Training report for U-Net (2D) multilabel model (test_simulation__4E_TF2.8)
Date: 2023-11-10

Training time: 0.0hour(s) 0.0min(s) 13sec(s)

Information for your materials and method:

The U-Net (2D) multilabel model was trained from scratch for 4 epochs on 10 paired image patches (image dimensions: (256, 256), patch size: (256,256)) with a batch size of 4 and acategorical_crossentrop loss function, using the U-Net (2D) multilabel ZeroCostDL4Mic notebook (v 2) (von Chamier & Laine et al., 2020). Key python packages used include tensorflow (v 2.8.0), keras (v 2.8.0), numpy (v 1.23.5), cuda (v 11.8.89 Build cuda_11.8.r11.8/compiler.31833905_0). The training was accelerated using a Tesla T4 GPU.

Augmentation:

The dataset was augmented by
- rotation
- flipping
- random zoom magnification
- shifting
- image shearing

Parameters

Default Advanced Parameters were enabled

Parameter	Value
number_of_epochs	4
patch_size	256x256
batch_size	4
number_of_steps	3
percentage_validation	10
initial_learning_rate	0.0003
pooling_steps	2
min_fraction	0.02

Training Dataset

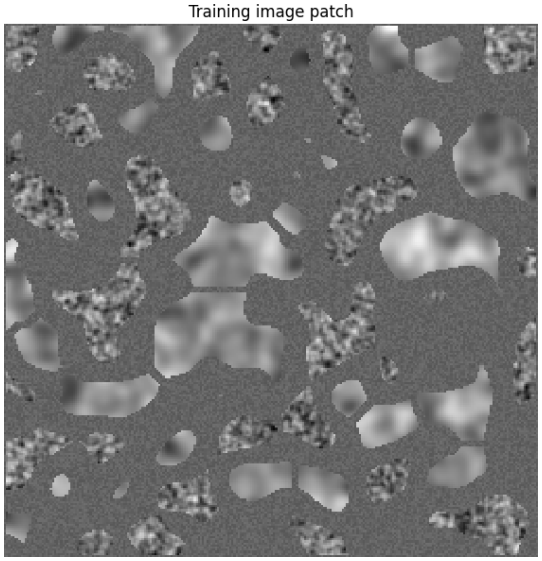
Training_source: /content/gdrive/MyDrive/Colab Notebooks/workshops/datasets/simulation-3K-10im/train/sources

Training_target: /content/gdrive/MyDrive/Colab Notebooks/workshops/datasets/simulation-3K-10im/train/labels

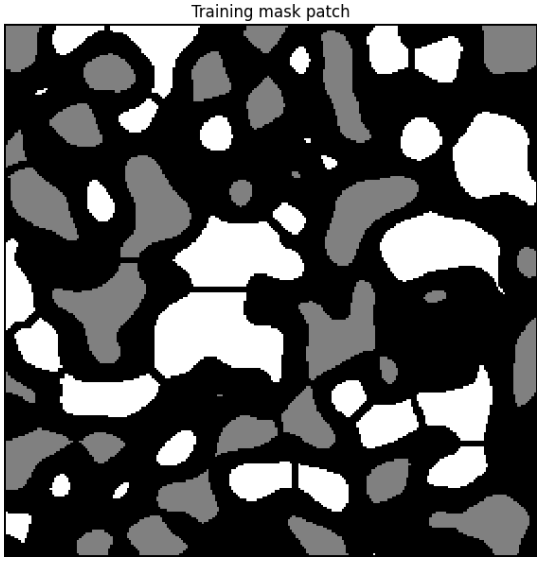
Model Path: /content/gdrive/MyDrive/Colab Notebooks/workshops/models//test_simulation__4E_TF2.8

Example Training pair

Training image patch



Training mask patch



References:

- ZeroCostDL4Mic: von Chamier, Lucas & Laine, Romain, et al. "Democratising deep learning for microscopy with ZeroCostDL4Mic." Nature Communications (2021).

- Unet: Ronneberger, Olaf, Philipp Fischer, and Thomas Brox. "U-net: Convolutional networks for biomedical image

segmentation." International Conference on Medical image computing and computer-assisted intervention. Springer, Cham, 2015.

Important:
Remember to perform the quality control step on all newly trained models
Please consider depositing your training dataset on Zenodo