

JAEMIN YOO

Postdoctoral Research Fellow @ Carnegie Mellon University

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POSITIONS

Carnegie Mellon University, Pittsburgh, PA, USA

Mar. 2022 - Present

Postdoctoral Research Fellow, Heinz College of Information Systems and Public Policy

Advisor: Prof. Leman Akoglu

EDUCATION

Seoul National University, Seoul, South Korea

Mar. 2016 - Feb. 2022

Ph.D. in Computer Science and Engineering

Advisor: Prof. U Kang

Thesis: Probabilistic Approaches for Node and Graph Classification

Received the Best Ph.D. Thesis Award in SNU CSE

Seoul National University, Seoul, South Korea

Mar. 2012 - Feb. 2016

B.S. in Computer Science and Engineering

PREPRINTS

- [i1] Understanding the Effect of Data Augmentation in Self-supervised Anomaly Detection
Jaemin Yoo, Tiancheng Zhao, and Leman Akoglu
arXiv Preprint (2022)

TUTORIALS

- [t1] Mining of Real-world Hypergraphs: Concepts, Patterns, and Generators
Geon Lee, Jaemin Yoo, and Kijung Shin
ICDM 2022 / CIKM 2022 / DSAA 2022

PUBLICATIONS

- [c15] Reciprocity in Directed Hypergraphs: Measures, Findings, and Generators
Sunwoo Kim, Minyoung Choe, Jaemin Yoo, and Kijung Shin
ICDM 2022 (acceptance rate $174/870 = 20.0\%$)
- [j3] Graph-based PU Learning for Binary and Multiclass Classification without Class Prior
Jaemin Yoo^{*}, Junghun Kim^{*}, Hoyoung Yoon^{*}, Geonsoo Kim, Changwon Jang, and U Kang
Knowledge and Information Systems (SCIE Journal, 2022; ^{*}equal contribution)
- [c14] Accurate Node Feature Estimation with Structured Variational Graph Autoencoder
Jaemin Yoo, Hyunsik Jeon, Jinhong Jung, and U Kang
KDD 2022 (acceptance rate $254/1695 = 15.0\%$)
- [j2] Signed Random Walk Diffusion for Effective Representation Learning in Signed Graphs
Jinhong Jung, Jaemin Yoo, and U Kang
PLOS ONE (SCIE Journal, 2022)

- [d1] Probabilistic Approaches for Node and Graph Classification
Jaemin Yoo
Ph.D. Thesis, Seoul National University, 2022
Received the Best Ph.D. Thesis Award in SNU CSE
- [c13] Model-Agnostic Augmentation for Accurate Graph Classification
Jaemin Yoo, Sooyeon Shim, and U Kang
WWW 2022 (acceptance rate $323/1822 = 17.7\%$)
- [c12] MiDaS: Representative Sampling from Real-world Hypergraphs
 Minyoung Choe, Jaemin Yoo, Geon Lee, Woonsung Baek, U Kang, and Kijung Shin
WWW 2022 (acceptance rate $323/1822 = 17.7\%$)
- [c11] Transition Matrix Representation of Trees with Transposed Convolutions
Jaemin Yoo and Lee Sael
SDM 2022 (acceptance rate $83/298 = 27.8\%$)
- [c10] Accurate Graph-Based PU Learning without Class Prior
Jaemin Yoo*, Junghun Kim*, Hoyoung Yoon*, Geonsoo Kim, Changwon Jang, and U Kang
ICDM 2021 (regular paper; top 98/990 = 9.9%; *equal contribution)
Selected as one of the best-ranked papers of ICDM 2021 for fast-track journal invitation
- [c9] Accurate Multivariate Stock Movement Prediction via Data-Axis Transformer with Multi-Level Contexts
Jaemin Yoo, Yejun Soun, Yong-chan Park, and U Kang
KDD 2021 (acceptance rate $238/1541 = 15.4\%$)
- [c8] Gaussian Soft Decision Trees for Interpretable Feature-Based Classification
Jaemin Yoo and Lee Sael
PAKDD 2021 (acceptance rate $157/768 = 20.4\%$)
- [c7] Attention-Based Autoregression for Accurate and Efficient Multivariate Time Series Forecasting
Jaemin Yoo and U Kang
SDM 2021 (acceptance rate $85/400 = 21.3\%$)
- [c6] Sampling Subgraphs with Guaranteed Treewidth for Accurate and Efficient Graphical Inference
Jaemin Yoo, U Kang, Mauro Scanagatta, Giorgio Corani, and Marco Zaffalon
WSDM 2020 (acceptance rate $91/615 = 14.8\%$)
- [c5] Knowledge Extraction with No Observable Data
Jaemin Yoo, Minyong Cho, Taebum Kim, and U Kang
NeurIPS 2019 (acceptance rate $1428/6743 = 21.2\%$)
- [c4] EDiT: Interpreting Ensemble Models via Compact Soft Decision Trees
Jaemin Yoo and Lee Sael
ICDM 2019 (acceptance rate $194/1046 = 18.5\%$)
- [c3] Belief Propagation Network for Hard Inductive Semi-Supervised Learning
Jaemin Yoo, Hyunsik Jeon, and U Kang
IJCAI 2019 (acceptance rate $850/4752 = 17.9\%$)
- [c2] Fast and Scalable Distributed Loopy Belief Propagation on Real-World Graphs
 Saehan Jo, Jaemin Yoo, and U Kang
WSDM 2018 (acceptance rate $83/514 = 16.3\%$)

