

Name: Jason Zhou

Mentor: Dr. Dongjin Song

Status Report #: 20

Time Spent on Research This Week: 2.5

Cumulative Time Spent on Research: 159.75

Miles Traveled to/from Mentor This Week: 0

Cumulative Miles Traveled to/from Mentor: 0

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Monday, February 28th, 2022: (0.5 Hrs)

On this day, I had my weekly Zoom meeting with my mentor and told him that I had gotten my convolutional autoencoder (CAE) working. After hearing this, he recommended that I try a method called window sliding. He explained that window sliding is essentially breaking up an image into multiple segments and then feeding each segment into the neural network. For example, if I had 10,000 Mel spectrograms, I would end up with 60,000 segments.

Saturday, February 5th, 2022: (2 Hrs)

(Goes onto second page)

I spent time trying to implement the window sliding that Dr. Song had told me about on Monday. This simply involved me taking each image and splicing the array to split the image into several parts.

After developing the code to do the window sliding and running all of the image segments of audio into my adjusted neural network. However, it went quite poorly because my

loss¹ values came out abnormally high.

```
Epoch 0, Loss: 125.7743
Epoch 1, Loss: 119.7645
Epoch 2, Loss: 118.9924
Epoch 3, Loss: 118.3616
Epoch 4, Loss: 117.7991
Epoch 5, Loss: 117.3487
Epoch 6, Loss: 117.0220
Epoch 7, Loss: 116.7385
Epoch 8, Loss: 116.4978
Epoch 9, Loss: 116.2890
Epoch 10, Loss: 116.0985
Epoch 11, Loss: 115.9265
Epoch 12, Loss: 115.7471
Epoch 13, Loss: 115.5632
Epoch 14, Loss: 115.3818
Epoch 15, Loss: 115.2209
Epoch 16, Loss: 115.0691
Epoch 17, Loss: 114.9206
Epoch 18, Loss: 114.7766
Epoch 19, Loss: 114.6450
Epoch 20, Loss: 114.5269
Epoch 21, Loss: 114.4268
Epoch 22, Loss: 114.3291
Epoch 23, Loss: 114.2358
Epoch 24, Loss: 114.1516
Epoch 25, Loss: 114.0803
Epoch 26, Loss: 113.9928
Epoch 27, Loss: 113.9122
Epoch 28, Loss: 113.8345
Epoch 29, Loss: 113.7431
Epoch 30, Loss: 113.6598
Epoch 31, Loss: 113.5735
Epoch 32, Loss: 113.4875
Epoch 33, Loss: 113.4077
Epoch 34, Loss: 113.3305
Epoch 35, Loss: 113.2591
Epoch 36, Loss: 113.1856
Epoch 37, Loss: 113.1230
Epoch 38, Loss: 113.0578
Epoch 39, Loss: 112.9967
Epoch 40, Loss: 112.9322
```

(This is an image of the values my neural network returned. Just for context, any value above 100 means something went horribly wrong.)

I made sure to properly adjust the input dimensions of the neural network, so as of right now, I am unsure of the cause of the high loss values. I will have to discuss with my mentor at our upcoming zoom meeting.

¹ Loss is how wrong or inaccurate a neural network is. The higher the loss, the more inaccurate it is.

References

N/A