IMDB SENTIMENT ANALYSIS MODEL SUMMARY & RESULTS

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PROJECT PROPOSAL

- Perform Sentiment Analysis on the IMDB Movie Reviews
  - Achieve 85%+ classification accuracy
- Deliverables
  - Model Code:
    - Data Wrangling
    - Data Exploration & Visualization
    - Built & Evaluated Model
  - PowerPoint Slide Deck:
    - Model Summary & Results

BERT-LARGE UNCASED MODEL SUMMARY

Model Architecture

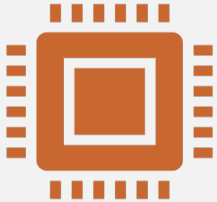
Multi-layer Bidirectional Transformer

Hidden Layers (i.e. Transformer Blocks): 24

Hidden Layer Size: 1024

Self-attention Heads: 16

Filter Size: 4096



Data Pre-processing Required

Lowercasing of raw text

WordPiece tokenization

TRAINING SUMMARY

PRE-TRAINING

- Batch size: 256
- Epochs: 40
- Adam Learning Rate: 1e-4
- 64 TPUs Required
  - Took 4 days to train
- Initial Model Checkpoint
  - Google's research team

FINE-TUNING

- Batch Size: 32
- Epochs: 3
- Adam Learning Rate: 2e-5
- Single Cloud TPU Required
  - 64 GB of RAM
  - < 1hr to fine-tune

MODEL PERFORMANCE

- Training Accuracy ≈ 99.55%
  - ≈ 24,888 out of 25,000 training reviews correctly classified
  - Is the model overfitting to the training dataset?
- Test Accuracy ≈ 94.93%
  - ≈ 23,732 out of 25,000 testing reviews correctly classified
  - Both training and test accuracy are extremely high
    - We can conclude the model does not overfit