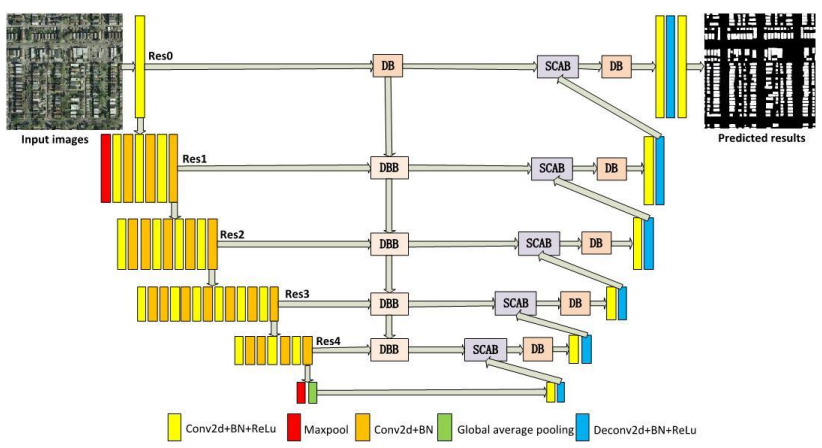




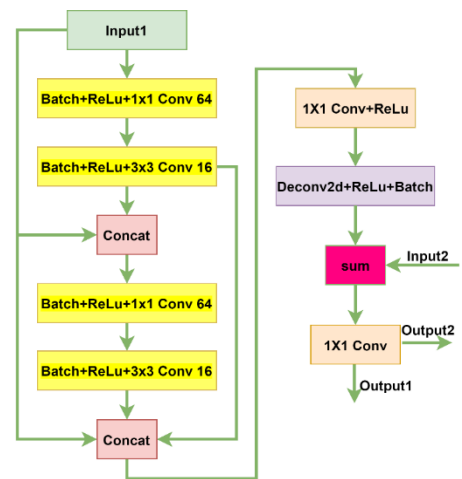
### Contributions

- a so-called Context Transfer U-Net (CT-UNet) for Building segmentation in remote sensing images.
- The proposed Dense Boundary Block (DBB) running through the entire network to solve fuzzy boundary problem and reuse features.
- We construct Spatial Channel Attention Block(SCAB) to handle the problem of intra-class inconsistency.
- we propose a novel loss function to enhance the purpose of loss by adding evaluation indicator.

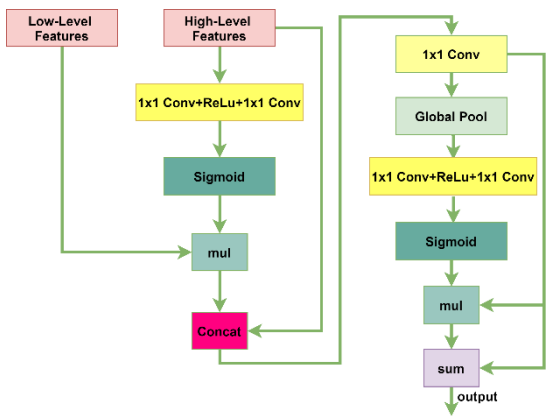
### CT-UNet



### Dense Boundary Block(DBB)



### Spatial Channel Attention Block(SCAB)



### Binary Sigmoid Entropy Loss

$$H = -\frac{1}{n} \sum_{i=1}^n (y_i \log \hat{y}_i + (1 - y_i) \log (1 - \hat{y}_i))$$

### Total Loss

$$L = (1 - W) \times H - W \times \log IoU$$

### Result on Inria Dataset

Method	Metric	Austin	Chicago	Kitsap	West Tyrol	Vienna	Overall
SegNet(Multi-Task Loss)	IoU	72.43	77.68	72.28	64.34	76.15	74.49
	Acc.	95.71	95.60	95.81	98.76	94.48	96.07
2-levels U-Nets	IoU	77.29	68.52	72.84	75.38	78.72	74.55
	Acc.	96.69	92.40	99.25	98.11	93.79	96.05
U-Net ResNet-34(baseline)	IoU	-	-	-	-	-	81.57
	Acc.	-	-	-	-	-	-
CT-UNet(Proposed)	IoU	87.62	82.87	85.28	84.14	86.73	85.33
	Acc.	97.28	97.31	96.73	97.96	96.23	97.10

### Result on WHU Dataset

Method	Acc.(%)	Mean IoU(%)
SegNet	98.12	84.47
U-Net	98.45	86.80
Unet++	98.48	87.30
Web-Net	98.54	88.76
CT-UNet(Proposed)	98.80	91.00