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Dear Committee,

I am writing to submit my paper entitled ``Beyond the Signs: Nonparametric Tensor Completion via Sign Series" for 2021 ICSA student best paper awards. My name is Chanwoo Lee, and I am currently a third-year PhD student advised by Prof. Miaoyan Wang from University of Wisconsin-Madison. My research is in the intersection of statistics, machine learning, and optimization, with a particular focus on tensor data analysis.

Higher-order tensors arise frequently in applications such as recommendation system, neuroimaging, social network analysis, and psychological studies. Our paper presented a nonparametric method for tensor estimation from noisy observations with possibly missing entries. The new method effectively addresses both low- and high-rank signals, while encompassing many existing tensor models--including CP models, Tucker models, single index models--as special cases. Excess risk bounds, estimation error rates, and sample complexities are established. We demonstrate the outperformance of our approach over previous methods on two applications, one on human brain connectivity networks and the other on NeurIPS topic data mining.

Our method will help the practitioners efficiently analyze tensor datasets in various areas. We release a open-source software package at https://cran.r-project.org/web/packages/tensorsign.

We believe our results will be of interest to a very broad readership -- from those interested in new statistical techniques in tensor data to those in neuroimaging and social network analysis. We appreciate your consideration.

Sincerely,

Chanwoo Lee,
University of Wisconsin-Madison