Chanyoung Park

CONTACT	Assistant Professor	Phone: +82-42-350-3137
INFORMATION	Data Science & Artificial Intelligence Lab (DSAIL)	Email: cy.park@kaist.ac.kr
		Homepage: https://dsail.kaist.ac.kr
	The Kim Jaechul Graduate School of AI, KAIST	
	Graduate School of Data Science, KAIST	
	Room #4104, E2-2 (Industrial & Management Building)	Google Scholar
CURRENT RESEARCH	 Data-Centric AI, Model-Centric AI, Multimodal Data Mining, AI for Science Mining meaningful knowledge from multimodal data to develop artificial intelligence solutions for various real-world applications across different disciplines. 	
	 Application domains: Recommendation system, AI for Science Bioinformatics), Social network analysis, Medical image analysis, Fingraph, Sentiment analysis, Purchase/Click prediction, Time-series are 	aud/Anomaly detection, Knowlede
POSITIONS	KAIST, Daejeon, South Korea	Nov 2020 – Present
	 Assistant Professor, Dept. of Industrial & Systems Engineering Assistant Professor, The Kim Jaechul Graduate School of AI Assistant Professor, Graduate School of Data Science 	
	University of Illinois at Urbana-Champaign, Urbana, IL, USA	Jan 2019 – Oct 2020
	 Postdoctoral Reserach Fellow in Computer Science Department Host: Prof. Jiawei Han Topics: Multimodal data mining, Heterogeneous network representation learners 	ming
	Microsoft Research, Beijing, China	Sep 2017 – Dec 2017
	Research Intern	3cp 2017 Bee 2017
	 Mentor: Dr. Xing Xie Project: Collaborative Translational Metric Learning 	
	NAVER, Seongnam, South Korea	Mar 2017 – Aug 2017
	 Research Intern Mentors: Dr. Jung-Tae Lee, and Dr. Min-Chul Yang Project: Click-aware Purchase Prediction with Push at the Top 	
EDUCATION	Pohang University of Science and Technology, Pohang, South Korea	Feb 2019
	 Ph.D. in Computer Science and Engineering Thesis: Recommendation Framework via Matrix Factorization and Translati Advisor: Prof. Hwanjo Yu Topics: Multimodal data mining, User behavior modeling, Recommender sy 	
	Sogang University, Seoul, South Korea	Feb 2014
	B.S. in Computer Science and Engineering	100 2014
ATAIA DIDE 0.	Cold Drize 20th Samoung Humantoch Daney Averyd	2024
AWARDS & SCHOLARSHIPS	Gold Prize, 30th Samsung Humantech Paper Award Technology Innovation Awards of College of Engineering, KAIST	2024
	Top Reviewer of NeurIPS	2023
	<u> </u>	2023
	Best Paper Award ■ ICML 2023 Workshop on Computational Biology, Hawaii, USA	2023
	KAIST Excellence in Teaching Award of Year 2022	2023
	Best Teaching Award	2023
	 Dept. of Industrial and Systems Engineering, KAIST 	2323
	ICDM Travel Award	2018
	 International Conference on Data Mining, Singapore 	
	Award of excellence ■ Microsoft Research Asia Internship Program, Beijing, China	2017
	Awarded to the best intern Name of the Description Name of the D	2016

Naver Ph.D Fellowship

2016

Awarded to outstanding Ph.D students majoring in computer science in Korea

RecSys Challenge 2015

■ Ranked 10 out of 850 teams from 49 countries (Top 1.1%)

