

# USTNet: Unsupervised Shape-to-Shape Translation via Disentangled Representations Supplementary Material

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## 1. Additional results

In this section, we provide additional shape-to-shape translation results generated by USTNet and USTNet-M.

We provide additional Shape-to-Shape translation results:

Figure 1 - *armchair* ↔ *straight chair*.

Figure 2 - *jet* ↔ *fighter*.

Figure 3 - *tall tables* ↔ *short tables*.

Figure 4 - *Dogs* ↔ *Hippos*.

Figure 5 - *Dogs* ↔ *Horses*.

Figure 6 - *Horses* ↔ *Hippos*.

Figure 7 - *Dogs* ↔ *Cows*.

Figure 8 - *Cows* ↔ *Hippos*.

Figure 9 - *Cows* ↔ *Horses*.


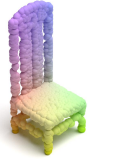

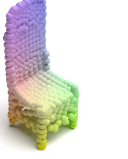
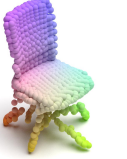
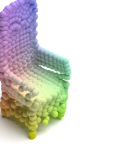
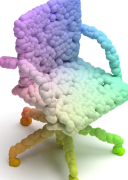
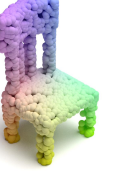
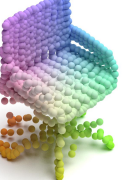

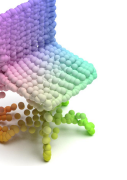
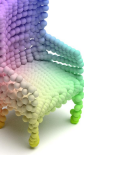
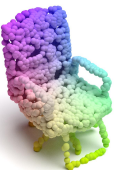
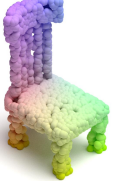
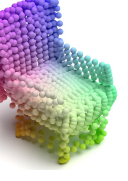

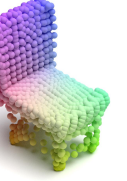
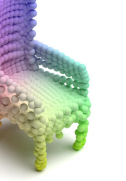
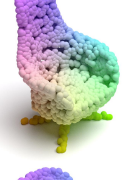

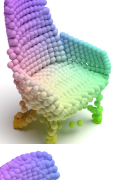

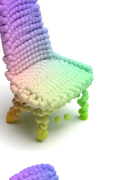
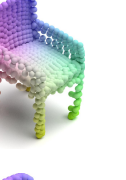


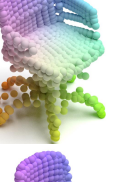

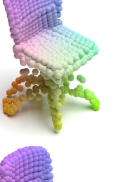
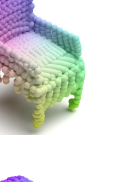

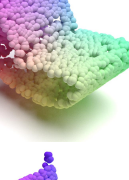
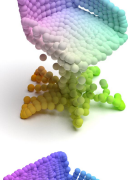
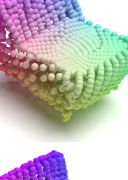
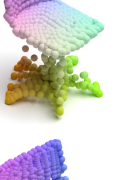
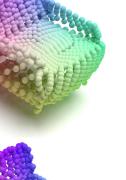
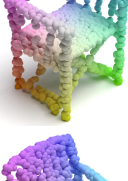
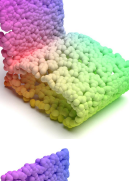
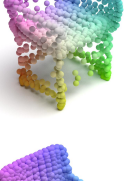
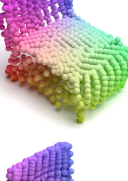
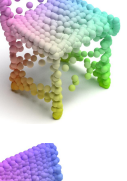
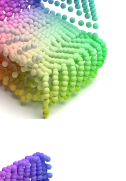
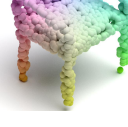
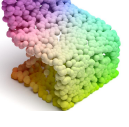
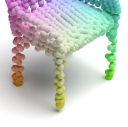
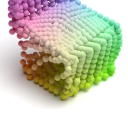
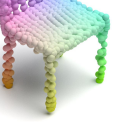
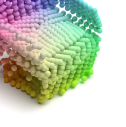
		Reconstruction		Translation	
Armchair (A)	Straight Chair (S)	A $\rightarrow$ A	S $\rightarrow$ S	A $\rightarrow$ S	S $\rightarrow$ A
					
					
					
					
					
					
					
					

Figure 1: Results obtained by USTNet on armchair  $\leftrightarrow$  straight chair.

