

Semantic image segmentation

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- Semantic image segmentation via CNN
- U-net architecture
- CityScapes dataset



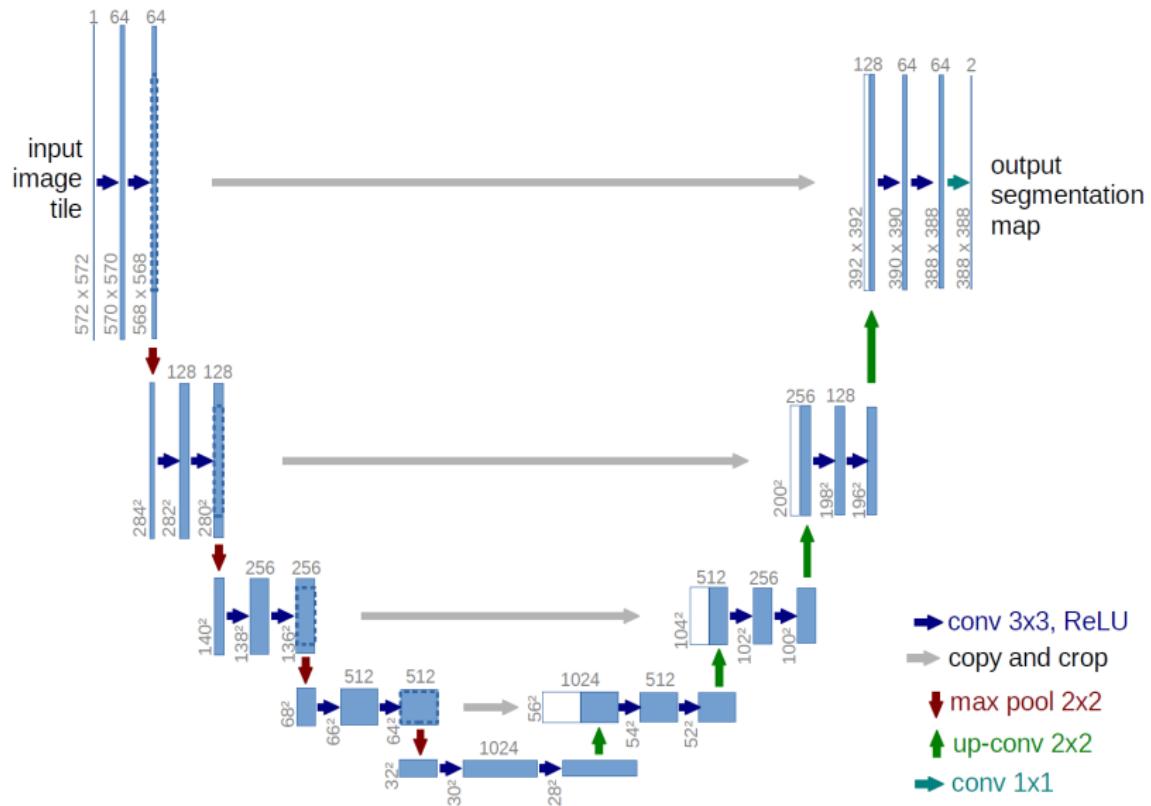
CityScapes dataset:

- 30 classes reduced to 7
- 5 000 annotated images with fine annotations
- images reduced from 2048x1024 to 256x128

Index	Category
1	Road
2	Nature
3	Object
4	Sky
5	Building
6	Person
7	Vehicle

Table: Segmentation categories

- Crop
- Mirroring
- Color transformation
- Saturation
- Contrast
- Gamma correction
- Elastic transformation



- dice similarity coefficient
- 200 epoch
- Optimizer Adam
- Learning rate 0.01, 0.001 and 0.0002

Model	Overall	1	2	3	4	5	6	7
U-Net	80.5%	97.2%	86.3%	51.1%	91.7%	85%	66%	86.1%
AttU-Net	80.5%	97.3%	86.2%	51%	91.8%	84.7%	66.5%	85.8%
NestedU-Net	78.2%	97%	84.2%	45.5%	91.6%	82.9%	62.1%	83.9%
R2U-Net	61.7%	91.9%	74.2%	35.5%	81.8%	68%	40.8%	39.4%
Attr2U-Net	50.4%	72%	73.4%	21.4%	51.2%	51.5%	26.3%	56.9%
Benchmarks for official models from CityScapes dataset								
U-Net++	75.5%	-	-	-	-	-	-	-
Ghost-UNet	74%	-	-	-	-	-	-	-
SAIT SeeThroughNet	93.2%	98.9%	94.3%	81.1%	96.2%	95%	90.1%	96.7%

Table: IoU scores for each category and model



Thank You For Your Attention !

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