Appendix

A. Semantic segmentation results on single classes

In this section, we provide complete IoU result of the model on each land-cover class, for the semantic segmentation task and two transfer learning tasks in experiments.

A.1. IoU on each land-cover class in the single-domain satellite image semantic segmentation task

Class	UNet		DeepLabV3+	
	Rural	Urban	Rural	Urban
Background	0.6044	0.5843	0.6126	0.5912
Building	0.6678	0.6188	0.5965	0.5912
Road	0.5297	0.5937	0.5341	0.6021
Water	0.7501	0.7801	0.7453	0.7711
Barren	0.4526	0.4742	0.4732	0.4729
Forest	0.7345	0.4859	0.7356	0.5049
Agriculture	0.7324	0.6291	0.7194	0.6411

Table 5. Intersection over Union (IoU) of network UNet and DeepLabv3 on land-cover classes on testing images from rural districts and urban districts.

A.2. IoU on each land-cover class in the across-districts transfer learning task

Class	Rural		Urban	
	Source	Target	Source	Target
Background	0.4981	0.5517	0.6324	0.3898
Building	0.4774	0.4536	0.5392	0.5760
Road	0.4445	0.2440	0.5749	0.5596
Water	0.7022	0.6105	0.7217	0.6835
Barren	0.4674	0.1352	0.4761	0.2437
Forest	0.7503	0.0609	0.4876	0.5175
Agriculture	0.7607	0.4907	0.4767	0.4305

Table 6. Intersection over Union (IoU) of network DeepLabv3, using **No adaptation**, on each land-cover class on testing images from source domain and target domain when transferring model across geographical locations, evaluated on rural districts and urban districts, seperately.

Class	Rural		Urban	
	Source	Target	Source	Target
Background	0.4794	0.5823	0.6397	0.4339
Building	0.4687	0.4042	0.5055	0.5741
Road	0.4504	0.2593	0.5846	0.5484
Water	0.7004	0.6313	0.7703	0.7188
Barren	0.4775	0.1713	0.4867	0.3620
Forest	0.7453	0.01723	0.4333	0.4858
Agriculture	0.7449	0.5509	0.5340	0.5406

Table 7. Intersection over Union (IoU) of network DeepLabv3, using UDA method **CBST**, on each land-cover class on testing images from source domain and target domain when transferring model across geographical locations, evaluated on rural districts and urban districts, seperately.

Class	Rural		Urban	
	Source	Target	Source	Target
Background	0.4767	0.5850	0.6417	0.4218
Building	0.5004	0.4930	0.4766	0.5702
Road	0.4353	0.2340	0.5545	0.5280
Water	0.6939	0.6107	0.7657	0.7101
Barren	0.4627	0.1240	0.4878	0.2319
Forest	0.7505	0.0304	0.4580	0.4778
Agriculture	0.7514	0.5556	0.5247	0.5138

Table 8. Intersection over Union (IoU) of network DeepLabv3, using UDA method **IAST**, on each land-cover class on testing images from source domain and target domain when transferring model across geographical locations, evaluated on rural districts and urban districts, seperately.

A.3. IoU on each land-cover class in the crossing rural-urban transfer learning task

Class	Rural → Urban		Urban → Rural	
	Source	Target	Source	Target
Background	0.6172	0.4681	0.5976	0.4989
Building	0.5868	0.4220	0.5639	0.4153
Road	0.4499	0.4082	0.5793	0.3148
Water	0.7199	0.6643	0.7454	0.4634
Barren	0.4566	0.3008	0.5175	0.2264
Forest	0.7066	0.3431	0.4752	0.5337
Agriculture	0.7495	0.4491	0.6366	0.5277

Table 9. Intersection over Union (IoU) of network DeepLabv3, using **No adaptation**, on each land-cover class on testing images from source domain and target domain when transferring model Rural → Urban and Urban → Rural.

Class	Rural → Urban		Urban → Rural	
	Source	Target	Source	Target
Background	0.5968	0.5085	0.5618	0.5130
Building	0.6126	0.4324	0.5963	0.4605
Road	0.4585	0.4424	0.5692	0.3380
Water	0.7190	0.7193	0.7611	0.5301
Barren	0.4793	0.3381	0.4613	0.2281
Forest	0.6890	0.3260	0.4239	0.6339
Agriculture	0.7109	0.5152	0.6315	0.5646

Table 10. Intersection over Union (IoU) of network DeepLabv3, using UDA method **CBST**, on each land-cover class on testing images from source domain and target domain when transferring model Rural → Urban and Urban → Rural.

Class	Rural → Urban		Urban → Rural	
	Source	Target	Source	Target
Background	0.5968	0.5085	0.5618	0.5130
Building	0.6126	0.4324	0.5963	0.4605
Road	0.4585	0.4424	0.5692	0.3380
Water	0.7190	0.7193	0.7611	0.5301
Barren	0.4793	0.3381	0.4613	0.2281
Forest	0.6890	0.3260	0.4239	0.6339
Agriculture	0.7109	0.5152	0.6315	0.5646

Table 11. Intersection over Union (IoU) of network DeepLabv3, using UDA method **IAST**, on each land-cover class on testing images from source domain and target domain when transferring model Rural → Urban and Urban → Rural.