Neural Networks and Deep Learning

Image Classification on CIFAR-100 dataset

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Motivation

- CNN for image classification
- Strategies for model optimization using CIFAR-100
- Can be used in any other image classification task
- Basis for other computer vision problems

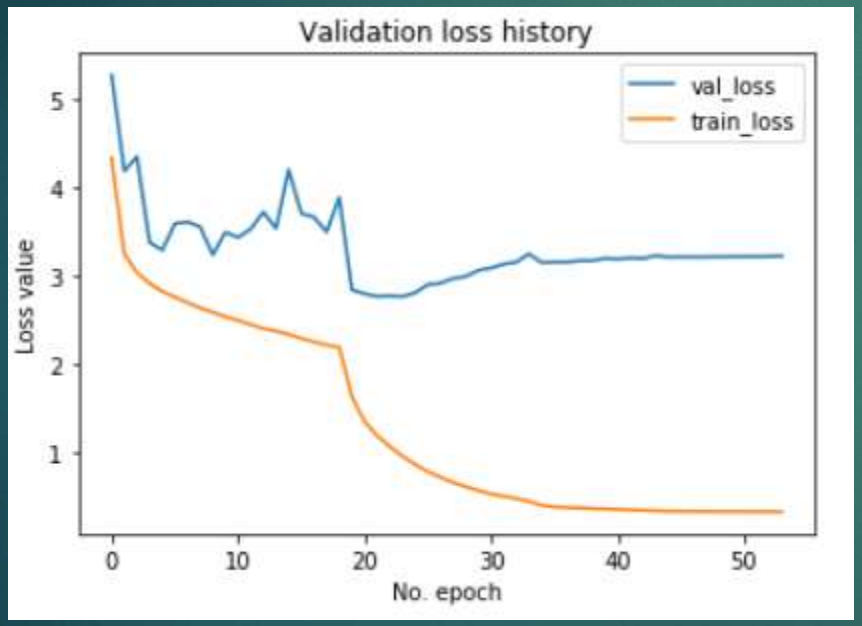
Approach

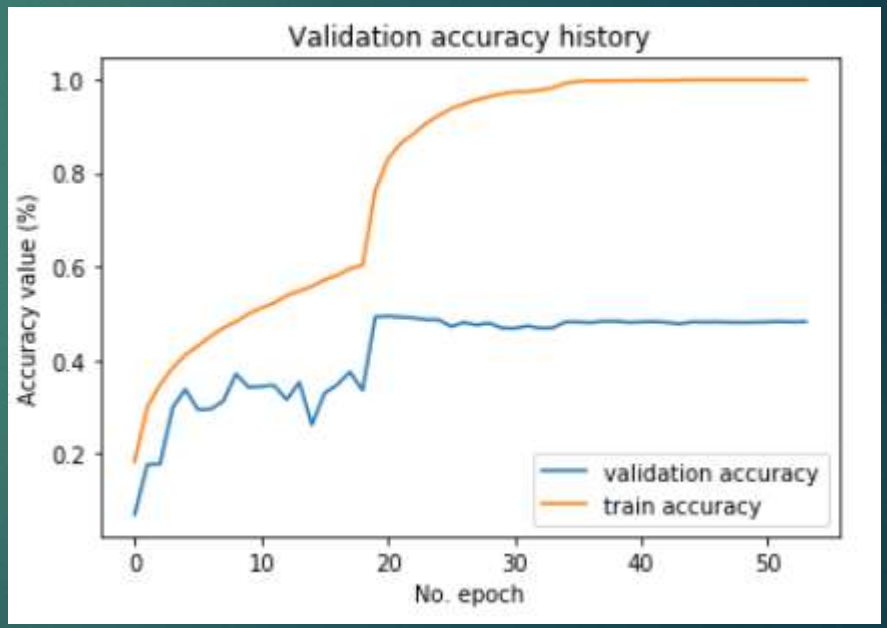
- Data preparation and pre-processing
  - Reshape
  - Normalize
- Create a model
  - Number of layers
  - Activation function (ELU)
  - Batch Normalization
  - Max Pooling

- Hyperparameters
  - Learning rate
  - Number of epochs
  - Steps_per_epoch
- Cost function & Optimizer
  - Cost function: Sparse_categorical_crossentropy
  - Optimizer: Adam
- Callbacks
  - LROnPlateau
  - EarlyStopping

Results

Accuracy: 48.39%





Predictions

Conclusion

- Strategies to optimize the model
- Further gains in accuracy by tuning of hyperparameters and learning rate schedules.

Thank You!