

Training report for StarDist 2D model (Yeast_Detection_v2.2)

Date: 2022-05-17

Training time: 0.0hour(s) 28.0min(s) 31sec(s)

Information for your materials and method:

The StarDist 2D model was trained for 100 epochs on 9 paired image patches (image dimensions: (1095, 954), patch size: (256,256)) 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 1.21.6), 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	100
patch_size	256x256
batch_size	4
number_of_steps	40
percentage_validation	10
n_rays	32
grid_parameter	2
initial_learning_rate	0.0003

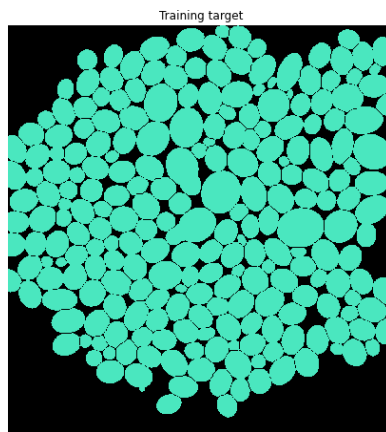
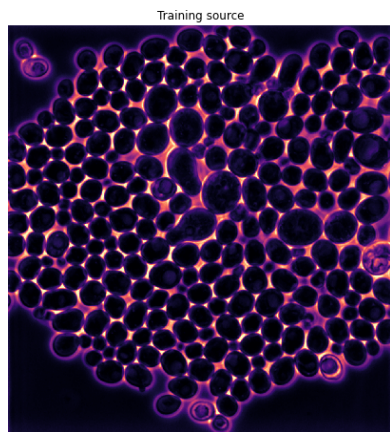
Training Dataset

Training_source: /content/gdrive/MyDrive/Fiji Models/Training_Pictures_v2.2/Pictures

Training_target: /content/gdrive/MyDrive/Fiji Models/Training_Pictures_v2.2/Masks

Model Path: /content/gdrive/MyDrive/Fiji Models/Models/Yeast_Detection_v2.2

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