

# JAEMIN YOO

Postdoctoral Research Fellow @ Carnegie Mellon University

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## POSITIONS

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**Carnegie Mellon University**, Pittsburgh, PA, USA

*Mar. 2022 - Present*

Postdoctoral Research Fellow, Heinz Colledge

Advisor: Prof. Leman Akoglu

## EDUCATION

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**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

## PUBLICATIONS

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- [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)
- [t1] 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

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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**

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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**

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EIRIC Seminar . . . . .	<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>
Introduction to Data Mining @ SNU CSE . . . . .	<i>Jul. 2019</i>
Samsung Electronics . . . . .	<i>Mar. 2019</i>
Istituto Dalle Molle di Studi sull'Intelligenza Artificiale (IDSIA) . . . . .	<i>Jul. 2018</i>
Korea Software Congress 2017 . . . . .	<i>Dec. 2017</i>

## PROFESIONAL SERVICES

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### PC Member

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

### Journal Reviewer

- Mathematics . . . . . 2022
- Pattern Recognition . . . . . 2021 - 2022

## TEACHING EXPERIENCE

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### 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

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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)