Additional Experimental Results

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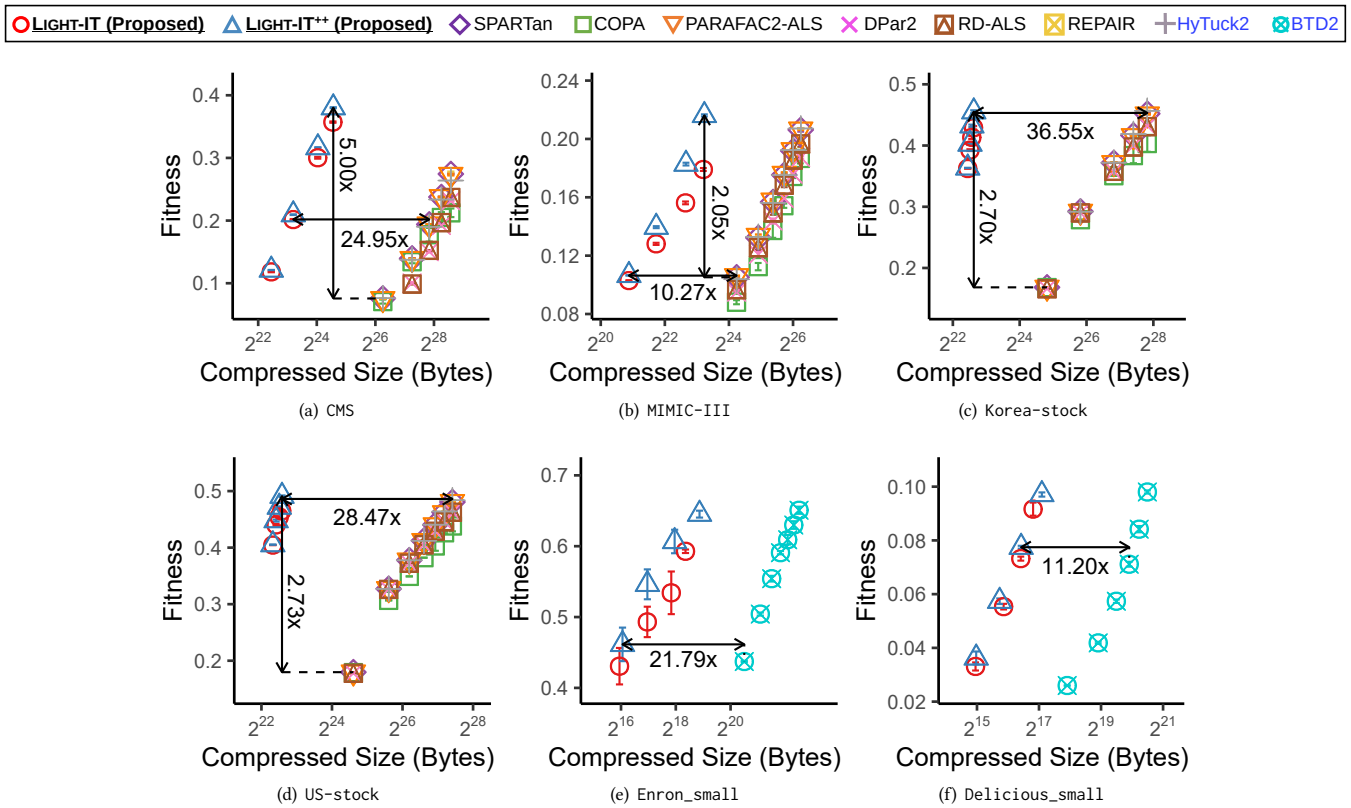

Figure 1: Light-IT and Light-IT^{++} concisely and accurately compress irregular tensors. Notably, the output size of Light-IT^{++} is up to 37× smaller than that of the most compact baseline, showing a similar fitenss. Light-IT^{++} shows up to 5× higher fitness than the most accurate baseline, even compressing to smaller outputs.

1 COMPRESSION PERFORMANCES OF HYTUCK2 AND BTD2

We add the compression performances of HyTuck2 [2] and BTD2 [1] on 3-order tensors and 4-order tensors, respectively. The results are illustrated in Figure 1. Still, our algorithms perform best in terms of accuracy and compression ability. Note that HyTuck2 is designed for 3-order tensors, while BTD2 is tailored for 4-order tensors. We reduced the size of the 4-order tensors by sampling the second-order and third-order indices (i.e from `Enron` to `Enron_small` and `Delicious` to `Delicious_small`) because O.O.M occurred when running BTD2 on the original tensors. The sizes of `Enron_small` and `Delicious_small` are in Table 1.

Table 1: Statistics of real-world datasets.

Name	N_{max}	N_{avg}	Size (except the 1st mode)	Order	Density
`Enron_small`	408	59.4	$50 \times 50 \times 759$	4	5.07×10^{-3}
`Delicious_small`	39	13.9	$50 \times 50 \times 1,001$	4	1.16×10^{-3}

REFERENCES

[1] Christos Chatzichristos, Eleftherios Kofidis, and Sergios Theodoridis. 2017. PARAFAC2 and its block term decomposition analog for blind fMRI source unmixing. In *EUSIPCO*. IEEE.

[2] Jia Chen and Dalia Orozco. 2022. Unsupervised Multiview Embedding of Node Embeddings. In *ACSSC*.