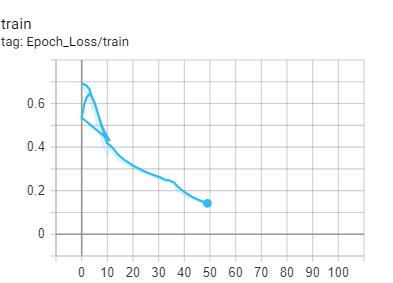
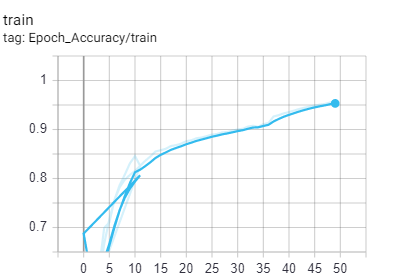
Zhengming Wang

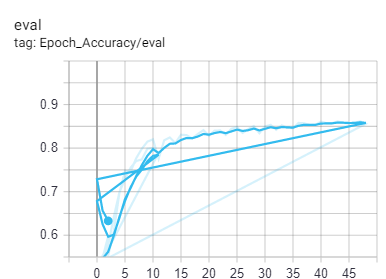
Part 1: Sentiment analysis on IMDB reviews

The label numbers are auto-generated and are incorrect (should be 1) , 2) , 3) not 2), 1), 3) )

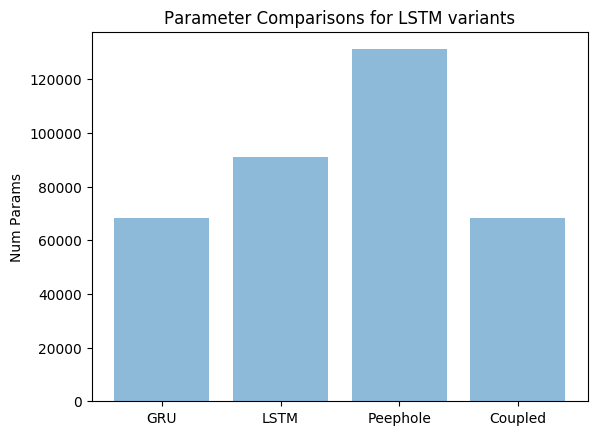
GRU: Around 3it/s

) Training Loss

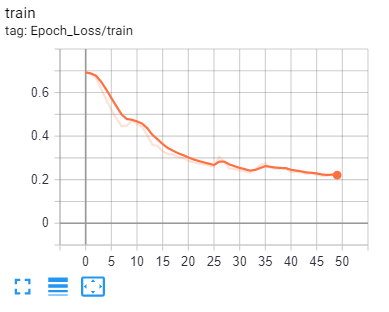
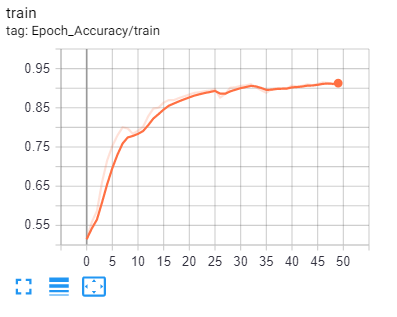
) Training Accuracy

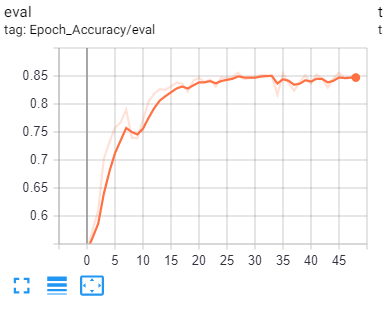


) Validation Accuracy

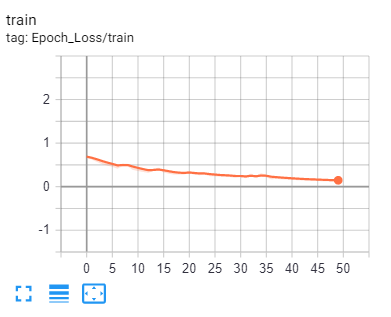
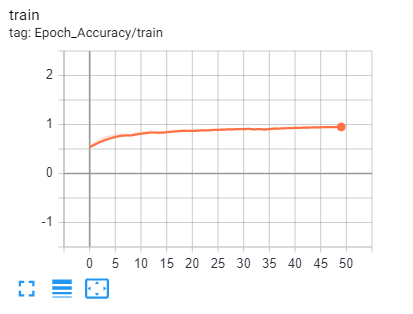
Parameter Comparisons: 

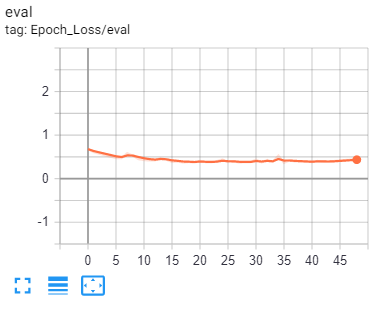
LSTMCell (Average 4it/s)



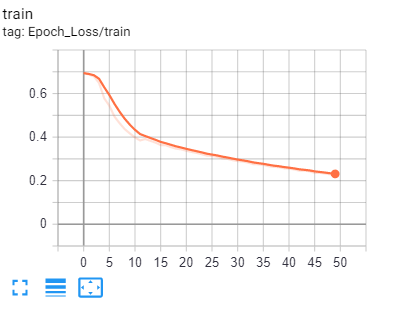
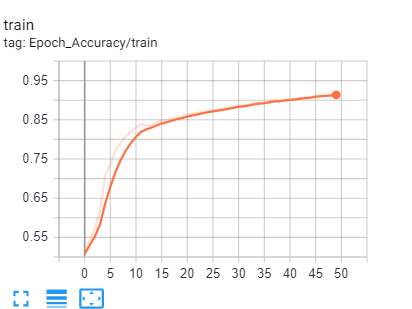


