

Full run with augmentations 13.05.2021

Valters results from his first full run without augmentations:

- Test Best IoU: 0.776
- Test Background: 0.98
- Test Miza IoU: 0.82
- Test Zars IoU: 0.55

Run contained following parameters:

1. Model type:
 - Pre-trained deeplabv3_resnet50
 - Pre-trained fcn_resnet50
 - Valters Unet3+
- ∴ 2. Learning rate:
 - 0.01
 - 0.001

Abiem pre-trained modeliem `args.replace_head False`

Augmentations parameters (probability that it would be applied, where 0 is min, 1 is max):

- rotation - 0.3
- brightness - 0.2
- contrast 0.3
- perspective - 0.3
- noise - 0.2
- hflip - 0.5
- vflip - 0.5

Results of first gridsearch with augmentations:

model	model_type	epochs	batch_size	learning_rate	optimizer	weight_type	rotation	brightness	contrast	perspective	noise	hflip	vflip	best_loss	best_IoU	best_f1
model_2_pretrained	fcn_resnet50	100	2	0.01	radam	sum	0.3	0.2	0.3	0.3	0.2	0.5	0.5	0.045783	0.79516	0.85167
model_2_pretrained	deeplabv3_resnet50	100	2	0.01	radam	sum	0.3	0.2	0.3	0.3	0.2	0.5	0.5	0.046297	0.785451	0.844937
model_1_unet3plus		100	2	0.01	radam	sum	0.3	0.2	0.3	0.3	0.2	0.5	0.5	0.156957	0.783094	0.838825
model_2_pretrained	deeplabv3_resnet50	100	2	0.001	radam	sum	0.3	0.2	0.3	0.3	0.2	0.5	0.5	0.038863	0.822469	0.878325
model_2_pretrained	fcn_resnet50	100	2	0.001	radam	sum	0.3	0.2	0.3	0.3	0.2	0.5	0.5	0.037722	0.81746	0.871207
model_1_unet3plus		100	2	0.001	radam	sum	0.3	0.2	0.3	0.3	0.2	0.5	0.5	0.19799	0.785665	0.840152

Learning rate 0.001 is the best in this case.

Results on each class for lr=0.001 (best value is highlighted):

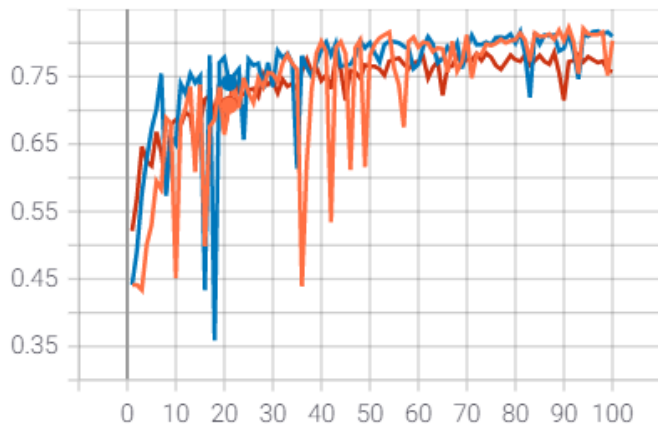
model	model_type	test best IoU	background test IoU	miza test IoU	zars test IoU
pre-trained	deeplabv3_resnet50	0.803149	0.982769	0.829312	0.59731

pre-trained	fcn_resnet50	0.809831	0.983989	0.828481	0.6170
Valters	Unet3+	0.757588	0.97988	0.756692	0.5361

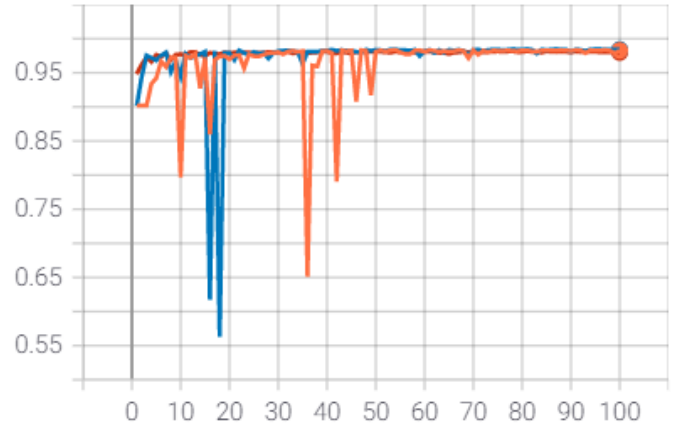
Deeplabv3_resnet50 vs fcn_resnet50 vs Unet3+

