Training report for StarDist 2D model (stardist_afm_v04)
Date: 2021-12-11
Training time: 0.0hour(s) 14.0min(s) 56sec(s)

Information for your materials and method:

The StarDist 2D model was trained for 50 epochs on 60 paired image patches (image dimensions: (512, 512), patch size: (512,512)) with a batch size of 4 and a mae loss function, using the StarDist 2D ZeroCostDL4Mic notebook (v 1) (von Chamier & Laine et al., 2020). The model was retrained from a pretrained model. Key python packages used include tensorflow (v 0.1.12), Keras (v 2.3.1), csbdeep (v 0.6.3), numpy (v 1.19.5), cuda (v 11.1.105 Build cuda_11.1.TC455_06.29190527_0). The training was accelerated using a Tesla K80 GPU.

Augmentation: The dataset was augmented by a factor of 2

Parameters

The following parameters were used for training:

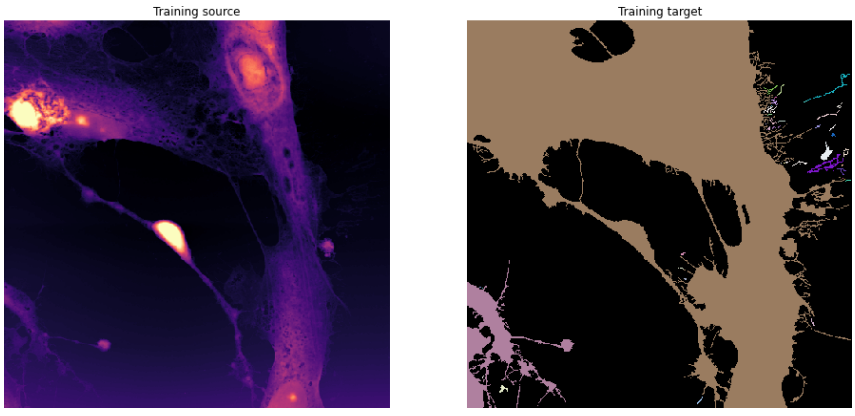
Parameter	Value
number_of_epochs	50
patch_size	512x512
batch_size	4
number_of_steps	10
percentage_validation	20
n_rays	32
grid_parameter	2
initial_learning_rate	0.0003

Training Dataset

Training_source: /content/gdrive/MyDrive/Colab Notebooks Testing/stardist_afm/train/afmheight
Training_target: /content/gdrive/MyDrive/Colab Notebooks Testing/stardist_afm/train/label

Model Path: /content/gdrive/MyDrive/Colab Notebooks Testing/stardist_afm/Models/stardist_afm_v04

Example Training pair



References:
- ZeroCostDL4Mic: von Chamier, Lucas & Laine, Romain, et al. "Democratising deep learning for microscopy with ZeroCostDL4Mic." Nature Communications (2021).
- StarDist 2D: Schmidt, Uwe, et al. "Cell detection with star-convex polygons." International Conference on Medical Image Computing and Computer-Assisted Intervention. Springer, Cham, 2018.
- 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