Cifar-10 Classification with Keras Tuner

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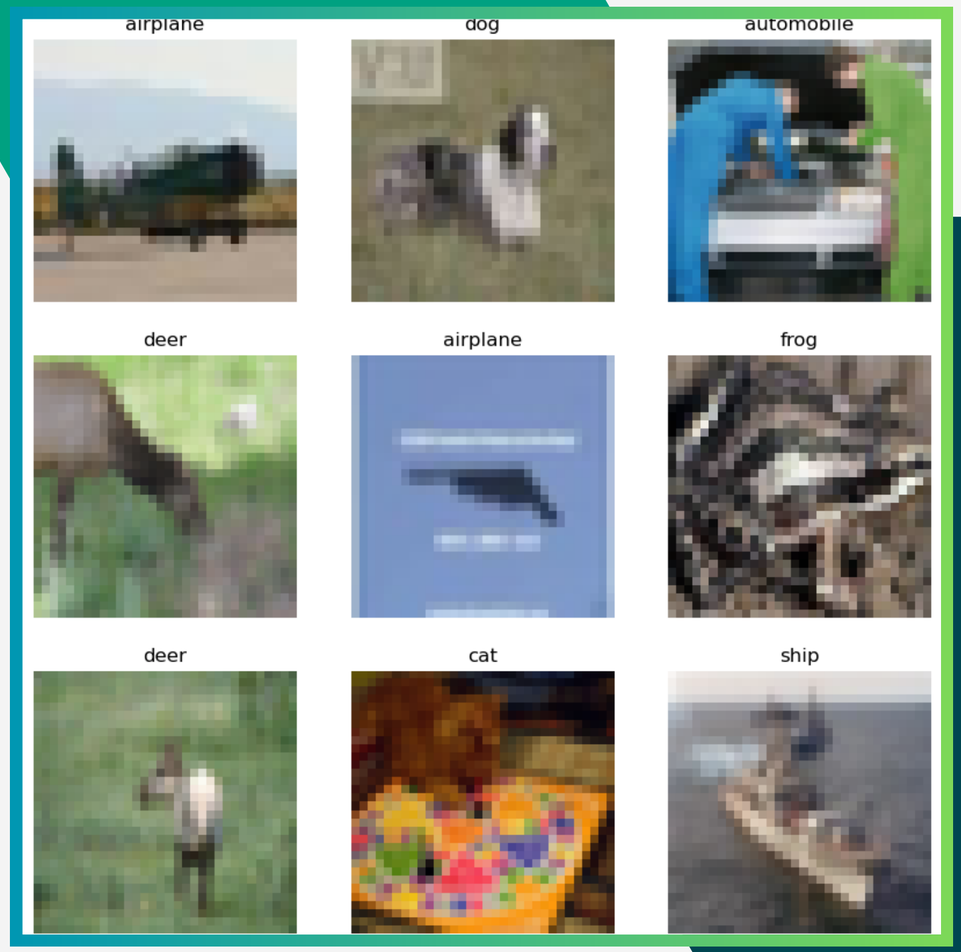
Dataset overview

- **60.000** Images, **equally split** in **10 Classes**
- Image size: **32x32**x3
- **Type:** numpy Array - tf.data.Dataset

Classes: Airplane, Automobile, Bird, Cat, Deer, Dog, Frog, Horse, Ship, Truck



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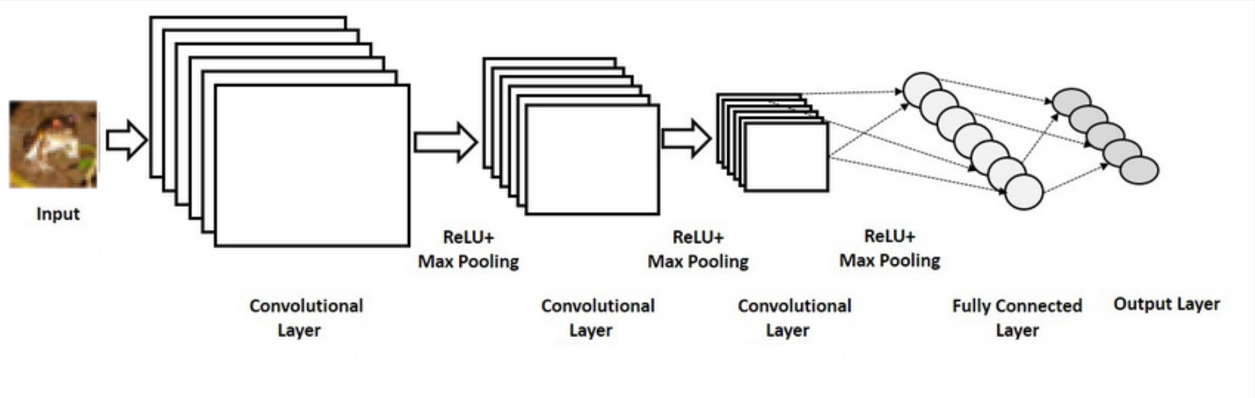
Models Timeline

The model uses a Convolution atchitecture, followed by a MLP; Hyperband tuner



1st Model

Multiple parameters tuned: kernels, neurons, regularizers, dropout...

