JUN-GI JANG

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Siebel Center Room 4217, University of Illinois at Urbana-Champaign, 201 N Goodwin Ave, Urbana, IL 61801, USA

RESEARCH INTERESTS

Data Mining, Large-Scale Data Analytics, Tensor Decomposition, Machine Learning

EXPERIENCE

Postdoctoral Researcher University of Illinois at Urbana-Champaign (UIUC) Aug. 2023 - present
Advisor: Prof. Hanghang Tong

Postdoctoral Researcher Seoul National University (SNU) Mar. 2023 - Aug. 2023
Advisor: Prof. U Kang

Research Intern HYPERCONNECT Jul. 2020 - Aug. 2020

EDUCATION

Seoul National University Mar. 2017 - Feb. 2023
Ph.D. in Computer Science and Engineering
Thesis: Mining Real World Tensors via Efficient Tensor Decomposition Methods
Advisor: Prof. U Kang

Seoul National University Mar. 2010 - Feb. 2017
B.S. in Mechanical and Aerospace Engineering;
and Computer Science and Engineering (double major)

BEST PAPER AWARDS

Best Paper Awards (Honorable Mention), ICDE May 2022
Best Paper Awards (Best Research Paper), KDD Aug. 2021

OTHER AWARDS

Outstanding Dissertation Award, SNU CSE Feb. 2023
100 Excellent National R&D Performances, KISTEP Oct. 2022
SNU BK21 Star Researcher Award, SNU BK21 Feb. 2022
BK21 Best Graduate Student Award, SNU BK21 Feb. 2022
Future Gauss Lecture Award, Gauss Labs Feb. 2022
Naver Ph.D. Fellowship Award, Naver Dec. 2021
Qualcomm Innovation Fellowship, Qualcomm Nov. 2021
Yulchon AI Star Fellowship, Yulchon Foundation Sep. 2021
Humantech Paper Award (Honorable Mention, lead-author), Samsung Feb. 2018

REFEREED CONFERENCE AND JOURNAL PAPERS

24. **Improving Group Fairness in Tensor Completion via Imbalance Mitigating Entity Augmentation**
Dawon Ahn*, **Jun-Gi Jang***, and Evangelos E. Papalexakis (* equal contribution)
The Pacific-Asia Conference on Knowledge Discovery and Data Mining (**PAKDD**), 2025, Sydney, Australia
To appear.

23. **Compact Lossy Compression of Tensors via Neural Tensor-Train Decomposition**
Taehyung Kwon, Jihoon Ko, Jinhong Jung, **Jun-Gi Jang**, Kijung Shin
Knowledge and Information Systems (**KAIS**), Oct., 2024

22. **TUCKET: A Tensor Time Series Data Structure for Efficient and Accurate Factor Analysis over Time Ranges**
Ruizhong Qui*, **Jun-Gi Jang***, Xiao Lin, Lihui Liu, Hanghang Tong (* equal contribution)
Proceedings of the VLDB Endowment, Volume 17 (13), 2024.
This paper will be presented at VLDB 2025.

21. **Compact Decomposition of Irregular Tensors for Data Compression: From Sparse to Dense to High-Order Tensors**
Taehyung Kwon, Jihoon Ko, Jinhong Jung, **Jun-Gi Jang**, and Kijung Shin
SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2024, Barcelona, Spain
Oral presentation, acceptance rate ≈ 20%.

20. **Fast and Accurate PARAFAC2 Decomposition for Time Range Queries on Irregular Tensors**
Jun-Gi Jang, Yong-chan Park, and U Kang
ACM International Conference on Information and Knowledge Management (**CIKM**), 2024, Boise, Idaho, USA.
Oral presentation, acceptance rate 347/1496 ≈ 23%.

19. **Fast and Accurate Domain Adaptation for Irregular Tensor Decomposition**
Junghun Kim, Ka Hyun Park, **Jun-Gi Jang**, and U Kang
SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2024, Barcelona, Spain
Oral presentation, acceptance rate ≈ 20%.

18. **Fast and Accurate Dual-Way Streaming PARAFAC2 for Irregular Tensors - Algorithm and Application**
Jun-Gi Jang, Jeongyoung Lee, Yong-chan Park, and U Kang
The 29th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD**), 2023, Long Beach, CA, USA
Oral presentation, acceptance rate 313/1416 ≈ 22.1%.

17. **Accurate Open-set Recognition for Memory Workload**
Jun-Gi Jang, Sooyeon Shim, Vladimir Egay, Jeeyong Lee, Jongmin Park, Suhyun Chae, and U Kang
ACM Transactions on Knowledge Discovery from Data (**TKDD**), June, 2023

16. **Fast and accurate interpretation of workload classification model**
Sooyeon Shim, Doyeon Kim, **Jun-Gi Jang**, Suhyun Chae, Jeeyong Lee, and U Kang
PLOS ONE, March, 2023

15. **Accurate Bundle Matching and Generation via Multitask Learning with Partially Shared Parameters**
Hyunsik Jeon, **Jun-Gi Jang**, Taehun Kim, and U Kang
PLOS ONE, March, 2023

14. **Static and Streaming Tucker Decomposition for Dense Tensors**
Jun-Gi Jang and U Kang
ACM Transactions on Knowledge Discovery from Data (**TKDD**), Feb., 2023

13. **Falcon: Lightweight and Accurate Convolution Based on Depthwise Separable Convolution**
Jun-Gi Jang*, Chun Quan*, Hyun Dong Lee, and U Kang
Knowledge and Information Systems (**KAIS**), Jan., 2023 (* equal contribution)

12. **Accurate PARAFAC2 Decomposition for Temporal Irregular Tensors with Missing Values**
Jun-Gi Jang, Jeongyoung Lee, Jiwon Park, and U Kang
IEEE International Conference on Big Data (**BigData**), 2022, Osaka, Japan
Oral presentation, acceptance rate 122/633 ≈ 19.2%.

