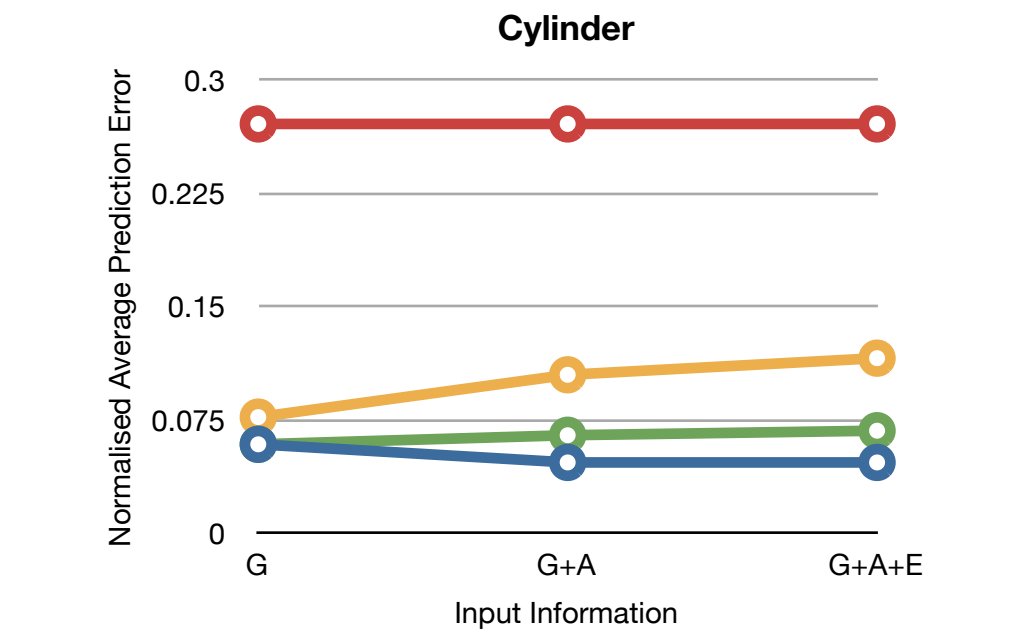
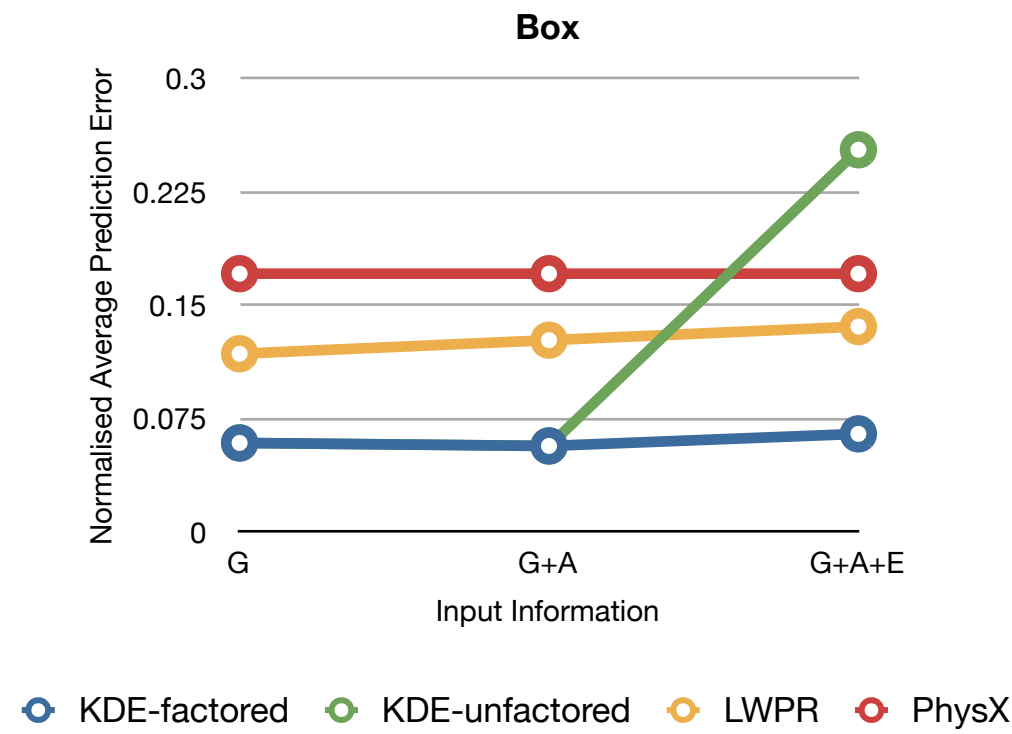
