

# Weight Distribution Before and After Training GPT 2




(AI)

# Objectives

1. To draw weight distributions from Layers L1, Layers L2 from Heads H5 to H11; and from Final Layer FL
2. Repeating the same for trained model

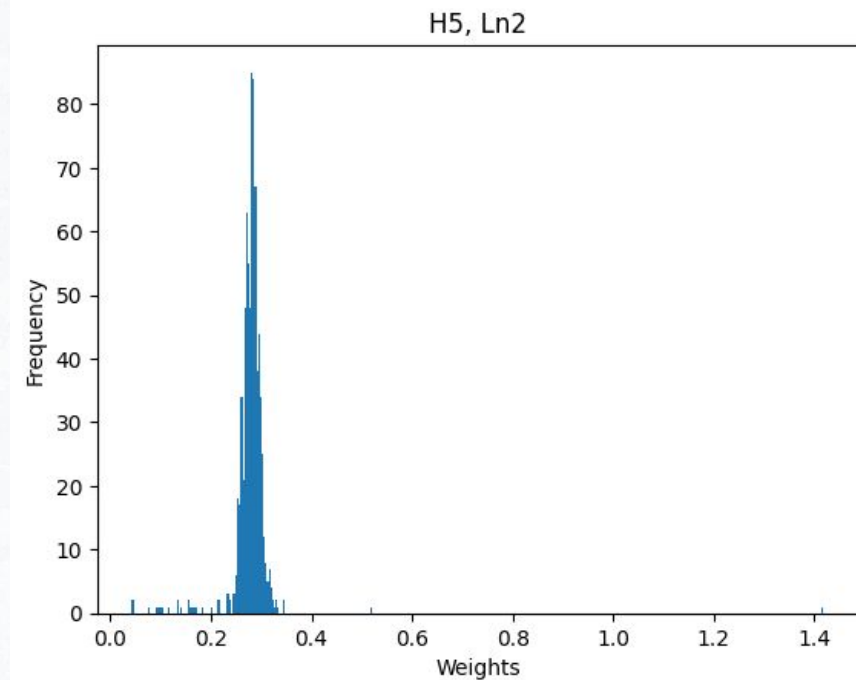
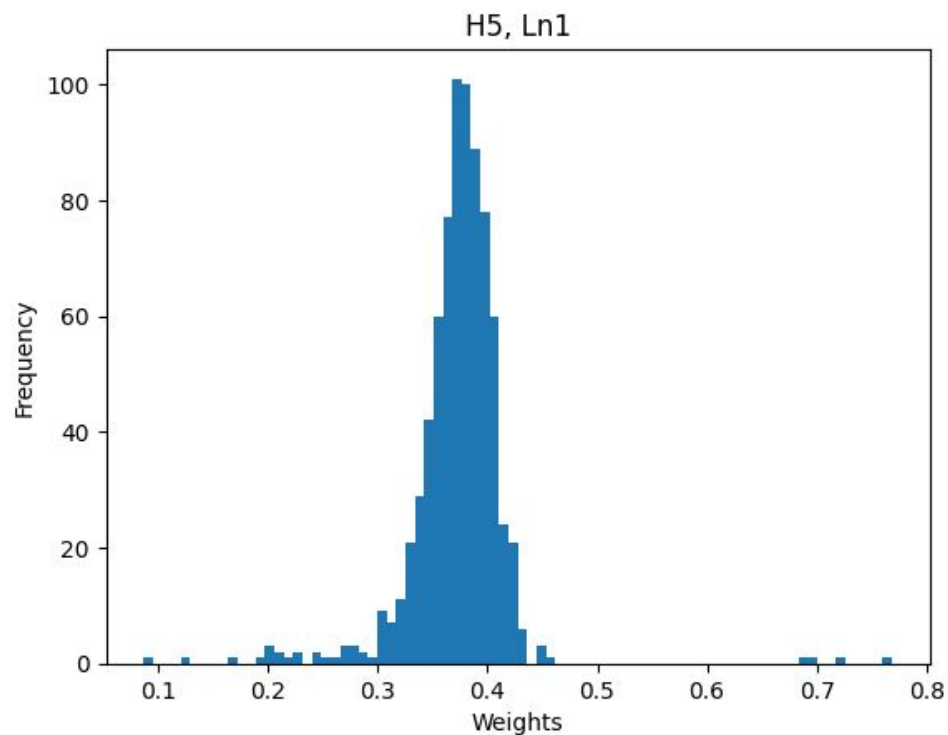
# Comparing the Pictures,