■ Task: Click/Purchase Prediction

Dean's List

Fall 2013

2015

■ Sogang University

PUBLICATIONS CONFERENCES

- [C45] Large Language Models meet Collaborative Filtering: An Efficient All-round LLM-based Recommender System Sein Kim*, Hongseok Kang*, Seungyoon Choi, Donghyun Kim, Minchul Yang, Chanyoung Park ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2024)
- [C44] Self-Explainable Temporal Graph Networks based on Graph Information Bottleneck Sangwoo Seo, Sungwon Kim, Jihyeong Jung, Yoonho Lee, Chanyoung Park ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2024)
- [C43] LLM4SGG: Large Language Models for Weakly Supervised Scene Graph Generation Kibum Kim, Kanghoon Yoon, Jaehyeong Jeon, Yeonjun In, Jinyoung Moon, Donghyun Kim, Chanyoung Park IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR 2024)
- [C42] Self-guided Robust Graph Structure Refinement Yeonjun In, Kanghoon Yoon, Kibum Kim, Kijung Shin, Chanyoung Park The Web Conference 2024 (WWW 2024)
- [C41] DSLR: Diversity Enhancement and Structure Learning for Rehearsal-based Graph Continual Learning Seungyoon Choi*, Wonjoong Kim*, Sungwon Kim, Yeonjun In, Sein Kim, Chanyoung Park The Web Conference 2024 (WWW 2024)
- [C40] Adaptive Self-training Framework for Fine-grained Scene Graph Generation Kibum Kim*, Kanghoon Yoon*, Yeonjun In, Jinyoung Moon, Donghyun Kim, Chanyoung Park Twelfth International Conference on Learning Representations (ICLR 2024)
- [C39] Sterling: Synergistic Representation Learning on Bipartite Graphs Baoyu Jing, Yuchen Yan, Kaize Ding, Chanyoung Park, Yada Zhu, Huan Liu, Hanghang Tong Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI 2024 (Oral))
- [C38] Interpretable Prototype-based Graph Information Bottleneck Sangwoo Seo, Sungwon Kim, Chanyoung Park Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS 2023)
- [C37] Density of States Prediction of Crystalline Materials via Prompt-guided Multi-Modal Transformer Namkyeong Lee*, Heewoong Noh*, Sungwon Kim, Dongmin Hyun, Gyoung S. Na, **Chanyoung Park** Thirty-seventh Conference on Neural Information Processing Systems (**NeurIPS 2023**)
- [C36] MUSE: Music Recommender System with Shuffle Play Recommendation Enhancement Yunhak Oh*, Sukwon Yun*, Dongmin Hyun, Sein Kim, **Chanyoung Park**ACM International Conference on Information and Knowledge Management **(CIKM 2023)**
- [C35] Class Label-aware Graph Anomaly Detection
 Junghoon Kim, Yeonjun In, Kanghoon Yoon, Junmo Lee, Chanyoung Park
 ACM International Conference on Information and Knowledge Management (CIKM 2023) (Short Paper)
- [C34] Structural Mixup for Graph Neural Networks Junghurn Kim*, Sukwon Yun*, Chanyoung Park ACM International Conference on Information and Knowledge Management (CIKM 2023) (Short Paper)
- [C33] Similarity Preserving Adversarial Graph Contrastive Learning Yeonjun In*, Kanghoon Yoon*, Chanyoung Park ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2023)