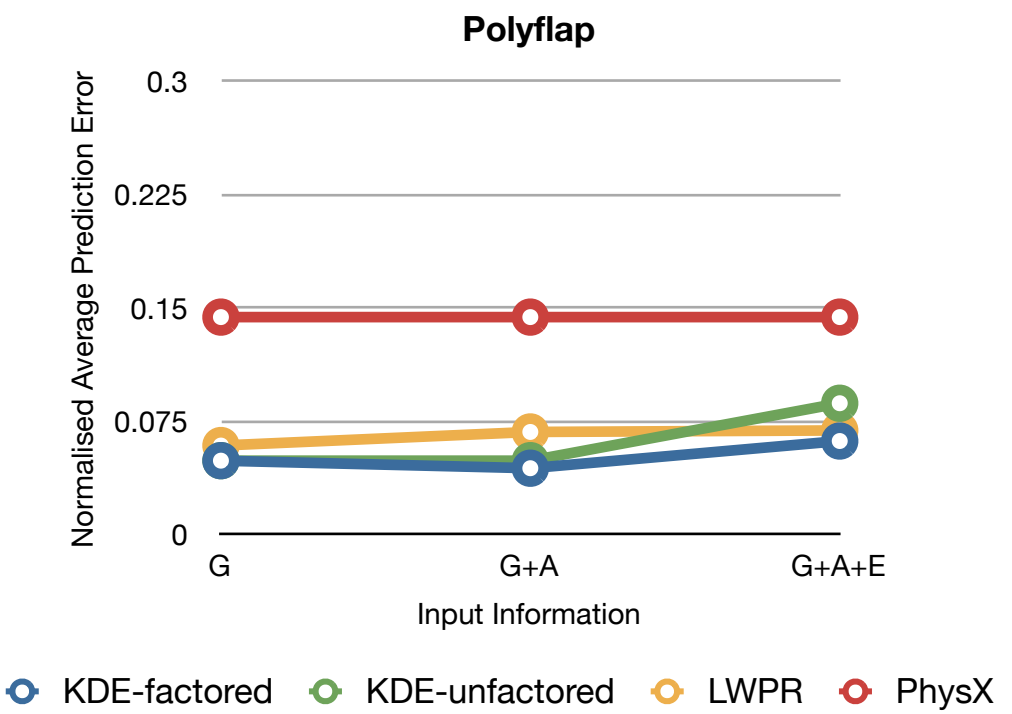
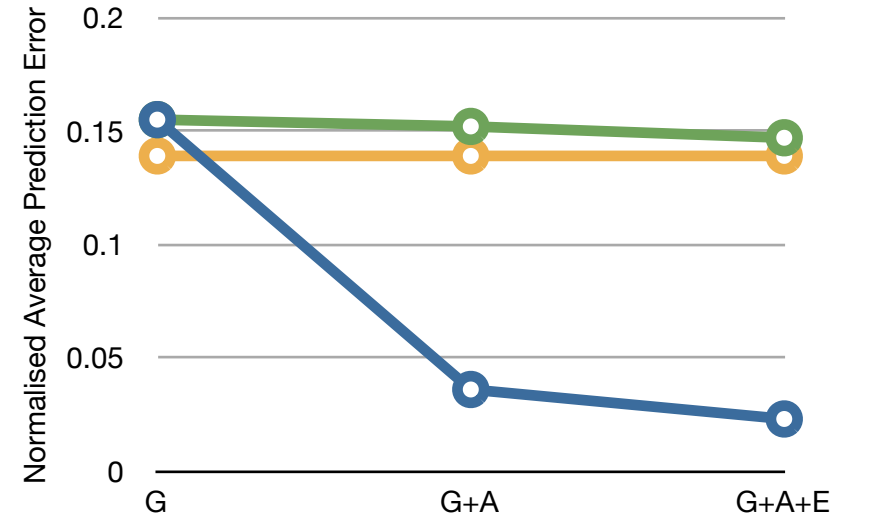


