Supplementary Results

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1 MNIST

	O.D.	t-SNE	PCA	VAE	VAE t-SNE	CVAE	CVAE t-SNE	CBVAE	CBVAE t-SNE
ACC:									
k-Means++	0.5519	0.7652	0.5042	0.61550	0.78580	0.78750	0.93570	0.73030	0.91700
EM	0.5111	0.814	0.6208	0.68260	0.79440	0.83050	0.80650	0.89000	0.92250
Sp. Cl.	0.6188	0.4941	0.5682	0.55930	0.52000	0.77750	0.20050	0.74030	0.47760
dePDDP	0.17050	0.62260	0.17440	0.18810	0.53740	0.23170	0.88500	0.44310	0.77260
NMI:									
k-Means++	0.5020	0.77044	0.47795	0.56883	0.70871	0.72493	0.86921	0.66530	0.84125
EM	0.492349	0.78725	0.59339	0.68611	0.72051	0.78845	0.81443	0.81540	0.84967
Sp. Cl.	0.765452	0.48998	0.62879	0.64932	0.52882	0.81519	0.28662	0.77086	0.47455
dePDDP	0.14459	0.72252	0.14605	0.22287	0.43867	0.27433	0.80134	0.50494	0.75964
ARI:									
k-Means++	0.38356	0.68801	0.34960	0.46658	0.65816	0.66834	0.86665	0.58192	0.83164
EM	0.36737	0.72295	0.48345	0.59483	0.67413	0.72345	0.74342	0.79155	0.83164
Sp. Cl.	0.57782	0.21586	0.43946	0.46656	0.37883	0.71599	0.13292	0.62335	0.19874
dePDDP	0.02874	0.56428	0.02920	0.03625	0.62711	0.08031	0.77506	0.32784	0.67601

2 Fashion MNIST

	O.D.	t-SNE	PCA	VAE	VAE t-SNE	CVAE	CVAE t-SNE	CBVAE	CBVAE t-SNE
ACC:									
k-Means++	0.48650	0.53490	0.48500	0.52720	0.57570	0.60310	0.58590	0.55670	0.59480
EM	0.53120	0.52240	0.48760	0.58400	0.51450	0.52940	0.56260	0.52550	0.55030
Sp. Cl.	0.52850	0.33670	0.57550	0.56180	0.40090	0.59030	0.46170	0.58720	0.28360
dePDDP	0.42570	0.57720	0.45080	0.38080	0.51630	0.37270	0.54800	0.43620	0.49920
NMI:									
k-Means++	0.51382	0.56741	0.51147	0.54270	0.56394	0.60791	0.61403	0.58026	0.62865
EM	0.53823	0.56509	0.59489	0.58459	0.55295	0.60776	0.59179	0.59938	0.60188
Sp. Cl.	0.59188	0.34505	0.57993	0.61145	0.41842	0.65734	0.44543	0.65451	0.29499
dePDDP	0.47905	0.61617	0.49162	0.43931	0.55605	0.43211	0.58810	0.47995	0.58304
ARI:									
k-Means++	0.35016	0.39986	0.34946	0.38658	0.41043	0.45420	0.46763	0.41030	0.47650
EM	0.39033	0.39934	0.39218	0.42754	0.38042	0.41688	0.43131	0.41374	0.42387
Sp. Cl.	0.40131	0.09926	0.39572	0.41196	0.17973	0.43076	0.24241	0.43265	0.14297
dePDDP	0.29353	0.42610	0.31714	0.22428	0.34919	0.20499	0.40973	0.25632	0.34635

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	O.D.	t-SNE	PCA	VAE	VAE t-SNE	CVAE	CVAE t-SNE	CBVAE	CBVAE t-SNE
ACC:									
k-Means++	0.68403	0.78890	0.66827	0.72927	0.75326	0.63811	0.75805	0.72173	0.87731
EM	0.61069	0.81563	0.72241	0.64359	0.75737	0.84373	0.76148	0.52550	0.55030
Sp. Cl.	0.72653	0.62303	0.59767	0.66073	0.66278	0.78821	0.67581	0.72310	0.57642
dePDDP	0.23029	0.77450	0.23098	0.38999	0.66141	0.41947	0.76080	0.44962	0.79918
NMI:									
k-Means++	0.64931	0.81444	0.63864	0.69414	0.74614	0.63244	0.75461	0.69650	0.79596
EM	0.61971	0.83782	0.74854	0.71499	0.74189	0.77498	0.75191	0.72071	0.76533
Sp. Cl.	0.76698	0.74043	0.72210	0.68852	0.70737	0.74818	0.68455	0.73923	0.67665
dePDDP	0.18951	0.82544	0.18855	0.37475	0.70284	0.45039	0.71962	0.47327	0.77631
ARI:									
k-Means++	0.56169	0.75527	0.54624	0.62333	0.67254	0.53684	0.68398	0.61970	0.79234
EM	0.50636	0.77537	0.64612	0.57806	0.66792	0.73835	0.68103	0.67996	0.67634
Sp. Cl.	0.63425	0.57205	0.52338	0.53865	0.60342	0.71440	0.59386	0.65658	0.47503
dePDDP	0.03911	0.76139	0.03807	0.12353	0.59842	0.25877	0.67168	0.22590	0.74659

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	O.D.	t-SNE	PCA	VAE	VAE t-SNE	CVAE	CVAE t-SNE	CBVAE	CBVAE t-SNE
ACC:									
k-Means++	0.20300	0.20200	0.20400	0.13510	0.18820	0.23940	0.18820	0.23590	0.19910
EM	0.20740	0.20190	0.21990	0.18000	0.18840	0.25460	0.18840	0.23280	0.21790
Sp. Cl.	0.19320	0.21300	0.18790	0.15880	0.17700	0.20510	0.17700	0.21090	0.17650
dePDDP	0.15930	0.21200	0.18360	0.11870	0.12290	0.14780	0.20160	0.15000	0.20370
NMI:									
k-Means++	0.08355	0.08379	0.08328	0.01271	0.07210	0.09460	0.07210	0.08763	0.06959
EM	0.08400	0.08296	0.10365	0.04449	0.07274	0.11234	0.07274	0.08639	0.07191
Sp. Cl.	0.08750	0.07939	0.08551	0.03209	0.05465	0.10086	0.05465	0.07668	0.04650
dePDDP	0.05417	0.09129	0.07009	0.00591	0.00702	0.04312	0.09432	0.05415	0.07014
ARI:									
k-Means++	0.04237	0.04437	0.04217	0.00540	0.03589	0.05128	0.03589	0.04947	0.03702
EM	0.04300	0.04639	0.05953	0.02482	0.03562	0.06565	0.03562	0.05015	0.03711
Sp. Cl.	0.03420	0.04771	0.02856	0.01293	0.02911	0.04173	0.02911	0.03172	0.02731
dePDDP	0.01034	0.05878	0.02199	0.00140	0.00236	0.00806	0.04066	0.01049	0.03263