Coding deep learning sequences and tooling for bioimages

Bio image analysis is rapidly migrating towards deep learning and away from traditional computer vision based techniques. Such techniques include cell detection, segmentation, image restoration, cell classification to name a few. We developed a 3D segmentation tool called VollSeg fusing deep learning with traditional computer vision approaches to segment membrane labelled cells in low SNR conditions. VollSeg can reliably segment cells outperforming existing tools such as U-Net and Stardist as shown in Fig. below. Besides segmentation we also developed a tool called ONEAT to predict cellular events such as division and apoptosis. ONEAT networks treat the cellular events as action classification and cell type detection as object classification. In my talk I will detail the procedure from training data creation, algorithms underlying the jupyter notebooks that run on and for your data.

NIS.AI software: A Deep Learning toolbox for image processing

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