	Experiment L1	Training and Testing on a single real object			
			Polyflap		
		G	G+A	G+A+E	
	KDE-factored	0.049	0.044	0.062	
	KDE-unfactored	0.049	0.049	0.087	
	LWPR	0.059	0.068	0.069	
	PhysX	0.144	0.144	0.144	
			Box		
		G	G+A	G+A+E	
	KDE-factored	0.059	0.057	0.065	
	KDE-unfactored	0.059	0.057	0.253	
	LWPR	0.118	0.127	0.136	
	PhysX	0.171	0.171	0.171	
			Cylinder		
		G	G+A	G+A+E	
	KDE-factored	0.059	0.047	0.047	
	KDE-unfactored	0.059	0.065	0.068	
	LWPR	0.077	0.105	0.116	
	PhysX	0.271	0.271	0.271	
			Polyflap		
			7	70	700
	KDE-factored-GA	0.110	0.063	0.044	
	KDE-unfactored-GA	0.109	0.064	0.049	
	LWPR	0.125	0.124	0.068	



		Experiment A	Training and Testing on a single real object				
			Simulated Polyflap				
			G	G+A	G+A+E		
		KDE-factored	0.155	0.036	0.023		
		KDE-unfactored	0.155	0.152	0.147		
		LWPR	0.139	0.139	0.139		
				Real Polyflap			
			G	G+A	G+A+E		
		KDE-factored	0.133	0.097	0.132		
		KDE-unfactored	0.130	0.130	0.130		
		LWPR	0.133	0.133	0.140		
		PhysX	0.143	0.143	0.143		

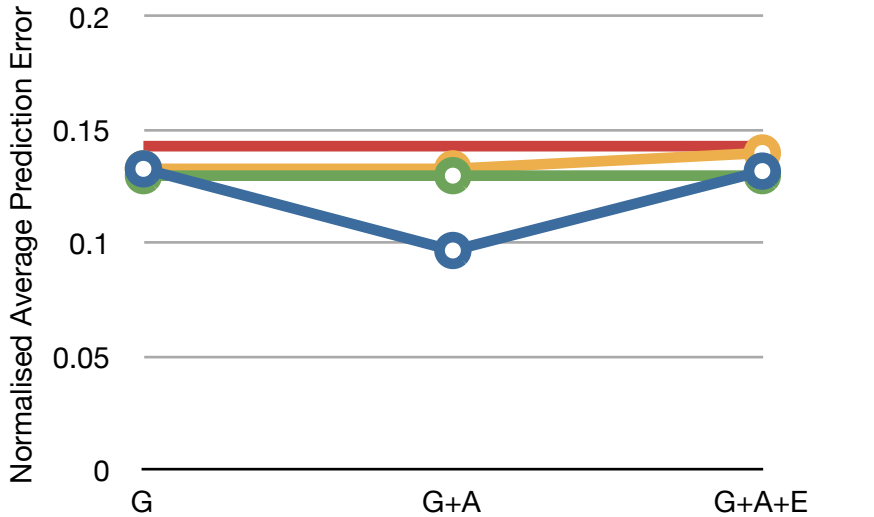
Extrapolative Action Generalisation in Simulation