looking at H5 & H6 to  
understand overall layer  
trends



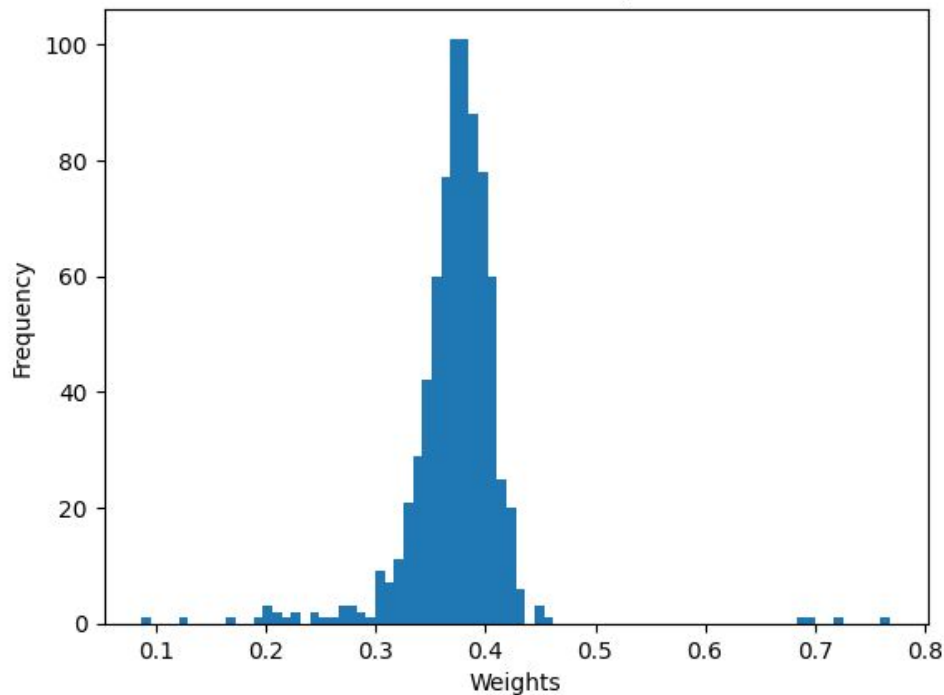
*NB: H5 to H11 & FL pictures are in Colab file*

