simulation table for proposed GCTA

Simulation setup

The key factors are

1. Distribution
2. Covariance matrix
   - Note that if the covariance matrix is I, which means uncorrlated data and also indicates Independence in our paper.
   - we also use the the sample vairance matrix calculated from the real PCB data
3. Decorrelation method
   - SVD, dimension reduction before SVD and none
4. main and interaction coefficients
   - $\beta_m = \beta_{mf} + \beta_{mr}$ where $\beta_{mf} \sim N(0, \sigma^2_{mf})$ and $\beta_{mr} \sim N(0, \sigma^2_{mr})$ if $\sigma^2_{mr} = 0$ means main effect is fixed, otherwise it's random
   - $\beta_i = \beta_{if} + \beta_{ir}$ where $\beta_{if} \sim N(0, \sigma^2_{if})$ and $\beta^2_{ir} \sim N(0, \sigma^2_{ir})$ if $\sigma^2_{ir} = 0$ means internaction effect is fixed, otherwise it's random. Besides, if $\sigma^2_{if} = 0$ then means there is no interaction effect
5. Sample size = $\{200, \ldots, 900\}$ and $p = 33$
6. Total Iteration times: 200

Table 1: Fixed cases

ID	Dist	Corr_stru	decorr	main_fixed	main_random	inter_fixed	inter_random	finished_date
1	Normal	I	SVD	0.5	0	0.0	0	
2	Normal	I	SVD	0.5	0	0.1	0	
3	Normal	I	dim_SVD	0.5	0	0.0	0	
4	Normal	I	dim_SVD	0.5	0	0.1	0	
5	Normal	pcb	SVD	0.5	0	0.0	0	
6	Normal	pcb	SVD	0.5	0	0.1	0	
7	Normal	pcb	dim_SVD	0.5	0	0.0	0	
8	Normal	pcb	dim_SVD	0.5	0	0.1	0	
9	Chi-square	I	SVD	0.5	0	0.0	0	
10	Chi-square	I	SVD	0.5	0	0.1	0	
11	Chi-square	I	dim_SVD	0.5	0	0.0	0	
12	Chi-square	I	dim_SVD	0.5	0	0.1	0	
13	Chi-square	pcb	SVD	0.5	0	0.0	0	
14	Chi-square	pcb	SVD	0.5	0	0.1	0	
15	Chi-square	pcb	dim_SVD	0.5	0	0.0	0	
16	Chi-square	pcb	dim_SVD	0.5	0	0.1	0	
17	PCB	pcb	SVD	0.5	0	0.0	0	
18	PCB	pcb	SVD	0.5	0	0.1	0	
19	PCB	pcb	dim_SVD	0.5	0	0.0	0	
20	PCB	pcb	dim_SVD	0.5	0	0.1	0	

Table 2: random cases

ID	Dist	Corr_stru	decorr	main_fixed	main_random	inter_fixed	inter_random	finished_date
1	Normal	I	SVD	0.25	0.25	0.00	0.00	
2	Normal	I	SVD	0.25	0.25	0.10	0.00	
3	Normal	I	SVD	0.25	0.25	0.05	0.05	
4	Normal	I	dim_SVD	0.25	0.25	0.00	0.00	
5	Normal	I	dim_SVD	0.25	0.25	0.10	0.00	
6	Normal	I	dim_SVD	0.25	0.25	0.05	0.05	
7	Normal	pcb	SVD	0.25	0.25	0.00	0.00	
8	Normal	pcb	SVD	0.25	0.25	0.10	0.00	
9	Normal	pcb	SVD	0.25	0.25	0.05	0.05	
10	Normal	pcb	dim_SVD	0.25	0.25	0.00	0.00	
11	Normal	pcb	dim_SVD	0.25	0.25	0.10	0.00	
12	Normal	pcb	dim_SVD	0.25	0.25	0.05	0.05	
13	Chi-square	I	SVD	0.25	0.25	0.00	0.00	
14	Chi-square	I	SVD	0.25	0.25	0.10	0.00	
15	Chi-square	I	SVD	0.25	0.25	0.05	0.05	
16	Chi-square	I	dim_SVD	0.25	0.25	0.00	0.00	
17	Chi-square	I	dim_SVD	0.25	0.25	0.10	0.00	
18	Chi-square	I	dim_SVD	0.25	0.25	0.05	0.05	
19	Chi-square	pcb	SVD	0.25	0.25	0.00	0.00	
20	Chi-square	pcb	SVD	0.25	0.25	0.10	0.00	
21	Chi-square	pcb	SVD	0.25	0.25	0.05	0.05	
22	Chi-square	pcb	dim_SVD	0.25	0.25	0.00	0.00	
23	Chi-square	pcb	dim_SVD	0.25	0.25	0.10	0.00	
24	Chi-square	pcb	dim_SVD	0.25	0.25	0.05	0.05	
25	PCB	pcb	SVD	0.25	0.25	0.00	0.00	
26	PCB	pcb	SVD	0.25	0.25	0.10	0.00	
27	PCB	pcb	SVD	0.25	0.25	0.05	0.05	
28	PCB	pcb	dim_SVD	0.25	0.25	0.00	0.00	
29	PCB	pcb	dim_SVD	0.25	0.25	0.10	0.00	
30	PCB	pcb	dim_SVD	0.25	0.25	0.05	0.05	