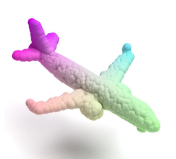
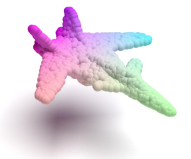
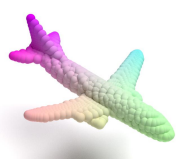
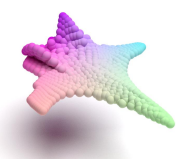
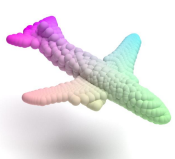
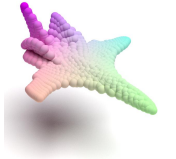
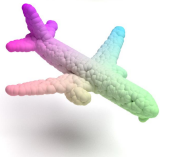
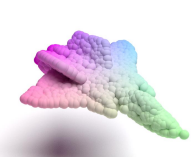
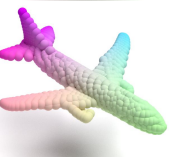
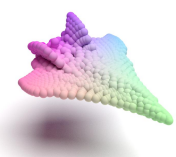
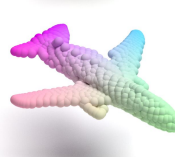
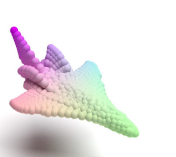
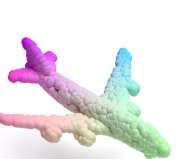
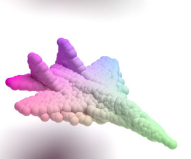
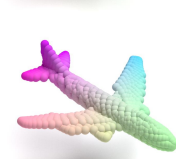
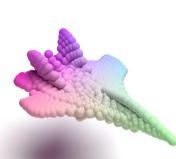
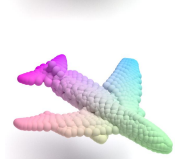
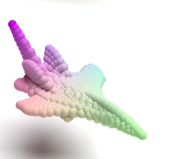
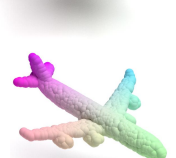
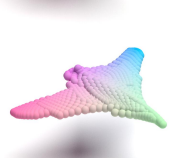
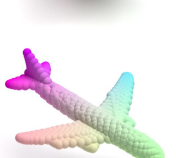
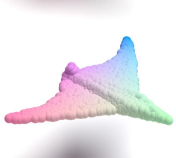
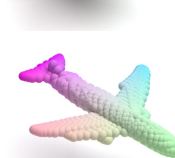
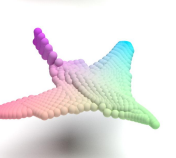
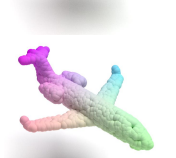
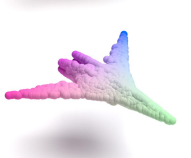
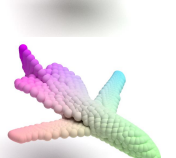
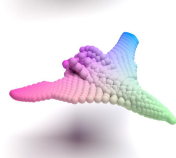
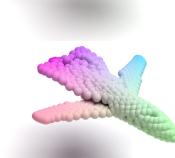
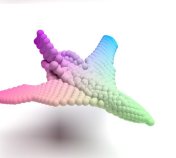

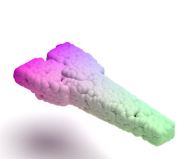

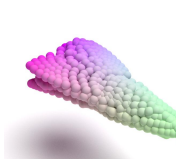
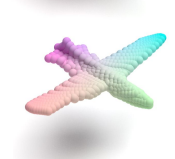
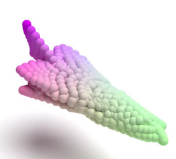

