2019 International Joint Conference on Neural Networks

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Title: Combining convolutional side-outputs for road image segmentation
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Preferred form of presentation: Any

Abstract:
Image segmentation consists in creating partitions within an image into meaningful areas and objects. It can be use in scene understanding and recognition, in fields like biology, medicine, robotics, satellite imaging, amongst others. In this work it is proposed to explore the learned model in a deep architecture, extracting side-outputs at different layers of the network for the task of image segmentation. It is proposed to study the impact of the amount of side-outputs and evaluate strategies to combine them. It is also proposed the use of a post-processing filtering based on mathematical morphology idempotent functions in order to remove some undesirable noises. Experiments were performed in the public available KITTI Road Dataset for image segmentation. Our comparison shows that the use of multiples side outputs can increase the overall performance of the network, make it easy to train and more stable when compared with a single output in the end of the network. Also, for a small number of training epochs (500) we achieved performance just 5% below to the best algorithm in Kitti Evaluation Server.

Paper Topics:
1a. Feedforward neural networks
2e. Deep learning
8a. Applications of deep networks

Student Paper: No

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Thank you for your submission.

Sincerely,
Chrisina Jayne and Zoltan Somogyvari, General Co-Chairs of IJCNN2019

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