- [C32] Shift-Robust Molecular Relational Learning with Causal Substructure Namkyeong Lee, Kanghoon Yoon, Gyoung S. Na, Sein Kim, Chanyoung Park ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2023)
- [C31] Task-Equivariant Graph Few-shot Learning Sungwon Kim, Junseok Lee, Namkyeong Lee, Wonjoong Kim, Seungyoon Choi, Chanyoung Park ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2023)
- [C30] Task Relation-aware Continual User Representation Learning
 Sein Kim, Namkyeong Lee, Donghyun Kim, Min-Chul Yang, Chanyoung Park
 ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2023)
- [C29] Conditional Graph Information Bottleneck for Molecular Relational Learning Namkyeong Lee, Dongmin Hyun, Gyoung S. Na, Sungwon Kim, Junseok Lee, Chanyoung Park International Conference on Machine Learning (ICML 2023)
- [C28] MELT: Mutual Enhancement of Long-Tailed User and Item for Sequential Recommendation Kibum Kim, Dongmin Hyun, Sukwon Yun, Chanyoung Park ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2023)
- [C27] Unbiased Heterogeneous Scene Graph Generation with Relation-aware Message Passing Neural Network Kanghoon Yoon*, Kibum Kim*, Jinyoung Moon, Chanyoung Park Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI 2023)
- [C26] Heterogeneous Graph Learning for Multi-modal Medical Data Analysis Sein Kim, Namkyeong Lee, Junseok Lee, Dongmin Hyun, Chanyoung Park Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI 2023 (Oral))
- [C25] Generating Multiple-Length Summaries via Reinforcement Learning for Unsupervised Sentence Summarization Dongmin Hyun, Xiting Wang, Chanyoung Park, Xing Xie, Hwanjo Yu Conference on Empirical Methods in Natural Language Processing (EMNLP 2022 (Findings))
- [C24] Set2Box: Similarity Preserving Representation Learning for Sets Geon Lee, Chanyoung Park, Kijung Shin The IEEE International Conference on Data Mining (ICDM 2022)
- [C23] LTE4G: Long-Tail Experts for Graph Neural Networks Sukwon Yun, Kibum Kim, Kanghoon Yoon, Chanyoung Park ACM International Conference on Information and Knowledge (CIKM 2022)
- [C22] Relational Self-Supervised Learning on Graphs Namkyeong Lee, Dongmin Hyun, Junseok Lee, Chanyoung Park ACM International Conference on Information and Knowledge (CIKM 2022)
- [C21] Beyond Learning from Next Item: Sequential Recommendation via Personalized Interest Sustainability

 Dongmin Hyun, **Chanyoung Park**, Junsu Cho, Hwanjo Yu
 - ACM International Conference on Information and Knowledge (CIKM 2022)
- [C20] Nonlinearity Encoding for Extrapolation of Neural Networks Gyoung S. Na, Chanyoung Park ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2022)
- [C19] GraFN: Semi-Supervised Node Classification on Graph with Few Labels via Non-Parametric Distribution Assignment Junseok Lee, Yunhak Oh, Yeonjun In, Namkyeong Lee, Dongmin Hyun, Chanyoung Park ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2022) (Short Paper)
- [C18] AHP: Learning to Negative Sample for Hyperedge Prediction Hyunjin Hwang, Seungwoo Lee, Chanyoung Park, Kijung Shin ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2022) (Short Paper)

