04/05/2020

Rete: Alexnet.

Dataset: ORIGA-light (168 glaucoma / 480 normali)

Split: 0.8 training / 0.2 validation (640 elementi)

Augmentation: Null

Options:

```
    'MiniBatchSize',10 , ...
    'MaxEpochs',6, ...
    'InitialLearnRate',3e-4, ...
    'Shuffle','every-epoch', ...
    'ValidationData',testAug, ...
    'ValidationFrequency',*valFrequency, ...
    'Verbose',false, ...
    'Plots','training-progress'

*valFrequency = floor(numel(augimdsTrain.Files)/miniBatchSize);
```

Accuracy: 0.7422
Test:
Glaucoma
Im0643_g_ORIGA 0.3288 0.6712
Im0644_g_ORIGA 0.2600 0.7400
Im0645_g_ORIGA 0.5005 0.4995 T
Im0646_g_ORIGA 0.3914 0.6086
Im0647_g_ORIGA 0.3446 0.6554

Normali
Im0478_ORIGA 0.3470 0.6530 T
Im0479_ORIGA 0.1546 0.8454 T
Im0480_ORIGA 0.3716 0.6284 T
Im0481_ORIGA 0.3624 0.6376 T
Im0482_ORIGA 0.0669 0.9331 T

Rete: Alexnet.

Dataset: ORIGA-light (168 glaucoma / 480 normali)

Split: 0.8 training / 0.2 validation (640 elementi)

Augmentation:

```
    pixelRange = [-30 30];
    scaleRange = [0.9 1.1];
   imageAugmenter = imageDataAugmenter( ...
   'RandXReflection',true, ...
   'RandXTranslation',pixelRange, ...
   'RandYTranslation',pixelRange, ...
   'RandXScale',scaleRange, ...
   'RandYScale',scaleRange);
```

Options:

```
'MiniBatchSize',10 , ...
'MaxEpochs',6, ...
'InitialLearnRate',3e-4, ...
'Shuffle','every-epoch', ...
'ValidationData',testAug, ...
'ValidationFrequency',*valFrequency, ...
'Verbose',false, ...
'Plots','training-progress'
```

Accuracy: 0.7422
Test:
Glaucoma

Im0643_g_ORIGA	0.2581	0.7419
Im0644_g_ORIGA	0.2884	0.7116
Im0645_g_ORIGA	0.3024	0.6976
Im0646_g_ORIGA	0.2428	0.7572
Im0647_g_ORIGA	0.3122	0.6878

Normali

Im0478_ORIGA	0.4093	0.5907 T
Im0479_ORIGA	0.2970	0.7030T
Im0480_ORIGA	0.2154	0.7846 T
Im0481_ORIGA	0.3417	0.6583 T
Im0482_ORIGA	0.3146	0.6854 T

---

inefficient.

Chen *et al.* then created a convolutional neural network (CNN) using two different datasets (ORIGA set 99 training images, 551 validation; SCES set used all 1676 images for validation as it was trained using the 650 ORIGA images), which aimed to detect POAG based on the fundoscopic images of the optic disc.[37] They reported AUROC values of 0.831 and 0.887 on ORIGA and SCES datasets, respectively. They reported these values as much better than current state-of-the-art programs for similar purposes. This paper did not publish other information pertinent to ophthalmology and focused on the computer science aspects of these results.

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```

```
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imageAugmenter = imageDataAugmenter( ...
'RandXReflection',true, ...
'RandXTranslation',pixelRange, ...
'RandYTranslation',pixelRange, ...
'RandXScale',scaleRange, ...
'RandYScale',scaleRange);
```

Options:

```
'MiniBatchSize',10 , ...
'MaxEpochs',6, ...
'InitialLearnRate',3e-4, ...
'Shuffle','every-epoch', ...
'ValidationData',testAug, ...
'ValidationFrequency',*valFrequency, ...
'Verbose',false, ...
'Plots','training-progress'
```

Accuracy: 0.7461
Test:
Glaucoma
Im0643_g_ORIGA 0.1443 0.8557
Im0644_g_ORIGA 0.4352 0.5648
Im0645_g_ORIGA 0.7262 0.2738 T
Im0646_g_ORIGA 0.2385 0.7615
Im0647_g_ORIGA 0.1520 0.8480

Normali
Im0478_ORIGA 0.2187 0.7813 T
Im0479_ORIGA 0.0883 0.9117 T
Im0480_ORIGA 0.1677 0.8323 T
Im0481_ORIGA 0.4565 0.5435 T
Im0482_ORIGA 0.0532 0.9468 T

Rete: Googlenet.

Dataset: ORIGA-light (168 glaucoma / 480 normali)

Split: 0.2 training / 0.8 validation (640 elementi)

Augmentation:

```
null
```

Options:

```
'MiniBatchSize',10 , ...
'MaxEpochs',6, ...
'InitialLearnRate',3e-4, ...
'Shuffle','every-epoch', ...
'ValidationData',testAug, ...
'ValidationFrequency',*valFrequency, ...
'Verbose',false, ...
'Plots','training-progress'
```

Accuracy: 0.7109 Test:

Glaucoma
Im0643_g_ORIGA 0.1115 0.8885
Im0644_g_ORIGA 0.1287 0.8713
Im0645_g_ORIGA 0.2328 0.7672
Im0646_g_ORIGA 0.1273 0.8727
Im0647_g_ORIGA 0.1425 0.8575

Normali
Im0478_ORIGA 0.3926 0.6074 T
Im0479_ORIGA 0.1071 0.8929 T
Im0480_ORIGA 0.0792 0.9208 T
Im0481_ORIGA 0.0795 0.9205T
Im0482_ORIGA 0.0909 0.9091T

Rete: Googlenet.

Dataset: ORIGA-light (168 glaucoma / 480 normali)

Split: 0.8 training / 0.2 validation (640 elementi)

Augmentation:

```
null
```

Options:

```
'MiniBatchSize',10 , ...
'MaxEpochs',6, ...
'InitialLearnRate',3e-4, ...
'Shuffle','every-epoch', ...
'ValidationData',testAug, ...
'ValidationFrequency',*valFrequency, ...
'Verbose',false, ...
'Plots','training-progress'
```

Accuracy: 0.7344 Test:

Glaucoma
Im0643_g_ORIGA 0.0431 0.9569
Im0644_g_ORIGA 0.1217 0.8783
Im0645_g_ORIGA 0.4013 0.5987
Im0646_g_ORIGA 0.0823 0.9177
Im0647_g_ORIGA 0.1193 0.8807

Normali
Im0478_ORIGA 0.2622 0.7378 T
Im0479_ORIGA 0.0306 0.9694 T
Im0480_ORIGA 0.1469 0.8531 T
Im0481_ORIGA 0.2366 0.7634 T
Im0482_ORIGA 0.0315 0.9685 T

Note:

- Link dataset - https://www.researchgate.net/publication/49626932_ORIGA-light_An_Online_Retinal_Fundus_Image_Database_for_Glaucoma_Analysis_and_Research