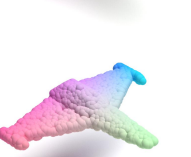
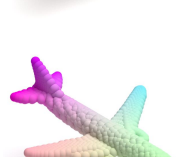
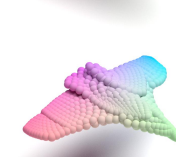
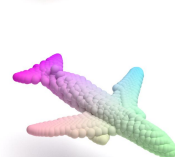
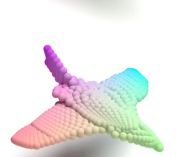
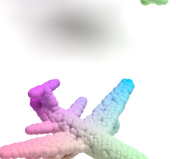
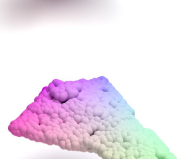
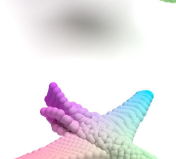
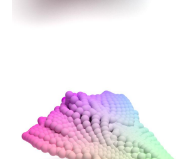
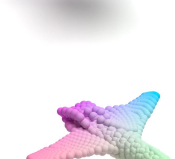

		Reconstruction		Translation	
Jet (J)	Fighter (F)	J → J	F → F	J → F	F → J
					
					
					
					
					
					
					
					

Figure 2: Results obtained by USTNet on jet ↔ fighter.


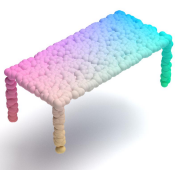

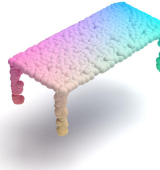
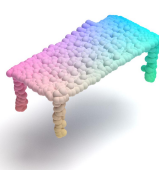
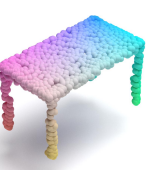

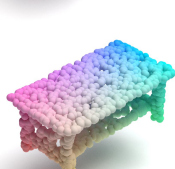

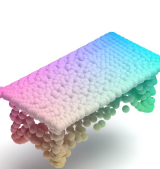

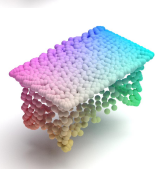
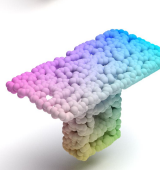

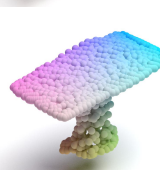
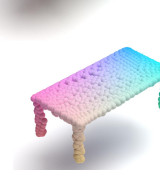
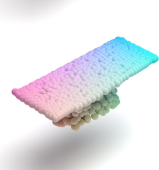
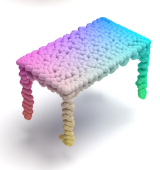
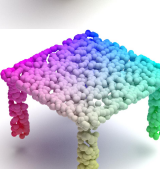
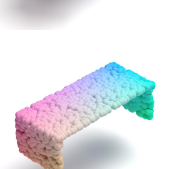
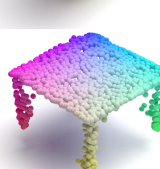

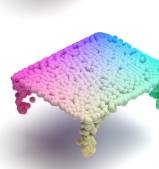
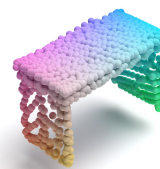
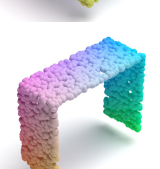

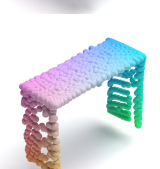
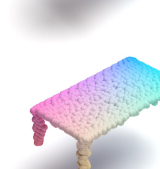

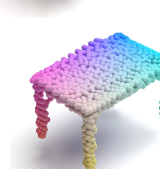


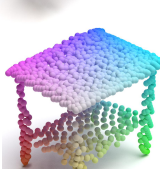

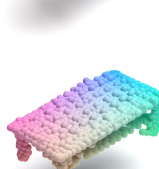

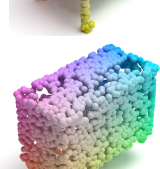

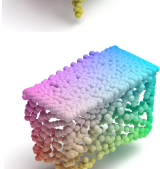

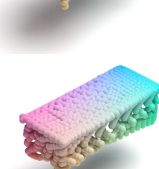
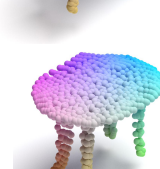
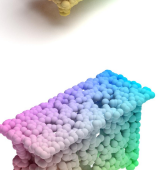
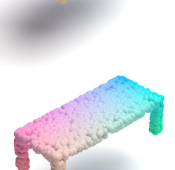
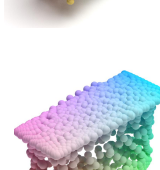

