Training report for CARE 2D model (20210610_test_rollingball_lowsnr)
Date: 2021-06-11
Training time: 4.0hour(s) 9.0min(s) 58sec(s)

Information for your materials and methods:

The CARE 2D model was trained from scratch for 150 epochs on 9000 paired image patches (image dimensions: (1022, 1024), patch size: (128,128)) with a batch size of 16 and a laplace loss function, using the CARE 2D ZeroCostDL4Mic notebook (v 1.12) (von Chamier & Laine et al., 2020). Key python packages used include tensorflow (v 0.1.12), Keras (v 2.3.1), csbdeep (v 0.6.2), numpy (v 1.19.5), cuda (v 11.0.221
Build cuda_11.0_bu.TC445_37.28845127_0). The training was accelerated using a Tesla P100GPU.

Augmentation: The dataset was augmented by a factor of 3 by
- rotation
- flipping
- random zoom magnification

Parameters

Default Advanced Parameters were enabled

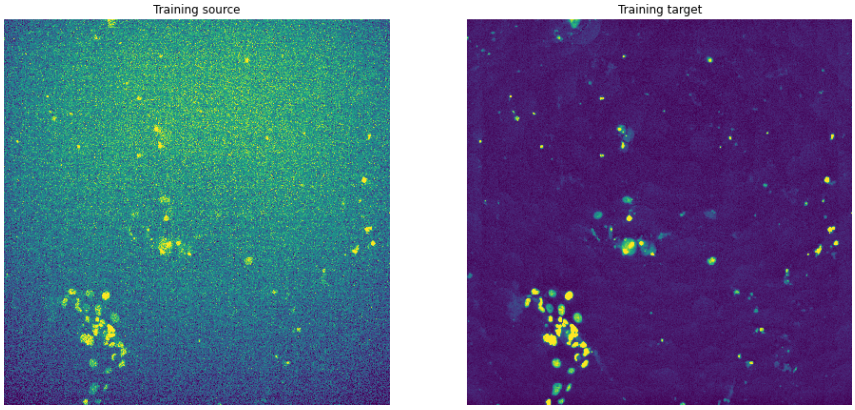
Parameter	Value
number_of_epochs	150
patch_size	128x128
number_of_patches	50
batch_size	16
number_of_steps	1519
percentage_validation	10
initial_learning_rate	0.0004

Training Dataset

Training_source: /content/gdrive/MyDrive/Denoise_20210510/training/low_snr
Training_target: /content/gdrive/MyDrive/Denoise_20210510/training/rb_gt

Model Path: /content/gdrive/MyDrive/Denoise_20210610/20210610_test_rollingball_lowsnr

Example Training pair



References:
- ZeroCostDL4Mic: von Chamier, Lucas & Laine, Romain, et al. "Democratising deep learning for microscopy with ZeroCostDL4Mic." Nature Communications (2021).
- CARE: Weigert, Martin, et al. "Content-aware image restoration: pushing the limits of fluorescence microscopy." Nature methods 15.12 (2018): 1090-1097.
- Augmentor: Bloice, Marcus D., Christof Stocker, and Andreas Holzinger. "Augmentor: an image augmentation library for machine learning." arXiv preprint arXiv:1708.04680 (2017).

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