

DL

Resource pack

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Roll no 33,38

Base paper

URL : <https://arxiv.org/abs/2104.00298>

The screenshot shows the arXiv paper page for 'EfficientNetV2: Smaller Models and Faster Training' by Mingxing Tan and Quoc V. Le. The page is from the Computer Science > Computer Vision and Pattern Recognition section. It includes a submission history table, a 'Bibliographic and Citation Tools' section, and an 'Access Paper' sidebar with links to the PDF, TeX source, and other formats. The paper's abstract is also visible, describing the EfficientNetV2 family of models.

Computer Science > Computer Vision and Pattern Recognition
[Submitted on 1 Apr 2021 (v1), last revised 23 Jun 2021 (this version, v3)]

EfficientNetV2: Smaller Models and Faster Training

Mingxing Tan, Quoc V. Le

This paper introduces EfficientNetV2, a new family of convolutional networks that have faster training speed and better parameter efficiency than previous models. To develop this family of models, we use a combination of training-aware neural architecture search and scaling, to jointly optimize training speed and parameter efficiency. The models were searched from the search space enriched with new ops such as Fused-MBConv. Our experiments show that EfficientNetV2 models train much faster than state-of-the-art models while being up to 6.8x smaller. Our training can be further sped up by progressively increasing the image size during training, but it often causes a drop in accuracy. To compensate for this accuracy drop, we propose to adaptively adjust regularization (e.g., dropout and data augmentation) as well, such that we can achieve both fast training and good accuracy. With progressive learning, our EfficientNetV2 significantly outperforms previous models on ImageNet and CIFAR/Cars/Flowers datasets. By pretraining on the same ImageNet21k, our EfficientNetV2 achieves 87.3% top-1 accuracy on ImageNet ILSVRC2012, outperforming the recent ViT by 2.0% accuracy while training 5x-11x faster using the same computing resources. Code will be available at this [https URL](https://github.com/tanml/e2).

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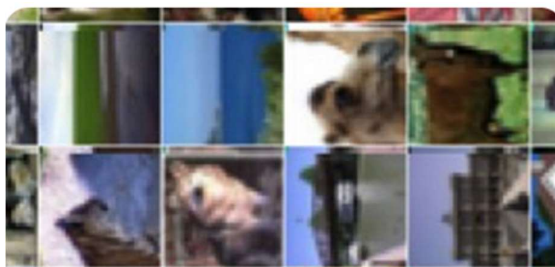
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Kaggle dataset :

CIFAR-10

CIFAR-100 Python

A collection of images commonly used to train computer vision algorithms



About Dataset

Similar Datasets:

CIFAR-10 Python (in CSV): [LINK](#)

Context

The CIFAR-100 dataset consists of 60000 32x32 colour images in 100 classes, with 600 images per class. The 100 classes in the CIFAR-100 are grouped into 20 superclasses. Each image comes with a "fine" label (the class to which it belongs) and a "coarse" label (the superclass to which it belongs). There are 50000 training images and 10000 test images. The meta file contains the label names of each class and superclass.

Content

Here is the list of the 100 classes in the CIFAR-100:

Classes:

1-5) beaver, dolphin, otter, seal, whale
6-10) aquarium fish, flatfish, ray, shark, trout
11-15) orchids, poppies, roses, sunflowers, tulips
16-20) bottles, bowls, cans, cups, plates
21-25) apples, mushrooms, oranges, pears, sweet peppers
26-30) clock, computer keyboard, lamp, telephone, television
31-35) bed, chair, couch, table, wardrobe
36-40) bee, beetle, butterfly, caterpillar, cockroach
41-45) bear, leopard, lion, tiger, wolf
46-50) bridge, castle, house, road, skyscraper
51-55) cloud, forest, mountain, plain, sea
56-60) camel, cattle, chimpanzee, elephant, kangaroo
61-65) fox, porcupine, possum, raccoon, skunk
66-70) crab, lobster, snail, spider, worm
71-75) baby, boy, girl, man, woman
76-80) crocodile, dinosaur, lizard, snake, turtle
81-85) hamster, mouse, rabbit, shrew, squirrel
86-90) maple, oak, palm, pine, willow
91-95) bicycle, bus, motorcycle, pickup truck, train
96-100) lawn-mower, rocket, streetcar, tank, tractor

and the list of the 20 superclasses:

- 1) aquatic mammals (classes 1-5)
- 2) fish (classes 6-10)
- 3) flowers (classes 11-15)
- 4) food containers (classes 16-20)

- 5) fruit and vegetables (classes 21-25)
- 6) household electrical devices (classes 26-30)
- 7) household furniture (classes 31-35)
- 8) insects (classes 36-40)
- 9) large carnivores (classes 41-45)
- 10) large man-made outdoor things (classes 46-50)
- 11) large natural outdoor scenes (classes 51-55)
- 12) large omnivores and herbivores (classes 56-60)
- 13) medium-sized mammals (classes 61-65)
- 14) non-insect invertebrates (classes 66-70)
- 15) people (classes 71-75)
- 16) reptiles (classes 76-80)
- 17) small mammals (classes 81-85)
- 18) trees (classes 86-90)
- 19) vehicles 1 (classes 91-95)
- 20) vehicles 2 (classes 96-100)

Acknowledgements

- Learning Multiple Layers of Features from Tiny Images, Alex Krizhevsky, 2009. [Link](#)

Kaggle API

```
import kagglehub

# Download latest version

path = kagglehub.dataset_download("fedesoriano/cifar100")

print("Path to dataset files:", path)
```

GOOGLE COLLAB LINK

EfficientNetV2L=
<https://colab.research.google.com/drive/1gLKsV7S24XO1oqOM5myRiqZDaU-swtLK?usp=sharing>