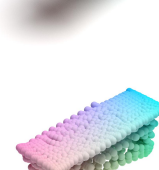

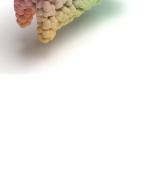
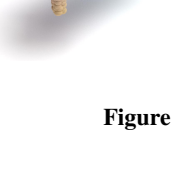
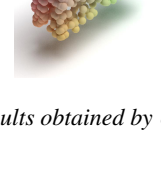

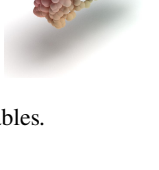
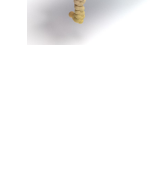
		Reconstruction		Translation	
Tall Table (T)	Short Table (S)	T → T	S → S	T → S	S → T
					
					
					
					
					
					
					
					
					

Figure 3: Results obtained by USTNet on tall tables ↔ short tables.



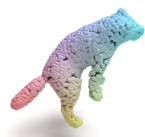


















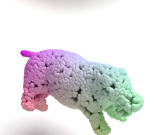


		Reconstruction		Translation	
Dog	Hippo	Dog → Dog	Hippo → Hippo	Dog → Hippo	Hippo → Dog
					
					
					
					

Figure 4: Results obtained by USTNet-M on Dogs ↔ Hippos.














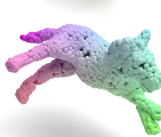

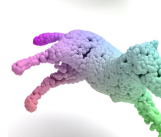

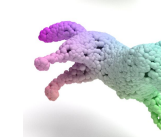






		Reconstruction		Translation	
Dog	Horse	Dog → Dog	Horse → Horse	Dog → Horse	Horse → Dog
					
					
					
					

Figure 5: Results obtained by USTNet-M on Dogs ↔ Horses.

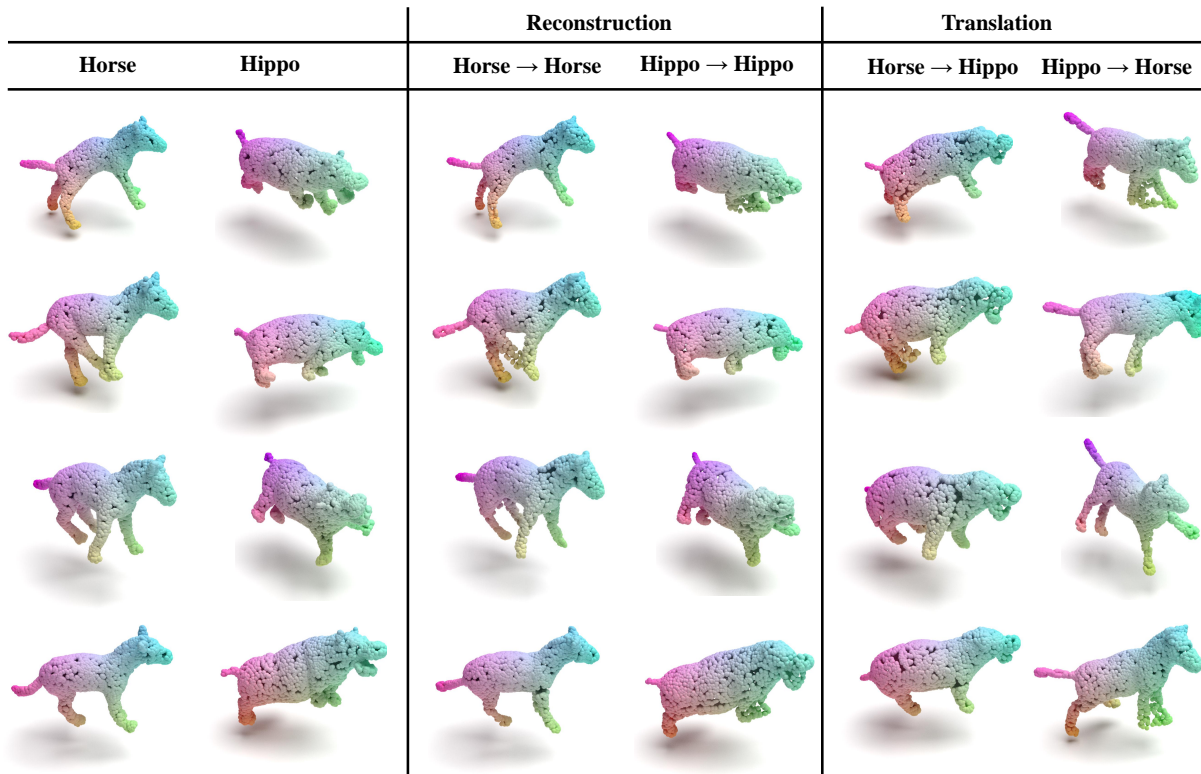


Figure 6: Results obtained by USTNet-M on Horses ↔ Hippos.

