting app). Thus, my reading off of a script would not impact the presentation too much.

Finally, the last part of my preparations was to complete the slideshow. Although this part was very tedious, it was easier than the rest because on the previous day I had already divided up what I was going to say for each slide. Thus, I really only needed to find images that would supplement what I would be saying.

### **Wednesday, April 20th, 2022: (1 Hrs)**

I gave my presentation, it went well. Additionally, I also went to the Reading and Writing Center, finished up my title, abstract, and acknowledgments, and got my paper checked by Mrs. Cubanski. Now the only left for me to do to finish my research paper is to have my mentor verification form signed and finish the formatting.

**Friday, April 22, 2022:**

This was the day I emailed my mentor to fill out the mentor verification form. However, he did not immediately respond.

**Saturday, April 23rd, 2022:**

My mentor had yet to respond to my previous email, so I was wondering if it had gotten lost in his email. Obviously, he is a busy man, and he might have missed it. As a result, I sent him a follow-up email.

**References**

N/A