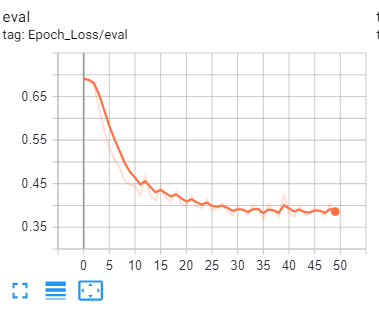
Peepholed LSTM

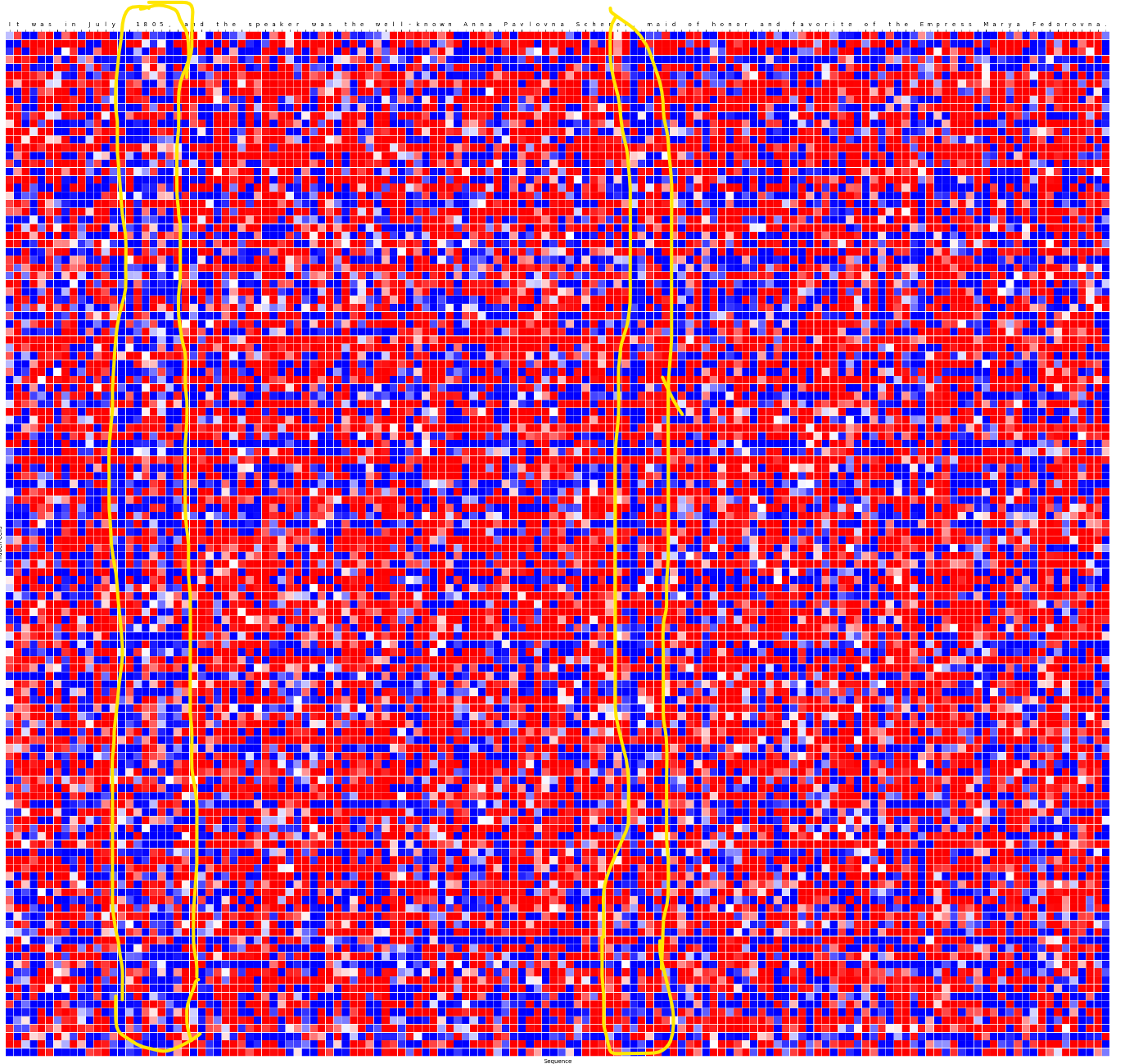




Coupled LSTM (3it/s )





Part 3

As the above diagram shows, various columns appeared in the LSTM visualization on the reset signals. Two parts where resets formed the most obvious columns are drawn. The first column on the left occurs over a year, 1805. This is perplexing but also makes a bit of sense, a year has no real relation to the letters/words before it so the LSTM forgets the past. Another more obvious column is circled on the right and occurs when a period is inputted. The period also makes sense. Typically, periods separate sentences and a lot of information can change from sentence to sentence. In two adjacent sentences we can often have vastly different ideas, subjects, and tone. As a result, it’s in the LSTM’s best interest to forget prior sentence information when approaching a new sentence. This is how we end up with a column of blue underneath the period.