# Pretraining - H5, L1 & L2

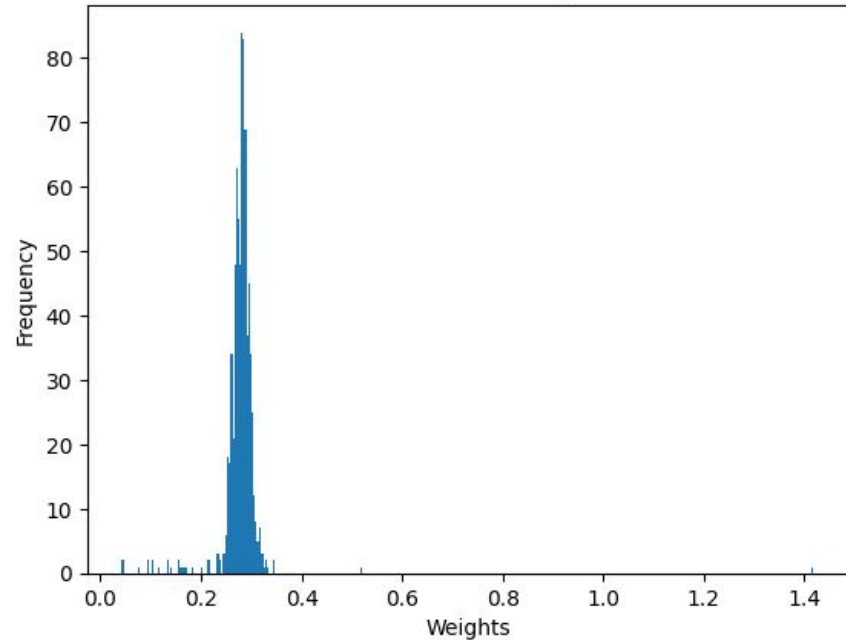


# Posttraining - H5, L1 & L2

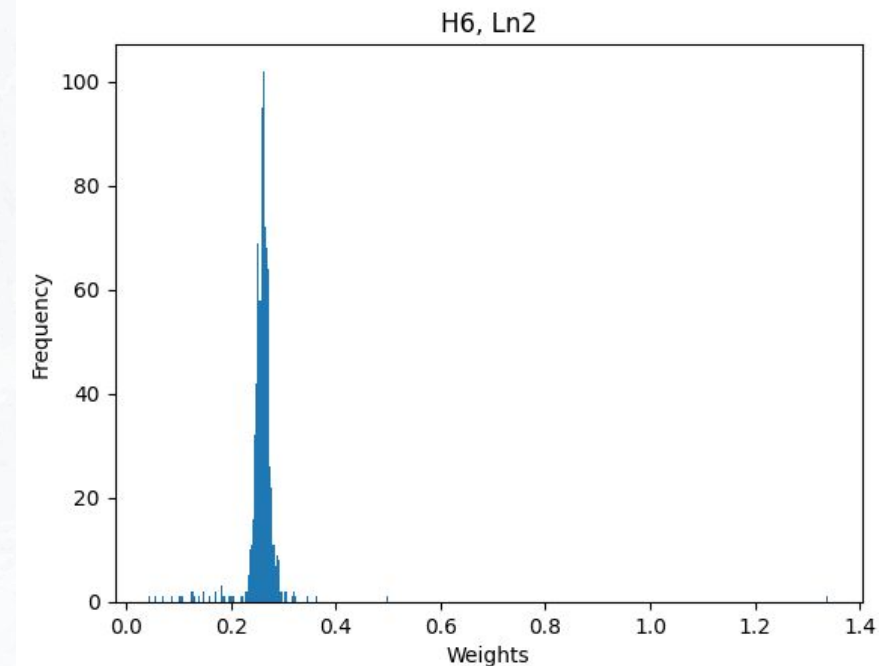
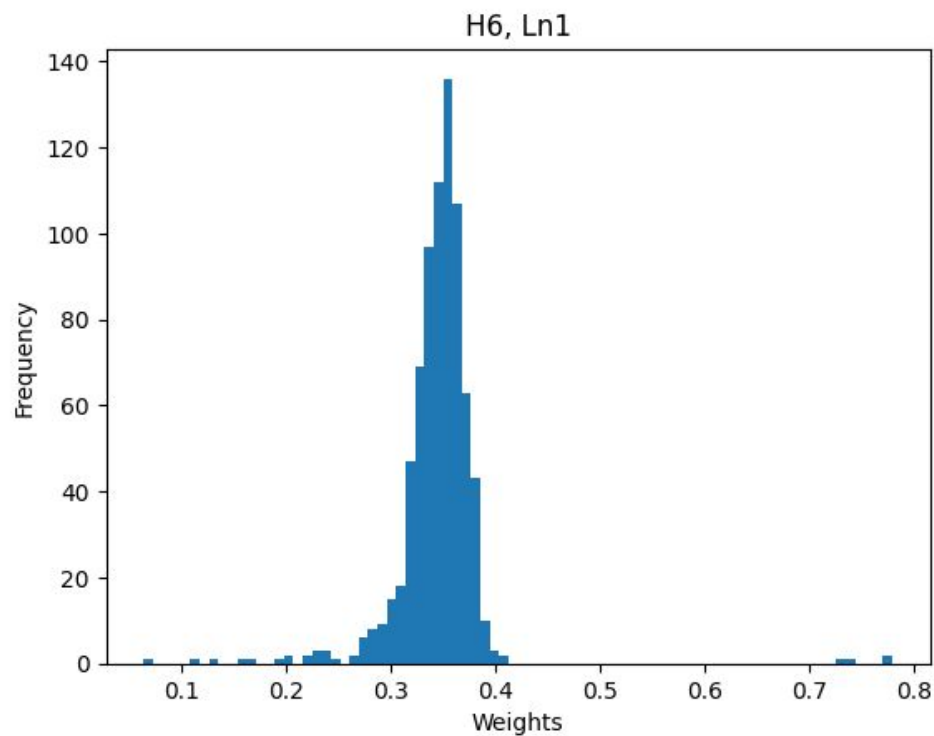
POSTTRAINING - H5, Ln1



