Independent Coupling on Arch and Single Cell data

Table 1: Arch data: Wasserstein-1 distance between reconstructed marginal at time 1/2 and ground-truth. Results averaged over 5 runs.

Method	EMD ($\downarrow$)
I-CFM	0.612 ± 0.014
I-MFM$_{\text{LAND}}$	0.121 ± 0.020

Table 2: 100-dim PCA single-cell data: Wasserstein-1 distance ($\downarrow$) averaged over left-out marginals. Results averaged over 5 runs.

Method	Cite	Multi
I-CFM	48.276 ± 3.281	57.262 ± 3.855
I-MFM$_{\text{RBF}}$	45.987 ± 4.014	54.197 ± 1.408

Table 3: 5-dim PCA single-cell data: Wasserstein-1 distance ($\downarrow$) averaged over left-out marginals. Results averaged over 5 runs.

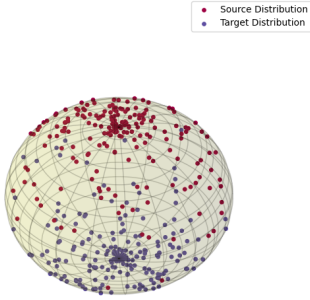| Method	Cite	EB	Multi
I-CFM	0.965 ± 0.111	0.872 ± 0.087	1.085 ± 0.099
I-MFM$_{\text{LAND}}$	0.916 ± 0.124	0.822 ± 0.042	1.053 ± 0.095

MFM on the Sphere

Figure 1: Problem Setup — Source and target distributions (Gaussians centered around poles) used for metric calculations
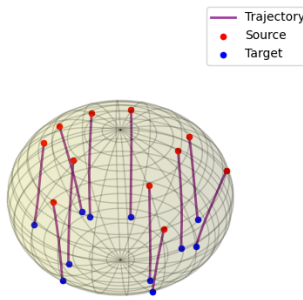

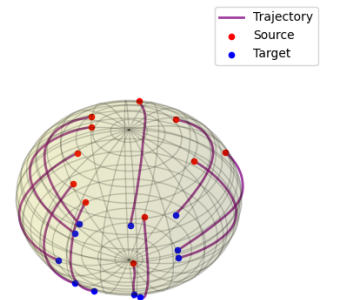Figure 2: Trajectories reconstructed by OT-CFM

Figure 3: Trajectories reconstructed by OT-MFM

Table 4: Mean Distance of reconstructed trajectories at time 1/2 from the sphere. Results averaged over 5 runs.

Method	Distance from Sphere ($\downarrow$)
OT-CFM	0.519 ± 0.002
OT-MFM$_{\text{LAND}}$	0.085 ± 0.005

Table 5: Wasserstein-1 distance between reconstructed marginal at time 1/2 and ground-truth. Results averaged over 5 runs.

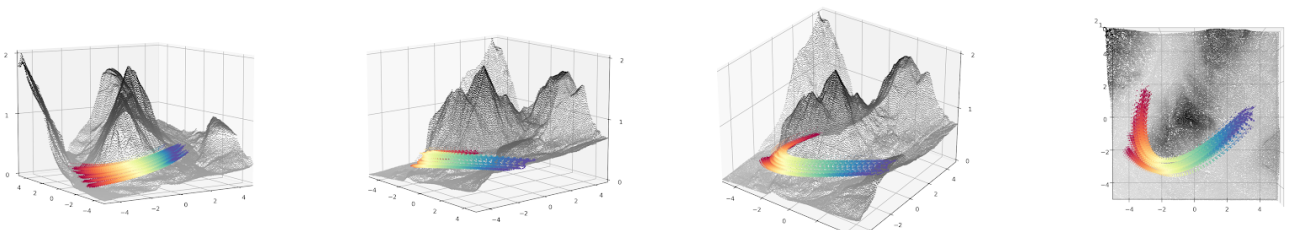| Method	EMD ($\downarrow$)
OT-CFM	0.525 ± 0.003
OT-MFM$_{\text{LAND}}$	0.340 ± 0.074

LiDAR

Figure 4: Supplementary Visualizations of MFM Interpolants on LiDAR