2nd Model

Second re-run, to verify optimal parameters, model architecture overview

3rd Model

Reduced parameters to optimal ones; only regularizers tuned

Tuned Model

Final Training of the model, accuracy evaluation, review of previous work

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Results achieved

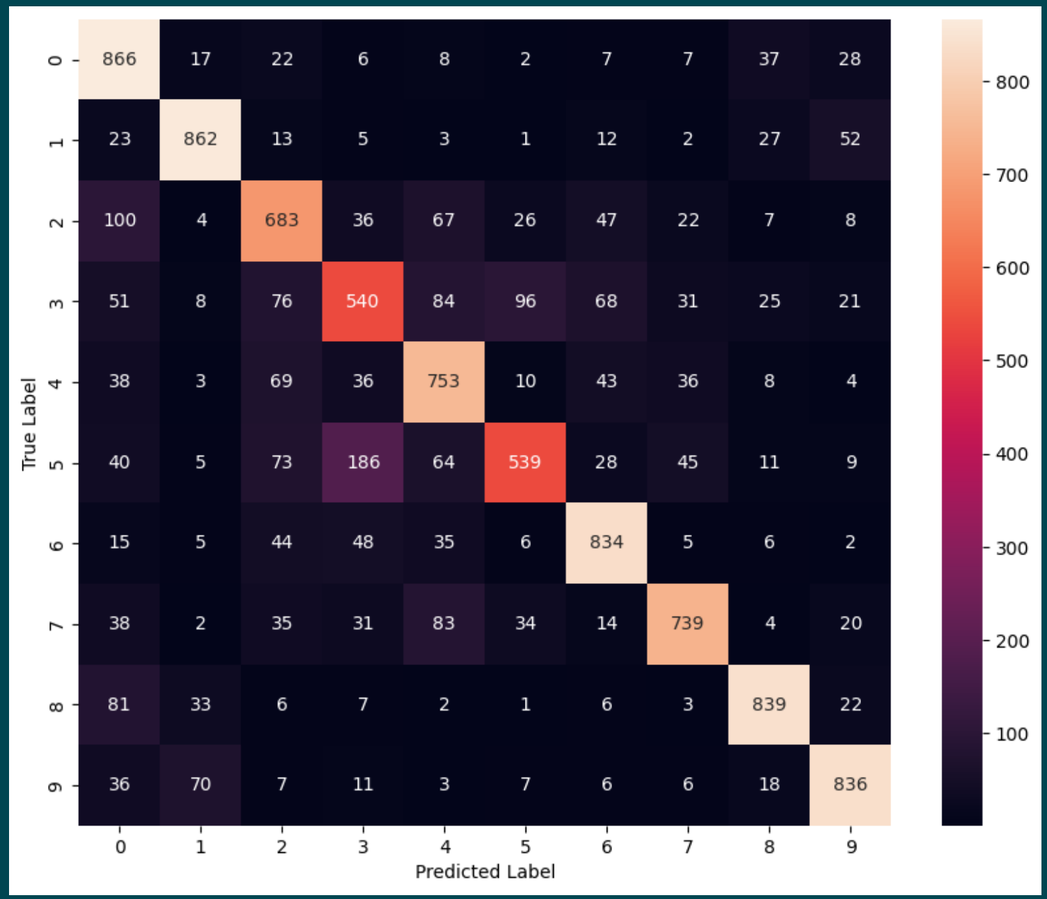
Highest Accuracy: **0.75** on Validation set

Pros:

- Helped to achieve higher accuracy
- Good for choosing regularization parameters

Cons:

- Slowes down model building and deployment
- Occasionally similar perfomances of known architectures



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Conclusions

- Hypertuning for big projects and slightly better performance
- Perfomance / cost trade-off
- Alternatives for improvents

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Resources

Contacts & Info

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Contacts & Links:
LinkedIn: https://linkedin.com/in/alessandrokuz
Kaggle: https://www.kaggle.com/alessandrokuz
GitHub: https://github.com/AlessandroKuz

Cifar-10 Dataset:
https://www.cs.toronto.edu/~kriz/cifar.html

Tensorflow tutorials::
https://www.tensorflow.org/tutorials

Hyperband tuner:
https://arxiv.org/abs/1603.06560

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