Taehyung Kwon

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https://scholar.google.co.kr/citations?user=Ld_e3xIAAAAJ

Research Interests

Data Mining, Data Compression, Matrix and Tensor Decomposition

Education

KAIST *Seoul, South Korea*

Ph.D. in Artificial Intelligence Mar. 2022 - Feb. 2026 (expected)

KAIST Data Mining Lab, Advisor: Kijung Shin

KAIST *Seoul, South Korea*

M.S. in Artificial Intelligence Mar. 2020 - Feb. 2022

KAIST Data Mining Lab, Advisor: Kijung Shin

KAIST *Daejeon, South Korea*

B.S. in School of Computing Mar. 2015 - Feb. 2020

GPA: 4.0/4.3, Major GPA: 4.0/4.3, **Summa Cum Laude**

Publications

[1] **Effective and Lightweight Lossy Compression of Tensors: Techniques and Applications**
Jihoon Ko, **Taehyung Kwon**, Jinhong Jung, Kijung Shin
Knowledge and Information Systems (SCIE Journal, 2025). [Link]

[2] **Simple yet Effective Node Property Prediction on Edge Streams under Distribution Shifts (to appear)**
Jongha Lee, **Taehyung Kwon**, Heechan Moon, Kijung Shin
IEEE ICDE 25.

[3] **Kronecker Generative Models for Power-Law Patterns in Real-World Hypergraphs**
Minyoung Choe, Jihoon Ko, **Taehyung Kwon**, Kijung Shin, and Christos Faloutsos
ACM WWW 25. [Link]

[4] **Begin: Extensive Benchmark Scenarios and an Easy-to-use Framework for Graph Continual Learning**
Jihoon Ko*, Shinhwan Kang*, **Taehyung Kwon**, Heechan Moon, Kijung Shin
ACM TIST (SCIE Journal, 2024). [Link]

[5] **Compact Lossy Compression of Tensors via Neural Tensor-Train Decomposition**
Taehyung Kwon, Jihoon Ko, Jinhong Jung, Jun-Gi Jang, and Kijung Shin.
Knowledge and Information Systems (SCIE Journal, 2024). [Link]

[6] **ELiCiT: Effective and Lightweight Lossy Compression of Tensors**
Jihoon Ko, **Taehyung Kwon**, Jinhong Jung, and Kijung Shin.
IEEE ICDM 24. [Link]

[7] **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.
ACM KDD 24. [Link]

[8] **TensorCodec: Compact Lossy Compression of Tensors without Strong Data Assumptions**
Taehyung Kwon, Jihoon Ko, Jinhong Jung, and Kijung Shin.
IEEE ICDM 23. [Link] **Best Student Paper Runner-up Award**. [Link]

[9] **NeuKron: Constant-Size Lossy Compression of Sparse Reorderable Matrices and Tensors**
Taehyung Kwon*, Jihoon Ko*, Jinhong Jung, and Kijung Shin.
ACM WWW 23. [Link]

[10] **Finding a Concise, Precise, and Exhaustive Set of Near Bi-Cliques in Dynamic Graphs**
Hyeonjeong Shin, **Taehyung Kwon**, Neil Shah, and Kijung Shin.
ACM WSDM 22. [Link]

[11] **Learning to Pool in Graph Neural Networks for Extrapolation**
Jihoon Ko, **Taehyung Kwon**, Kijung Shin, and Juho Lee.
Preprint (2021). [Link]

[12] **Slicenstitch: Continuous CP Decomposition of Sparse Tensor Streams**
Taehyung Kwon*, Inkyu Park*, Dongjin Lee, and Kijung Shin.
IEEE ICDE 21. [Link]

Awards and Honors

2023 **IEEE ICDM Best Student Paper Runner-up Award**
2015 **Dean's List (KAIST)**

Academic Services

2024 - 2026 ACM Conference on Knowledge Discovery and Data Mining (**KDD**), reviewer
2026 The ACM Web Conference (**WWW**), reviewer
2024 Big Data Research, reviewer
2024 ACM Transactions on Knowledge Discovery from Data (**TKDD**), reviewer

Projects

Development of the Platform for Safety from Disasters *Ministry of Science and ICT, Korea*
Researcher Dec. 2019 - Aug. 2022

- I developed the algorithm for removing anomalies and imputing missing values of sensor data in real time. The method is based on the online tensor decomposition algorithm.

Robust, Fair, and Scalable Data-driven Continual Learning *Ministry of Science and ICT, Korea*
Researcher Sep. 2022 -

- I am developing a novel algorithm for graph condensation.

TEACHING

Teaching Assistant
KAIST

- AI607 Graph Mining and Social Network Analysis Fall 2020 - 2024
- AI506 Data Mining and Search Spring 2020 - 2024