- [j1] Efficient Learning of Bounded-Treewidth Bayesian Networks from Complete and Incomplete Data Sets
Mauro Scanagatta, Giorgio Corani, Marco Zaffalon, Jaemin Yoo, and U Kang
International Journal of Approximate Reasoning (SCIE Journal, 2018)
- [c1] Supervised Belief Propagation: Scalable Supervised Inference on Attributed Networks
Jaemin Yoo, Saehan Jo, and U Kang
ICDM 2017 (regular paper; top 72/778 = 9.3%)

AWARDS & HONORS

Best Ph.D. Thesis Award in SNU CSE	<i>Feb. 2022</i>
One of the Best-Ranked Papers of ICDM 2021	<i>Dec. 2021</i>
SNU BK21 Outstanding Graduate Student Award	<i>Jul. 2021</i>
Best Poster Award at AIIS Retreat 2021	<i>Apr. 2021</i>
SIAM Student Travel Awards (SDM 2021)	<i>Apr. 2021</i>
SNU BK21 Star Researcher Award	<i>Feb. 2021</i>
Qualcomm Innovation Fellowship	<i>Dec. 2020</i>
Yulchon AI Star Award	<i>Sep. 2020</i>
Google PhD Fellowship (Machine Learning)	<i>Sep. 2019</i>
Samsung HumanTech Paper Award (Honorable Mention)	<i>Feb. 2019</i>
Google Conference Scholarships (ICDM 2017)	<i>Nov. 2017</i>
Paper Award in Scientific and Technical Writing by SNU	<i>Jun. 2014</i>
Undergraduate Student Paper Award at KSC 2014	<i>Jun. 2014</i>
SNU BK21 Scholarship	<i>Mar. 2019 - Aug. 2020</i>
Lecture & Research Scholarship by SNU	<i>Mar. 2016 - Feb. 2019</i>
National Scholarship For Science and Engineering by KOSAF	<i>Mar. 2013 - Jun. 2015</i>