POSTTRAINING - H5, Ln2

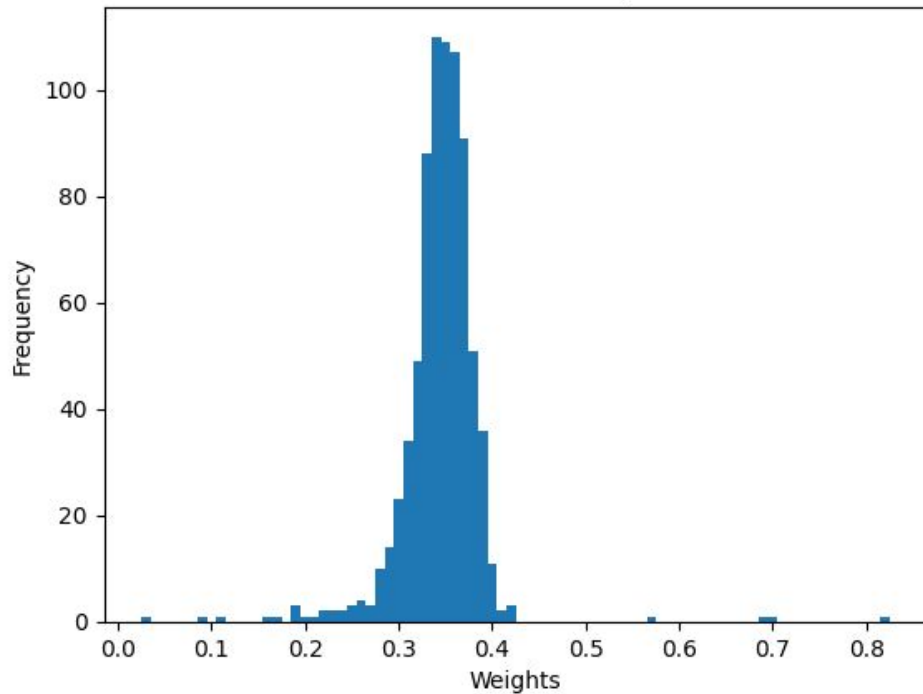


# Pretraining - H6, L1 & L2

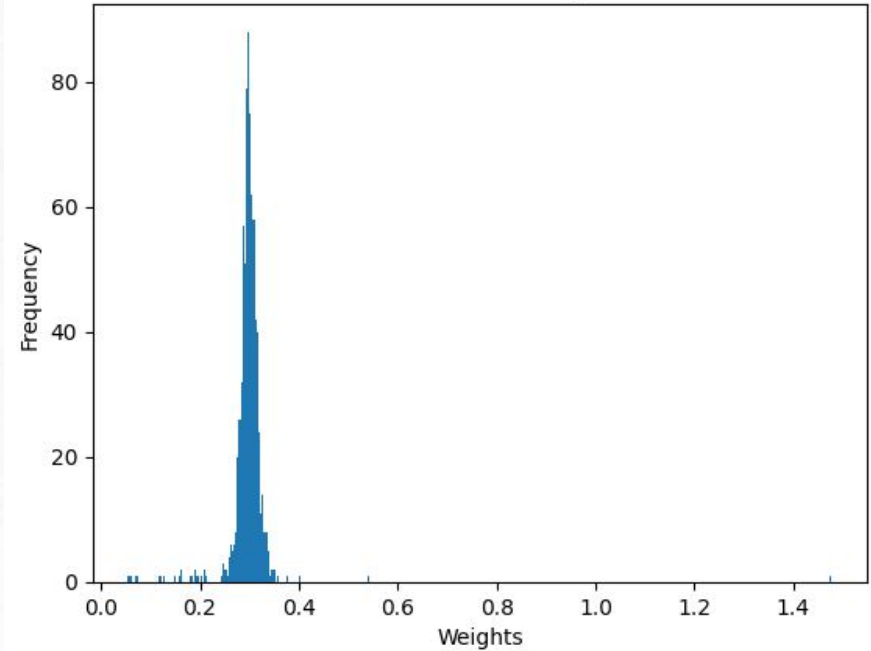


# Posttraining - H6, L1 & L2

POSTTRAINING - H6, Ln1



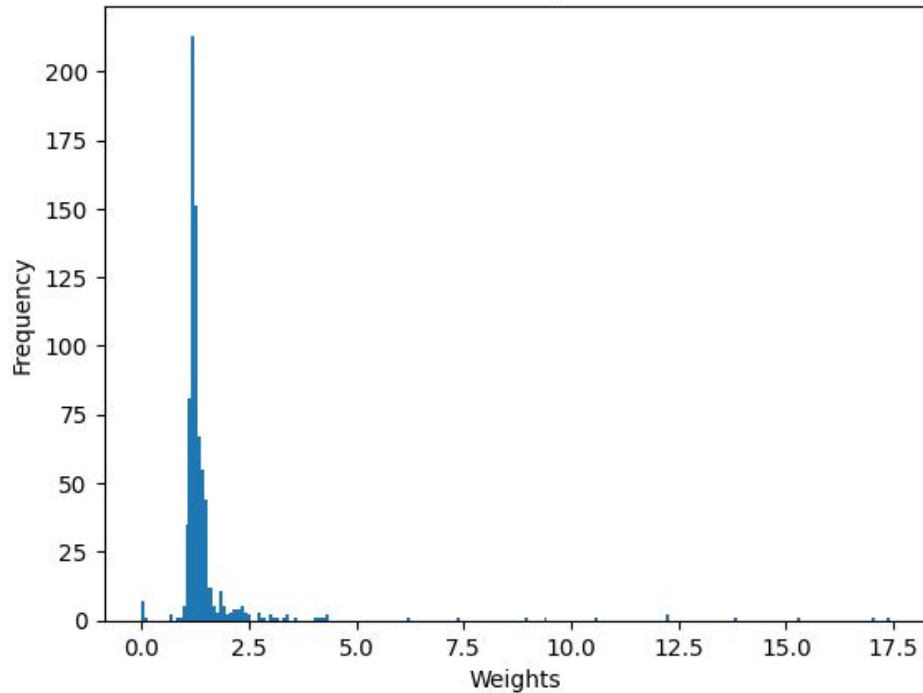
POSTTRAINING - H6, Ln2



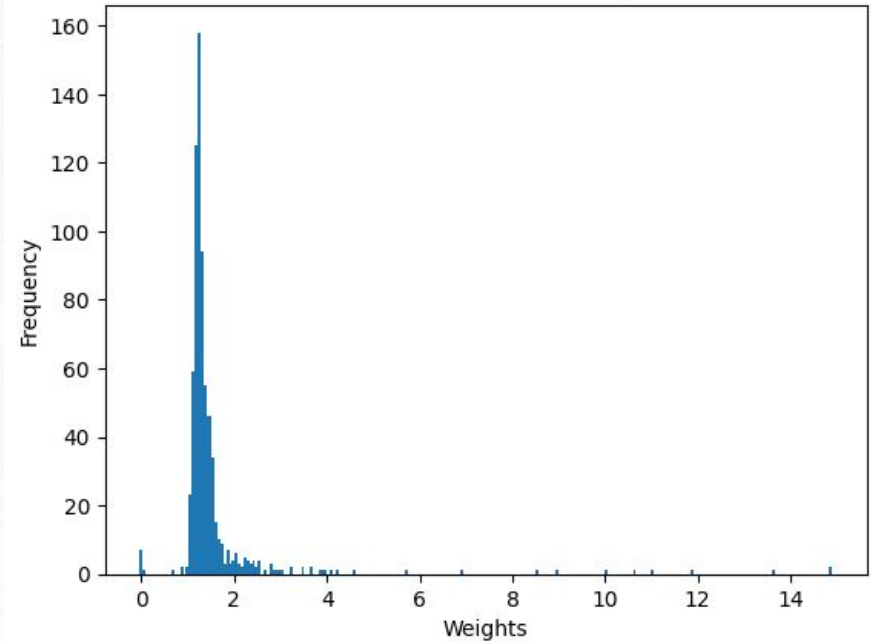


# Final Layers, Pre & Post Training

Final Layer



POSTTRAINING - Final Layer

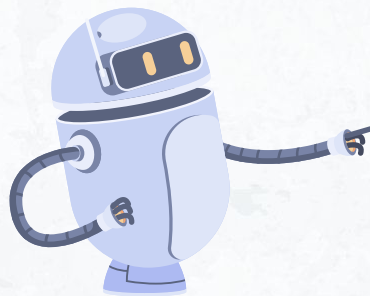




# Why is Understanding Weight Distribution in GPT 2 Important?

1. **Model Initialization and Training** -
  - a. Check if weights are initialized properly
  - b. Check if there are any biases or imbalances in initial weights
2. **Weight Scaling and Normalization** -
  - a. Layer normalization is used to standardize hidden state.
  - b. Is there any outlier or not?
3. **Convergence** -
  - a. In L2's, weights are more converged than L1's.
  - b. The pre-trained and post-trained FL's

# Thank You!



Hello humans.  
Please train me as  
a good language  
model.

GitHub:

[https://github.com/AsfariaChowdhury/CSE465\\_GPT2\\_WeightDistribution](https://github.com/AsfariaChowdhury/CSE465_GPT2_WeightDistribution)



Hi ChatGPT, how do I bake a cake?



Baking a cake can be a fun and rewarding process. Here's a general overview of the steps involved:

1. **Gather Ingredients:** Collect all the necessary ingredients for the cake, which typically include flour, sugar, eggs, butter or oil, baking powder, milk or buttermilk, and flavorings such as vanilla extract.
2. **Preheat the Oven:** Preheat your oven to the recommended temperature mentioned in your cake recipe. This allows the oven to reach the desired temperature before you put the cake batter in.
3. **Prepare the Cake Pans:** Grease or line your cake pans with parchment paper to prevent the cake from sticking. This ensures easy removal of the cake once it's baked.
4. **Mix the Batter:** In a mixing bowl, combine the dry

Send a message.



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