Alhassane Samassekou Lab Module: Application of Deep Learning to Text and Images – Module 2, Lab 5

Reflective Journal: Finetuning BERT for Product Review Classification

Lab 5 on finetuning BERT was a challenging yet rewarding step in my second-year AI journey. Beyond just running code, it was a chance to explore transformer models and reflect on my growth in machine learning.

Learning Insights

I learned that BERT's bidirectional nature—processing text contextually in both directions—makes it ideal for tasks like classifying Amazon product reviews. Using DistilBERT, a lighter version, introduced me to transfer learning: leveraging a pre-trained model and adapting it to a specific task. The moment I saw the model predict a positive sentiment (1) for a review like, "It has the features that I need," was when embeddings clicked for me, linking theory to practice.

Challenges and Struggles

Memory crashes were my first hurdle—BERT's resource demands forced me to restart the kernel and lower the batch size. Tokenization also confused me initially; I had to research why truncation and padding matter for uniform inputs. Adjusting epochs from 10 to 20 reduced validation loss slightly, but took longer, revealing a trade-off. I leaned on trial-and-error and quick web searches to troubleshoot, which built my problem-solving skills.

Personal Growth

This lab shifted my view of models from black boxes to layered systems I can tweak. I was surprised by how intuitive predictions became—like guessing a review's tone before the output. These skills could fuel future projects, like sentiment analysis for social media, and have made me eager to tackle more NLP challenges with tools like PyTorch and the transformers library.

Critical Reflection

If I redid this, I'd test the full dataset or tweak hyperparameters more deliberately, despite hardware limits. I'm curious how DistilBERT stacks up against full BERT in accuracy versus speed. This lab showed me NLP's power in the real world—think chatbots or e-commerce—but also its accessibility challenges, sparking interest in efficient AI solutions.

In short, this lab humbled me with its complexity and inspired me to grow as an AI student, bridging technical skills with bigger-picture thinking.