

Training report for StarDist 2D model (2024-05-16-v013)
Date: 2024-05-17

Training time: 0.0hour(s) 13.0min(s) 5sec(s)

Information for your materials and method:

The StarDist 2D model was trained from scratch for 400 epochs on 137 paired image patches (image dimensions: (128, 128), patch size: (128,128)) with a batch size of 8 and a mae loss function, using the StarDist 2D ZeroCostDL4Mic notebook (v 1.19.1) (von Chamier & Laine et al., 2021). Key python packages used include tensorflow (v https://storage.googleapis.com/colab-tf-builds-public-09h6ksrfwbb9g9xv/tensorflow-2.15.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl#sha256=a2ec79931350b378c1ef300ca836b52a55751acb71a433582508a07f0de57c42), csbdeep (v 0.8.0), cuda (v 12.2.140 Build cuda_12.2.r12.2/compiler.33191640_0). The training was accelerated using a Tesla T4 GPU.

Augmentation: The dataset was augmented by a factor of 10

Parameters

The following parameters were used for training:

Parameter	Value
number_of_epochs	400
patch_size	128x128
batch_size	8
number_of_steps	50
percentage_validation	10
n_rays	32
grid_parameter	2
initial_learning_rate	0.0001

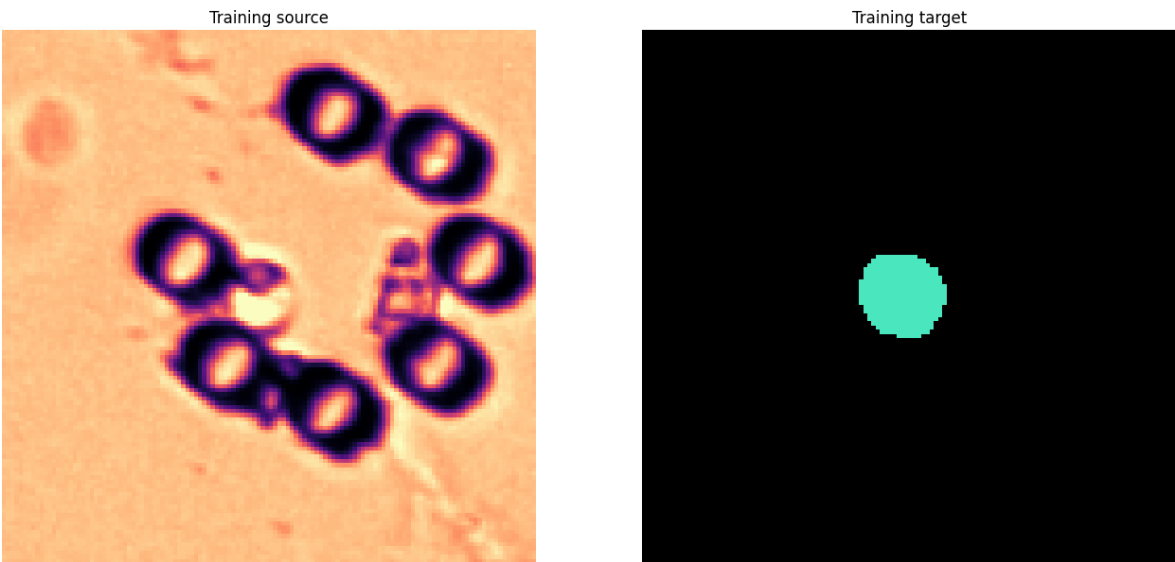
Training Dataset

Training_source: /content/gdrive/MyDrive/10. Work/01. CNRS/eadissect/input-eadissect/inputs

Training_target: /content/gdrive/MyDrive/10. Work/01. CNRS/eadissect/input-eadissect/labels

Model Path: /content/gdrive/MyDrive/10. Work/01. CNRS/eadissect/models/2024-05-16-v013

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