- [C17] Augmentation-Free Self-Supervised Learning on Graphs Namkyeong Lee, Junseok Lee, Chanyoung Park Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI 2022)
- [C16] Learnable Structural Semantic Readout for Graph Classification Dongha Lee, Su Kim, Seonghyeon Lee, Chanyoung Park, Hwanjo Yu IEEE International Conference on Data Mining (ICDM 2021) (Short Paper)
- [C15] Bootstrapping User and Item Representations for One-Class Collaborative Filtering Dongha Lee, Seongku Kang, Hyunjun Ju, Chanyoung Park, Hwanjo Yu ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2021)
- [C14] HDMI: High-order Deep Multiplex Infomax Baoyu Jing, Chanyoung Park, Hanghang Tong The Web Conference (WWW 2021)
- [C13] Interest Sustainability-Aware Recommender System Dongmin Hyun, Junsu Cho, Chanyoung Park, Hwanjo Yu IEEE International Conference on Data Mining (ICDM 2020)
- [C12] Unsupervised Differentiable Multi-aspect Network Embedding Chanyoung Park, Carl Yang, Qi Zhu, Donghyun Kim, Hwanjo Yu and Jiawei Han ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2020)
- [C11] Unsupervised Attributed Multiplex Network Embedding Chanyoung Park, Donghyun Kim, Jiawei Han, Hwanjo Yu Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020)
- [C10] Task-Guided Pair Embedding in Heterogeneous Network
 Chanyoung Park, Donghyun Kim, Qi Zhu, Jiawei Han, Hwanjo Yu
 ACM International Conference on Information and Knowledge (CIKM 2019)
- [C9] BHIN2vec: Balancing the Type of Relation in Heterogeneous Information Network Seonghyun Lee, Chanyoung Park, Hwanjo Yu ACM International Conference on Information and Knowledge (CIKM 2019)
- [C8] Action Space Learning for Heterogeneous User Behavior Prediction Dongha Lee, Chanyoung Park, Hyunjun Ju, Junyoung Hwang, Hwanjo Yu International Joint Conference on Artificial Intelligence (IJCAI 2019)
- [C7] Sequential and Diverse Recommendation with Long Tail Yejin Kim, Kwangseob Kim, Chanyoung Park, Hwanjo Yu International Joint Conference on Artificial Intelligence (IJCAI 2019)
- [C6] Collaborative Translational Metric Learning Chanyoung Park, Donghyun Kim, Xing Xie, Hwanjo Yu IEEE International Conference on Data Mining (ICDM 2018)
- [C5] Review Sentiment-Guided Scalable Deep Recommender System Dongmin Hyun, Chanyoung Park, Min-Chul Yang, Ilhyeon Song, Jung-Tae Lee, Hwanjo Yu ACM SIGIR conference on Research and Development in Information Retrieval (SIGIR 2018) (Short Paper)
- [C4] Do "Also-Viewed" Products Help User Rating Prediction? Chanyoung Park, Donghyun Kim, Jinoh Oh, Hwanjo Yu International World-Wide Web Conference (WWW 2017)
- [C3] Convolutional Matrix Factorization for Document Context-Aware Recommendation Donghyun Kim, Chanyoung Park, Jinoh Oh, Hwanjo Yu ACM international conference on Recommender System (RecSys 2016)
- [C2] TRecSo: Enhancing Top-k Recommendation With Social Information Chanyoung Park, Donghyun Kim, Jinoh Oh, Hwanjo Yu International World-Wide Web Conference (WWW 2016) (Poster)

[C1] Predicting User Purchase in E-commerce by Comprehensive Feature Engineering and Decision Boundary Focused Under-Sampling

Chanyoung Park, Donghyun Kim, Jinoh Oh, Hwanjo Yu

ACM international conference on Recommender System Challenge (**ACM RecSysChallenge 2015**, 10th place, top 1.1%)

JOURNALS

- [J12] Single-cell RNA Sequencing Data Imputation Using Bi-level Feature Propagation Junseok Lee*, Sukwon Yun*, Yeongmin Kim, Tianlong Chen, Manolis Kellis, Chanyoung Park Briefings in Bioinformatics (2024)
- [J11] Deep Single-cell RNA-seq Data Clustering with Graph Prototypical Contrastive Learning Junseok Lee, Sungwon Kim, Dongmin Hyun, Namkyeong Lee, Yejin Kim, Chanyoung Park Bioinformatics (2023)
- [J10] Self-Supervised Graph Representation Learning via Positive Mining Namkyeong Lee, Junseok Lee, Chanyoung Park Information Sciences (2022.9)
- [J9] Learning to Utilize Auxiliary Reviews for Recommendation Dongmin Hyun, Chanyoung Park, Junsu Cho, Hwanjo Yu Information Sciences (2021.2)
- [J8] Deep Multiplex Graph Infomax: Attentive Multiplex Network Embedding using Global Information Chanyoung Park, Jiawei Han, Hwanjo Yu Knowledge-Based Systems (2020.6)
- [J7] Improved prediction of miRNA-disease associations based on matrix completion with network regularization Jihwan Ha, Chihyun Park, Chanyoung Park, Sanghyun Park Cells (2020.4) (SCIE)
- [J6] Click-aware Purchase Prediction with Push at the Top Chanyoung Park, Donghyun Kim, Min-Chul Yang, Jung-Tae Lee, Hwanjo Yu Information Sciences (2020.6)
- [J5] Inferring miRNA-disease Interactions using Probabilistic Matrix Factorization Jihwan Ha, Chihyun Park, Chanyoung Park, Sanghyun Park Journal of Biomedical Informatics (2020.2)
- [J4] An Encoder-Decoder Switch Network for Purchase Prediction Chanyoung Park, Donghyun Kim, Hwanjo Yu Knowledge-Based Systems (2019.12)
- [J3] Target-aware Convolutional Neural Network for Target-level Sentiment Analysis Dongmin Hyun, Chanyoung Park, Min-Chul Yang, Ilhyeon Song, Jung-Tae Lee, Hwanjo Yu Information Sciences (2019.7)
- [J2] Deep Hybrid Recommender Systems via Exploiting Document Context and Statistics of Items Donghyun Kim, Chanyoung Park, Jinoh Oh, Hwanjo Yu Information Sciences (2017.11)
- [J1] Improving top-K recommendation with truster and trustee relationship in user trust network Chanyoung Park, Donghyun Kim, Jinoh Oh, Hwanjo Yu Information Sciences (2016.12)

