Comparison Table

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Method	Model	# of features	non-Gaussian
STD (Ours)	$\mathbb{E}[\mathcal{Y}] = f(\mathcal{B} \times \{\boldsymbol{X}_1, \boldsymbol{X}_2, \boldsymbol{X}_3\}), \mathcal{B} = \mathcal{C} \times \{\boldsymbol{M}_1, \boldsymbol{M}_2, \boldsymbol{M}_3\}$	3	$\surd$
Double-core[1]	$\mathbb{E}[\mathcal{Y}] = \mathcal{B}, \mathcal{B} = (\mathcal{G} + \mathcal{H}) \times \{\boldsymbol{M}_1, \boldsymbol{M}_2, \boldsymbol{M}_3\}$	0	$\surd$
GCP[4]	$\mathbb{E}[\mathcal{Y}] = f(\llbracket \boldsymbol{A}_1, \boldsymbol{A}_2, \boldsymbol{A}_3 \rrbracket)$	0	$\surd$
CP-APR[3]	$\mathbb{E}[\mathcal{Y}] = f(\llbracket \boldsymbol{A}_1, \boldsymbol{A}_2, \boldsymbol{A}_3 \rrbracket)$	0	Poi Only
CORALS[2]	$\mathbb{E}[\mathcal{Y}] = f(\llbracket \boldsymbol{A}_1, \boldsymbol{A}_2, \boldsymbol{A}_3 \rrbracket)$	0	$\surd$
SupCP[6]	$\mathcal{Y} = \llbracket \boldsymbol{A}_1, \boldsymbol{A}_2, \boldsymbol{A}_3 \rrbracket + \mathcal{E}, \boldsymbol{A}_1 = \boldsymbol{X}\boldsymbol{B} + \mathcal{E}'$	1	$\times$
mRRR[14]	$\mathcal{Y}_{ijk} \sim \exp \text{ fm}(\theta_{ijk}, \phi), \theta_{ijk} = f(\boldsymbol{X}\boldsymbol{B}), \text{rank}(\boldsymbol{B}) = r$	1	$\surd$ and mixed
Envelope[5]	$\mathcal{Y} = \mathcal{B} \times_3 \boldsymbol{X} + \mathcal{E}, \mathcal{B} = \mathcal{C} \times \{\Gamma_1, \Gamma_2, \boldsymbol{I}_d\}, \text{Cov}(\mathcal{E}) = \Sigma_1 \otimes \Sigma_2$	1	$\times$
GLSNet[12]	$\mathbb{E}[\mathcal{Y}] = f(\Theta + \mathcal{B} \times_3 \boldsymbol{X}), \text{rank}(\Theta) = r, \|\mathcal{B}\|_0 = s$	1	$\surd$
STORE[7]	$\mathcal{Y} = \mathcal{B} \times_3 \boldsymbol{X} + \mathcal{E}, \mathcal{B} = \llbracket \boldsymbol{A}_1, \boldsymbol{A}_2, \boldsymbol{A}_3 \rrbracket, \|\boldsymbol{A}_k\|_0 \leq s_k$	1	$\times$
Han[10]	$y_i = \langle \mathcal{B}, \mathcal{X}_i \rangle + \epsilon, \mathcal{B} = \mathcal{C} \times \{\boldsymbol{M}_1, \boldsymbol{M}_2, \boldsymbol{M}_3\}$	3	$\times$
Garvesh[8]	$y_i = \langle \mathcal{B}, \mathcal{X}_i \rangle + \epsilon, \mathcal{B}$ various structures	3	$\times$
STAR[9]	$\mathcal{Y}_{ijk} = \mathcal{T}(\mathcal{X}_i) + \epsilon, \mathcal{T}(\mathcal{X}_i) \approx \sum_m^M \langle \mathcal{B}_m, \mathcal{F}_m(\mathcal{X}_i) \rangle, \mathcal{B}_m$ CP sparse	3	$\times$

Method	Sparsity	non-i.i.d. noise	Algo	Algo guarantee	Complexity	Error bound
STD (Ours)	$\times$	$\times$	Alter/HOSVD	$\surd$	r^3+3pr	$\surd$
Double-core[1]	$\times$	$\times$	ADMM	$\surd$	r^3+3dr	$\surd$
GCP[4]	$\times(\surd)$	$\times$	BFGS	$\times$	$3dR$	$\times$
CP-APR[3]	$\times$	$\times$	Alter, MM	$\surd$	$3dR$	$\times$
CORALS[2]	$\surd$	$\times$	ALS	$\times$	$(3dR)^*$	$\times$
SupCP[6]	$\times$	$\times$	EM	$\times$	$2dR+pR$	$\times$
mRRR[14]	$\times$	$\times$	Alter	$\surd$	$pr+d^2r$	$\surd$
Envelope[5]	$\times$	$\surd$	Alter	$\times$	$(r^2d+2dr)^+$	$\surd$
GLSNet[12]	$\surd$	$\times$	Alter GD	$\surd$	$2dr+s$	$\surd$
STORE[7]	$\surd$	$\times$	Alter	$\surd$	$r\sum_k s_k$	$\surd$
Han[10]	$\times$	$\times$	PGD	$\surd$	r^3+3pr	$\surd$
Garvesh[8]	$\times(\surd)$	$\times$	GD	$\times$	$(d^3)^*$	$\surd$
STAR[9]	$\surd$	$\times$	Alter	$\times$	$(3Mdr)^*$	$\surd$