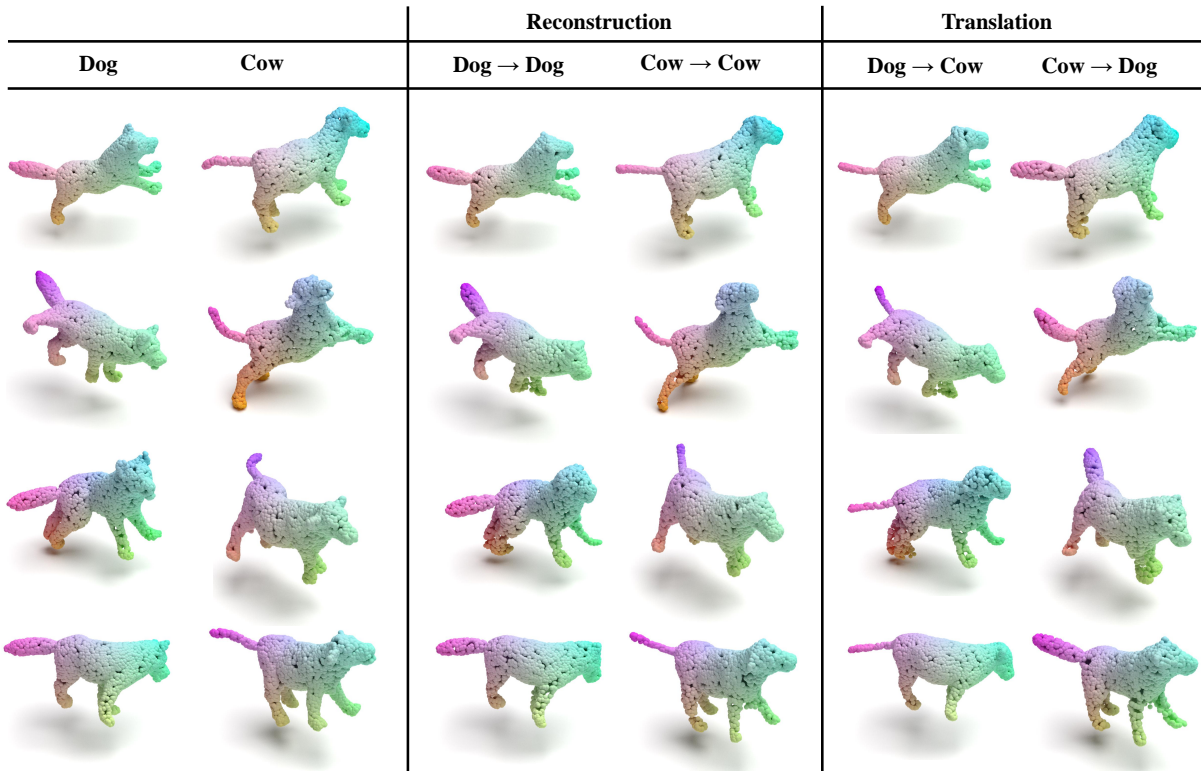


Figure 7: Results obtained by USTNet-M on Dogs ↔ Cows.





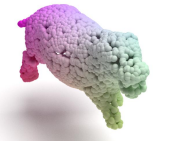











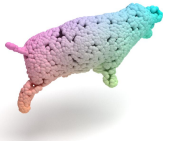




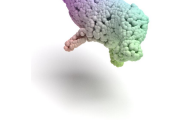


		Reconstruction		Translation	
Cow	Hippo	Cow → Cow	Hippo → Hippo	Cow → Hippo	Hippo → Cow
					
					
					
					

Figure 8: Results obtained by USTNet-M on Cows ↔ Hippos.

























		Reconstruction		Translation	
Cow	Horse	Cow → Cow	Horse → Horse	Cow → Horse	Horse → Cow
					
					
					
					

Figure 9: Results obtained by USTNet-M on Cows ↔ Horses.