PARTICIPATED PROJECTS

Graph-Based Gold Farming Group Detection System (NCSoft)	<i>Sep. 2020 - Feb. 2021</i>
Deep Learning-Based Recommender System (Wemakeprice)	<i>Feb. 2019 - Dec. 2019</i>
Statistical Learning and Inference Method with PGMs (IDSIA)	<i>Jan. 2016 - Dec. 2018</i>
Feature Selection Method for RNN Recommender Systems (SK Telecom)	<i>Mar. 2018 - Nov. 2018</i>
Temporal Stock Price Prediction System (eMoney)	<i>Aug. 2017 - Feb. 2018</i>
Video Recommender System with Multimodal Data (SK Broadband)	<i>Nov. 2016 - Jun. 2017</i>
Distributed Machine Learning Library on Apache Spark (SK Telecom)	<i>Mar. 2016 - Jan. 2017</i>

INVITED TALKS

SNU AI Summer School 2022	<i>Aug. 2022</i>
SK C&C	<i>Aug. 2022</i>
KAIST School of Computing	<i>Jul. 2022</i>
AWS Deep Learning Group	<i>Jul. 2022</i>
EIRIC (Electronic & Information Research Information Center)	<i>Apr. 2022</i>
KAIST School of Electrical Engineering	<i>Feb. 2022</i>

LG AI Research Tech Talk	<i>Feb. 2022</i>
KAIST AI Student Colloquium	<i>Oct. 2021</i>
SNU AI Summer School 2021	<i>Aug. 2021</i>
SNU AI Institute (AIIS) Retreat 2021	<i>Apr. 2021</i>
NAVER Online Tech Talk	<i>Dec. 2020</i>
SNU AI Summer School 2020	<i>Aug. 2020</i>
SNU Hospital	<i>Jul. 2020</i>
SNU AI Institute (AIIS) Retreat 2020	<i>Jun. 2020</i>
Kakao Enterprise	<i>Jan. 2020</i>
Korea Software Congress 2019	<i>Dec. 2019</i>
Samsung Electronics	<i>Mar. 2019</i>
IDSIA (Istituto Dalle Molle di Studi sull'Intelligenza Artificiale)	<i>Jul. 2018</i>
Korea Software Congress 2017	<i>Dec. 2017</i>

PROFESIONAL SERVICES

Session Chair

- KDD (ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining) 2022

PC Member

- AAAI (AAAI Conference on Artificial Intelligence) 2021 - 2023
- BigComp (IEEE International Conference on Big Data and Smart Computing) 2021 - 2023
- KDD (ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining) 2021 - 2022
- SDM (SIAM International Conference on Data Mining) 2022

Journal Reviewer

- Pattern Recognition 2021 - 2022

TEACHING EXPERIENCE

Teaching Assistant (Seoul National University)

- Large Data Analysis (M1522.000900, 002) Fall 2017
- Introduction to Data Mining (M1522.001400_001) Spring 2017
- Data Structures (M1522.001600_002) Fall 2016

Teaching Assistant (Other Organizations)

- Deep Learning, Samsung Electronics Apr. 2018 - Feb. 2019
- Deep Learning, SNU Fourth Industrial Revolution Academy Oct. 2017 - Dec. 2018
- Distributed Computing, SNU Big Data Academy Feb. 2017 - Dec. 2017
- Distributed Computing, SNU Big Camp Aug. 2016 - Feb. 2017

PATENTS

1. Jaemin Yoo and U Kang, "Apparatus and Method for Classifying Nodes", KR-Registration No. 10-1924832 (2018)

2. Taebum Kim, Jaemin Yoo, and U Kang, “Method for Compressing Deep Learning Neural Networks and Apparatus for Performing the Same”, KR-Registration No. 10-2199285 (2020)
3. Jaemin Yoo and U Kang, “Method for Extracting Knowledge from Artificial Neural Network and Apparatus for Performing the Same”, KR-Registration No. 10-2345262 (2021)
4. Jaemin Yoo, Sooyeon Shim, and U Kang, “Apparatus and Method for Data Augmentation”, KR-Application No. 10-2021-0169909 (2021)
5. Jaemin Yoo, Hyunsik Jeon, Jinhong Jung, and U Kang, “Apparatus and Method for Predicting Feature of Node”, KR-Application No. 10-2021-0172385 (2021)