

## Training report for StarDist 2D model (stardist\_em\_v04)

**Date:** 2021-12-10

**Training time:** 0.0hour(s) 31.0min(s) 13sec(s)

### Information for your materials and method:

The StarDist 2D model was trained for 30 epochs on 24 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 3

### Parameters

The following parameters were used for training:

| Parameter             | Value   |
|-----------------------|---------|
| number_of_epochs      | 30      |
| patch_size            | 512x512 |
| batch_size            | 4       |
| number_of_steps       | 30      |
| percentage_validation | 12      |
| n_rays                | 32      |
| grid_parameter        | 2       |
| initial_learning_rate | 0.0003  |

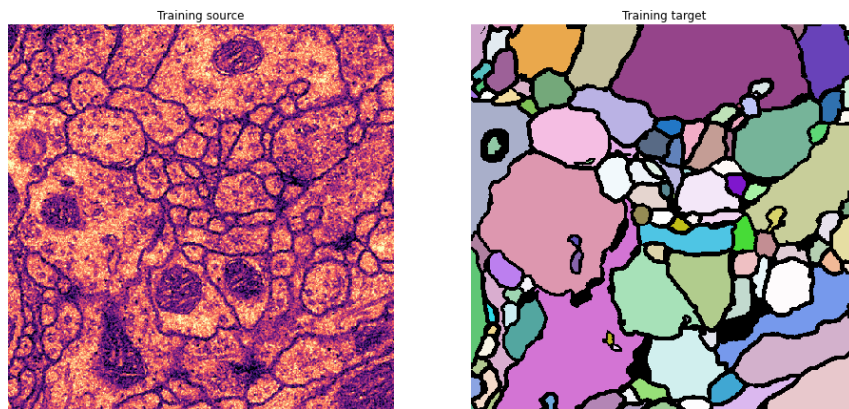
### Training Dataset

**Training\_source:** /content/gdrive/MyDrive/Colab Notebooks Testing/stardist\_em/train/image

**Training\_target:** /content/gdrive/MyDrive/Colab Notebooks Testing/stardist\_em/train/label

**Model Path:** /content/gdrive/MyDrive/Colab Notebooks Testing/stardist\_em/Models/stardist\_em\_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**