Input Information

● KDE-factored ● KDE-unfactored ● LWPR

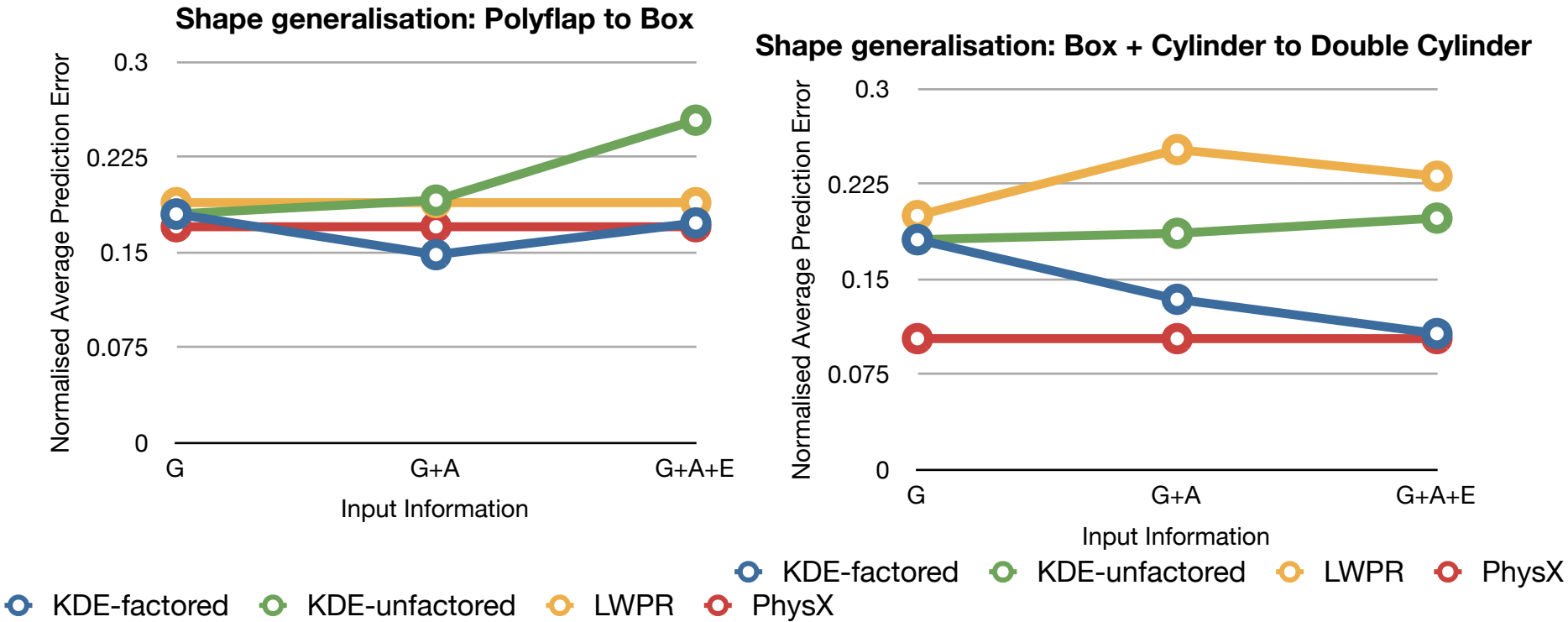
Extrapolative Action Generalisation for Real Polyflap