WORKSHOPS

- [W6] Stoichiometry Representation Learning with Polymorphic Crystal Structures Namkyeong Lee, Heewoong Noh, Gyoung S. Na, Tianfan Fu, Jimeng Sun, Chanyoung Park NeurIPS 2023 Workshop on AI for Scientific Discovery: From Theory to Practice (AI4Science)
- [W5] Electron-Derived Molecular Representation Learning for Real-World Molecular Physics
 Gyoung S. Na, Chanyoung Park
 NeurIPS 2023 Workshop on AI for Scientific Discovery: From Theory to Practice (AI4Science)
- [W4] Deep single-cell RNA-seq data clustering with graph prototypical contrastive learning Junseok Lee, Sungwon Kim, Dongmin Hyun, Namkyeong Lee, Yejin Kim, Chanyoung Park ICML 2023 Workshop on Computational Biology

[W3] Denoising single-cell RNA-seq data using Feature Propagation Sukwon Yun, Junseok Lee, **Chanyoung Park**

ICML 2023 Workshop on Computational Biology

[W2] Predicting Density of States via Multi-modal Transformer Namkyeong Lee, Heewoong Noh, Sungwon Kim, Dongmin Hyun, Gyoung S. Na, Chanyoung Park ICLR 2023 Workshop on Machine Learning for Materials (ML4Materials)

[W1] Shift-Robust Node Classification via Graph Adversarial Clustering Qi Zhu, Chao Zhang, Chanyoung Park, Carl Yang, Jiawei Han NeurIPS 2022 GLFrontiers Workshop

PATENT

[P1] Method for context-aware recommendation by considering contextual information of document and apparatus for the same

Donghyun Kim, **Chanyoung Park**, Jinoh Oh, Hwanjo Yu No. 10-18771610000, issued July 2018.

TEACHING

Instructor IF343: Statistical Machine Learning, KAIST

IE343: Statistical Machine Learning, KAIST
 2021S, 2022S, 2023S, 2024S

DS535 (KSE801): Recommender System and Machine Learning on Graphs, KAIST
 CoE202: Basics of Artificial Intelligence, KAIST
 2021F, 2022F, 2023F
 2021F

■ DS503: Machine Learning for Data Science (Deep Learning), KAIST 2022S,2023S,2024S

Teaching Assistant

■ CSED352: Data Communications, POSTECH

■ CSED312: Operating System, POSTECH

2014F

2016F

PROFESSIONAL SERVICES

AREA CHAIR

• NeurIPS Workshop (AI for Science: from Theory to Practice) [2023-present]