 sequence-overfit_test_2-21-05-10-15-0... 16 kB

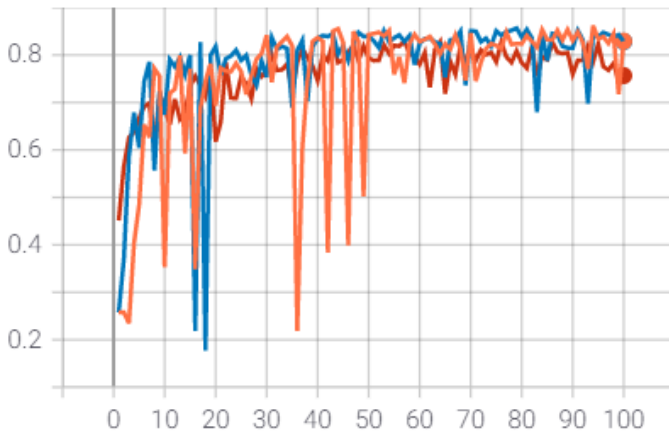
test_loU



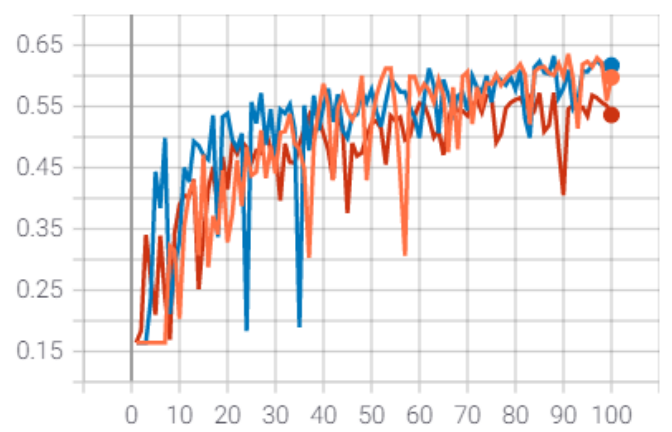
test_background_loU



test_miza_loU



test_zars_loU



Inference results on all images

Deeplab_v3 inference image link:

https://mega.nz/file/8kYy1LIb#Xi52N_GIS6kpynk7NVS6Bw7NCyM42upOZlwkD7NZnE4

Fcn_resnet50 inference image link:

https://mega.nz/file/Yw5lhYzK#S4GNyUpqie_fIOV3J8ALsJCErhw2XoRLpVDIMQAs05U

Unet3+ inference image link:

<https://mega.nz/file/F44FiYKS#UBx5BUXPEEVSHav9Prbsdj8zb7qXVOntQXpurPoD4cA>

Average results for **IoU**:

Model	IoU	IoU background	IoU miza	IoU zars
Deeplab_v3_resnet50	0.893713	0.890428	0.944326	0.846384
Fcn_resnet50	0.89628	0.894347	0.934492	0.860001
Unet3+	0.829408	0.841539	0.882701	0.763984

Average results for **box IoU**:

Model	box IoU	box IoU background	box IoU miza	box IoU zars
Deeplab_v3_resnet50	0.926376	0.990496	0.94881	0.839823
Fcn_resnet50	0.929353	0.993452	0.942412	0.852194
Unet3+	0.877211	0.994493	0.881478	0.755663

Image examples:


Image name	Deeplabv3_resnet50	Fcn_resnet50
image-VMS-2-0028-2020-12-22.png		
		

image-JAI-0107-2021-01-20-vms.png

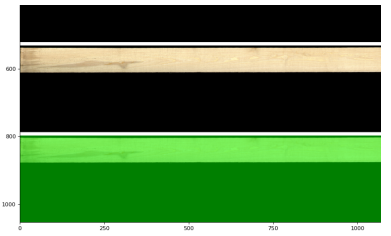
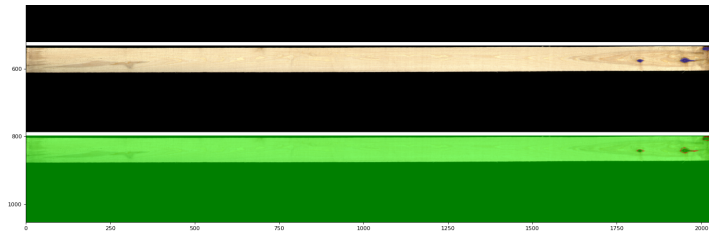


image-161787253219_6_T.png

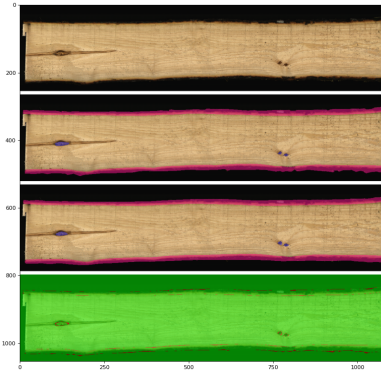
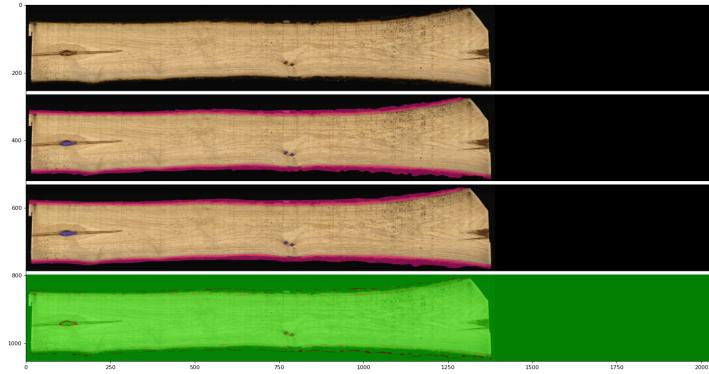


image-161788963931_5_T