11. **DPar2: Fast and Scalable PARAFAC2 Decomposition for Irregular Dense Tensors**
Jun-Gi Jang and U Kang
38th IEEE International Conference on Data Engineering (**ICDE**) 2022, Virtual Event
Oral presentation, acceptance rate 211/780 ≈ 27.1%
🏆 **Best Paper Award, Honorable Mention**

10. **Large-scale tucker Tensor factorization for sparse and accurate decomposition**
Jun-Gi Jang*, Moonjeong Park*, Jongwuk Lee, and Lee Sael
The Journal of Supercomputing, May, 2022. (* equal contribution).

9. **Finding Key Structures in MMORPG Graph with Hierarchical Graph Summarization**
Jun-Gi Jang, Chaeheum Park, Changwon Jang, Geonsoo Kim, and U Kang
ACM Transactions on Knowledge Discovery from Data (**TKDD**), Feb., 2022

8. **Time-Aware Tensor Decomposition for Sparse Tensors**
Dawon Ahn, Jun-Gi Jang, and U Kang
Machine Learning, Sep. 27, 2021

7. **Fast and Memory-Efficient Tucker Decomposition for Answering Diverse Time Range Queries**
Jun-Gi Jang and U Kang
The 27th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD**), 2021,
Virtual Event
Oral presentation, acceptance rate 238/1541 ≈ 15.4%
🏆 **Best Paper Award, Best Research Paper**

6. **Fast and Accurate Partial Fourier Transform for Time Series Data**
Yong-chan Park, Jun-Gi Jang, and U Kang
The 27th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD**), 2021,
Virtual Event
Oral presentation, acceptance rate 238/1541 ≈ 15.4%

5. **VEST: Very Sparse Tucker Factorization of Large-Scale Tensors**
Moonjeong Park*, Jun-Gi Jang*, and Lee Sael
IEEE International Conference on Big Data and Smart Computing (**BigComp**), 2021, Online (* equal contribution)
🏆 **Best Paper Award, 1st Place**

4. **D-Tucker: Fast and Memory-Efficient Tucker Decomposition for Dense Tensors**
Jun-Gi Jang and U Kang
36th IEEE International Conference on Data Engineering (**ICDE**), 2020, Online
Short, acceptance rate ≈ 32%

3. **S3CMTF: Fast, accurate, and scalable method for incomplete coupled matrix-tensor factorization**
Dongjin Choi, Jun-Gi Jang, and U Kang
PLOS ONE, June 28, 2019.

2. **High-Performance Tucker Factorization on Heterogeneous Platforms**
Sejoon Oh, Namyong Park, Jun-Gi Jang, Lee Sael, and U Kang
IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Apr. 1, 2019

1. **Zoom-SVD: Fast and Memory Efficient Method for Extracting Key Patterns in an Arbitrary Time Range**
Jun-Gi Jang, Donjin Choi, Jinhong Jung, and U Kang
ACM International Conference on Information and Knowledge Management (**CIKM**), 2018, Lingotto, Turin,
Italy
Oral presentation, acceptance rate 147/826 ≈ 17.8%

RESEARCH GRANTS

Postdoctoral Fellowship Program, NRF of South Korea   Sep. 2023 - Aug. 2024

TEACHING EXPERIENCE

Seoul National University
Lead T.A., M2177.004900 Theory and Lab of IoT, AI, and Big Data @ SNU   Spring 2020
T.A., M2177.004900 Theory and Lab of IoT, AI, and Big Data @ SNU   Fall 2019
T.A., M2177.004900 Theory and Lab of IoT, AI, and Big Data @ SNU   Spring 2019
T.A., M1522.001400 Introduction to Data Mining @ SNU   Spring 2018
T.A., M1522.000900 Data Structure @ SNU   Fall 2017

In Other Organization
T.A., LG AI Education @ LG Chem   Dec. 2021
T.A., Hyundai AI Master @ Hyundai Motors   Aug. 2021, Oct. 2021, Jul. 2022
T.A., LG AI Education @ LG Chem   Jan. 2021, Dec. 2021
T.A., SK Univ @ SK Hynix   Sep. 2020 - Nov. 2020
T.A., DS^2 (1st-7th) @ Samsung Electronics   Apr. 2018 - Jun. 2021
T.A., Basic Math @ Big data Institute   July 2018

INVITED TALKS

The Future of Data Workshop 2023, KCC DB Society, KIISE   Jun. 2023
Korea Computer Congress 2022, KIISE   Jun. 2022
Korea Software Congress 2021, KIISE   Dec. 2021
Regular Seminar, Qatar Computing Research Institute (QCRI)   Sep. 2021
Korea Computer Congress 2020, KIISE   Jul. 2020
Korea Software Congress 2018, KIISE   Dec. 2018
Samsung AI Forum, Samsung   Sep. 2018

PROFESSIONAL SERVICES

Reviewer (Program Committee Member)
SDM	2024
AAAI	2024 - 2025
KDD	2023 - 2025
KDD (Tutorial)	2024 - 2025

Reviewer
KAIS journal	2024
TKDE journal	2024
TSP journal	2024
Machine Learning journal	2023 - 2024
TIST journal	2023
TPDS journal	2023
DAMI journal	2023

External Reviewer
TKDD	2025
NAACL	2024
DSAA	2024
KDD	2019 - 2022
WWW	2019 - 2021
ICLR	2021

NeurIPS	2020 - 2022
CIKM	2018 - 2019
ICDM	2018
WSDM	2018