PROGRAM COMMITTEE/REVIEWER

- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) [2022-present]
- The Web Conference (WWW) [2020-present]
- AAAI Conference on Artificial Intelligence (AAAI), [2021-present]
- Conference on Neural Information Processing Systemss (NeurIPS) [2022-present]
- International Conference on Machine Learning (ICML) [2023-present]
- The International Conference on Learning Representations (ICLR), [2022-present]
- ACM International Conference on Research and Development in Information Retrieval (SIGIR)
 [2023-present]
- ACM International Web Search and Data Mining Conference (WSDM) [2023-present]
- International Joint Conference on Artificial Intelligence (IJCAI) [2023-present]
- ACM International Conference on Information and Knowledge Management (CIKM) [2023-present]
- SIAM International Conference on Data Mining (SDM) [2023-present]
- Learning on Graphs Conference (LoG) [2022-present]
- International ACM SIGIR Conference on Information Retrieval in the Asia Pacific (SIGIR-AP)
 [2023-present]
- The Web Conference (WWW) Poster Track, 2020
- ACM International Conference on Information and Knowledge Management (CIKM) Short Paper Track,
 [2020-present]
- IEEE International Conference on Big Data (BigData) [2020-2023]
- ECML-PKDD Research Track [2023-present]
- ECML-PKDD Applied Data Science Track and Demo Track [2020-2021]
- International Conference on Database Systems for Advanced Applications (DASFAA), 2021
- International Conference on Big Data and Smart Computing (BigComp) 2023
- International Conference on Internet and Web Applications and Services (ICIW) [2017-2018]
- Graph Learning @ TheWebConf, 2022
- International Joint Conference on Artificial Intelligence (IJCAI) Special Track on AI for Good, 2022
- NeurIPS Workshop (New Frontiers of AI for Drug Discovery and Development) [2023-present]

JOURNAL REVIEWS

- Artificial Intelligence In Medicine, Elsevier
- IEEE Transactions on Image Processing (TIP)

- Briefings in Bioinformatics, Oxford University Press
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- ACM Transactions on Knowledge and Data Engineering (TKDE)
- ACM Transactions on Information Systems (TOIS)
- ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
- ACM Transactions on Intelligent Systems and Technology (TIST)
- Journal of Computational Science, Elsevier
- Physica A: Statistical Mechanics and its Applications, Elsevier
- ISA Transactions, Elsevier
- Journal of King Saud University, Elsevier
- Reliability Engineering & System Safety, Elsevier
- Applied Soft Computing, Elsevier
- Data & Knowledge Engineering, Elsevier
- Pattern Recognition, Elsevier
- Information Sciences, Elsevier
- Knowledge-Based Systems, Elsevier
- Expert Systems with Applications, Elsevier
- ISA Transactions, Elsevier
- Computational and Structural Biotechnology Journal, Elsevier
- Heliyon, Elsevier
- Data Mining and Knowledge Discovery, Springer
- Frontiers of Computer Science, Springer
- Transactions on Asian and Low-Resource Language Information Processing, ACM
- Applied Intelligence (APIN), Springer
- An International Journal on Advances of Computer Science for Geographic Information Systems (GeoInformatica), Springer
- PLOS ONE, Public Library of Science
- IEEE Access
- Concurrency and Computation: Practice and Experience, John Wiley and Sons Ltd
- Applied Computational Intelligence and Soft Computing, Hindawi
- Mathematical Problems in Engineering, Hindawi
- Wireless Communications and Mobile Computing, Hindawi
- Mathematics, MDPI
- Electronics, MDPI
- Applied Sciences, MDPI
- Information, MDPI
- Entropy, MDPI

EVENT ORGANIZATIONS

■ Proceedings Chair, The ACM International Conference on Information and Knowledge Management (CIKM) [2023]

JOURNAL EDITORSHIP

- Frontiers in Artificial Intelligence (Graph representation learning: Methods and Applications)
- Frontiers in Big Data (Reviews in Big Data Networks: 2022)