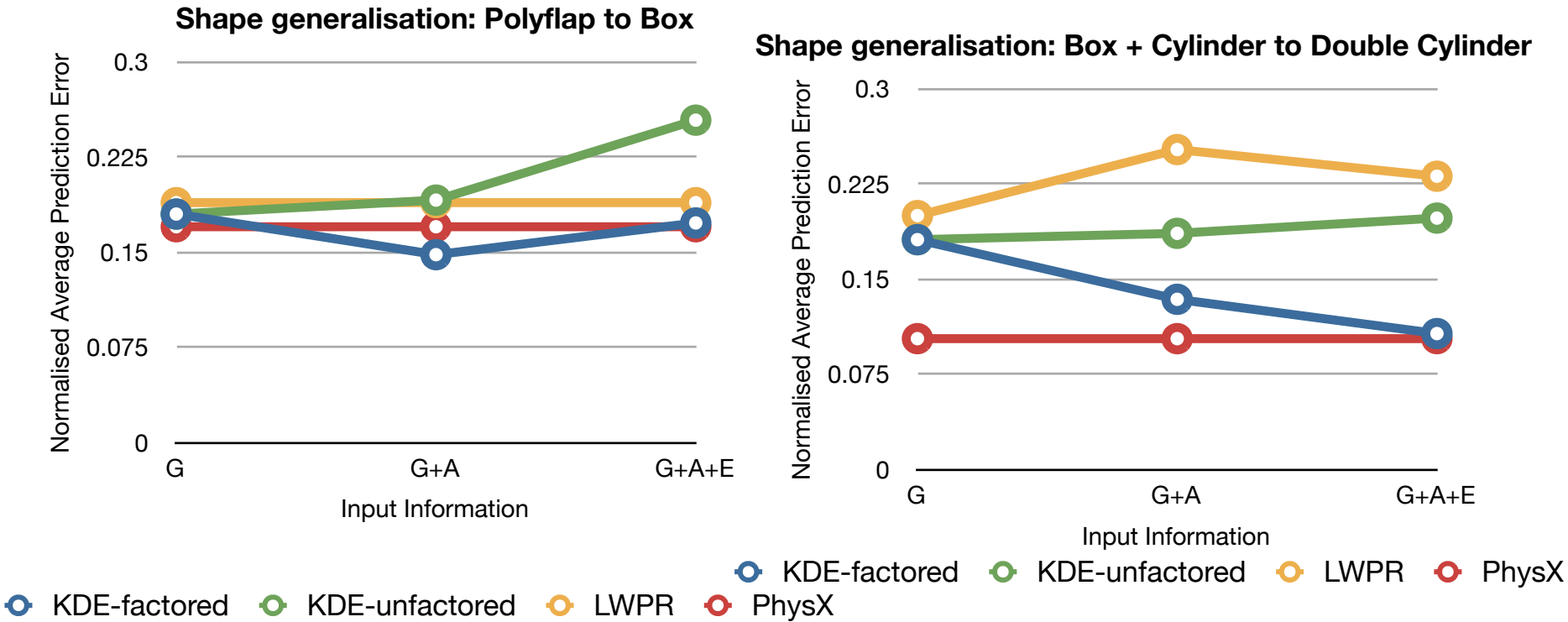
Input Information

● KDE-factored ● KDE-unfactored ● LWPR — PhysX

	Experiment S1	Extrapolative Shape Generalisation					
			Simulated Polyflap to Box				
		G	G+A	G+A+E			
	KDE-factored						
	KDE-unfactored						
	LWPR						
			Real Polyflap to Box				
		G	G+A	G+A+E			
	KDE-factored	0.180	0.148	0.173			
	KDE-unfactored	0.180	0.191	0.254			
	LWPR	0.189	0.189	0.189			
	PhysX	0.17	0.17	0.17			
	Experiment S2	Extrapolative Shape Generalisation					
			Simulated Cylinder and Box to Double Cylinder				
		G	G+A	G+A+E			
	KDE-factored	0.189	0.188	0.025			
	KDE-unfactored	0.189	0.105	0.315			
	LWPR	0.154	0.083	0.243			
			Real Cylinder and Box to Double Cylinder				
		G	G+A	G+A+E			
	KDE-factored	0.181	0.134	0.107			
	KDE-unfactored	0.181	0.186	0.198			
	LWPR	0.2	0.252	0.231			
	PhysX	0.103	0.103	0.103			



	Experiment S3	Interpolative Shape Generalisation					
		G	G+A	G+A+E			
	KDE-factored						
	KDE-unfactored						
	LWPR						
		G	G+A	G+A+E			
	KDE-factored	0.180	0.148	0.173			
	KDE-unfactored	0.180	0.191	0.254			
	LWPR	0.189	0.189	0.189			
	PhysX	0.17	0.17	0.17			
	Experiment S2	Extrapolative Shape Generalisation					
			Simulated Cylinder and Box to Double Cylinder				
		G	G+A	G+A+E			
	KDE-factored	0.189	0.188	0.025			
	KDE-unfactored	0.189	0.105	0.315			
	LWPR	0.154	0.083	0.243			
			Real Cylinder and Box to Double Cylinder				
		G	G+A	G+A+E			
	KDE-factored	0.181	0.134	0.107			
	KDE-unfactored	0.181	0.186	0.198			
	LWPR	0.2	0.252	0.231			
	PhysX	0.103	0.103	0.103			



Experiment L1					
Training and Testing on a single real object					
Polyflap					
	G	G+A	G+A+E		
KDE-factored (Q)	0.049	0.044	0.062		
KDE-factored (E)	0.055	0.054	0.083		
KDE-factored (V)	0.057	0.064	0.081		
LWPR (E)	0.059	0.068	0.069		
PhysX	0.144	0.144	0.144		
KDE-unfactored (Q)	0.049	0.049	0.087		
KDE-unfactored (E)	0.055	0.053	0.090		
KDE-unfactored (V)	0.057	0.062	0.087		
LWPR (E)	0.059	0.068	0.069		
PhysX	0.144	0.144	0.144		
Box					
	G	G+A	G+A+E		
KDE-factored (Q)	0.059	0.057	0.065		
KDE-unfactored (Q)	0.059	0.057	0.253		
LWPR (E)	0.118	0.127	0.136		
PhysX	0.171	0.171	0.171		
Cylinder					
	G	G+A	G+A+E		
KDE-factored (Q)	0.059	0.047	0.047		
KDE-unfactored (Q)	0.059	0.065	0.068		
LWPR (E)	0.077	0.105	0.116		
PhysX	0.271	0.271	0.271		

