AdaNet Implementation and Results

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GitHub Repository

1 Dataset Description

For this implementation, we used the following datasets:

- **CIFAR-10**: A widely-used dataset consisting of 60,000 32x32 color images across 10 classes. The dataset is split into 50,000 training images and 10,000 test images.

2 Implementation Details

2.1 Setup and Environment

- **Language**: Python 3.6
- **Libraries**: tensorflow==1.13.1, tensorpack==0.9.1, scipy==1.2.1
- **Environment**: The environment was set up using a Conda environment with Python 3.6. Necessary dependencies were installed via `requirements.txt` from the repository.
- **Training Setup**: The code was modified to train the model on CPU. It takes approximately 30 minutes to run 1 epoch on Ryzen 9 5900HS. The available GPUs did not have the required compute capability. This won't run on Kaggle or Google Colab due to tensorflow 1.
- **Training Time for Given Weights** : This model was put on training for 2.5 days.

2.2 Model Training

The hyperparameters for the model include:

- Batch size: 100
- Learning rate: 0.001
- Number of iterations: 120

3 Results

The results of the experiments are summarized in the following tables and figures.

Dataset	**Accuracy**	**Claimed Accuracy**
CIFAR-10 (Test Seed 1)	87.24%	91.39%
CIFAR-10 (Test Seed 2)	87.23%	91.11%
CIFAR-10 (Test Seed 3)	87.18%	91.35%

Table 1: Model performance across different datasets.

The model demonstrates competitive performance on CIFAR-10 dataset and is within 5% error from the claimed results.