JOYCE JIYOUNG WHANG (황지영, 黃智營)

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Date of Birth: January 11th, 1988, Citizenship: U.S. Citizen

EDUCATION

Ph.D. in Computer Science, The University of Texas at Austin
August 2010 – December 2015 (Advisor: Professor Inderjit S. Dhillon)

B.S. in Computer Science and Engineering, Ewha Womans University, Seoul, Korea
March 2006 – February 2010 (Summa Cum Laude, GPA: 4.30/4.3)

WORK EXPERIENCE

Associate Professor, September 2023 – present
Assistant Professor, July 2020 – August 2023
School of Computing, Korea Advanced Institute of Science and Technology (KAIST), Korea

Assistant Professor, March 2016 – June 2020
Department of Computer Science & Engineering, Sungkyunkwan University (SKKU), Korea

RESEARCH INTERESTS

Graph Machine Learning, Deep Learning, Data Mining, Big Data Analytics, Data Science

SELECTED PUBLICATIONS

* corresponding author, ‡equal contribution

1. `Conference` Heehyeon Kim, Kyeongryul Lee, and **Joyce Jiyoung Whang***,"Beneath the Facade: Probing Safety Vulnerabilities in LLMs via Auto-Generated Jailbreak Prompts", *Findings of the Association for Computational Linguistics: EMNLP 2025 (Findings of EMNLP)*, pages 17668–17700, Nov. 2025.

2. `Conference` Jaejun Lee and **Joyce Jiyoung Whang***, "Structure Is All You Need: Structural Representation Learning on Hyper-Relational Knowledge Graphs", *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, pages 33765–33783, Jul. 2025.

3. `Conference` Minsung Hwang, Jaejun Lee, and **Joyce Jiyoung Whang***, "Stability and Generalization Capability of Subgraph Reasoning Models for Inductive Knowledge Graph Completion", *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, pages 26376–26411, Jul. 2025.

4. `Conference` Jinhyeok Choi, Heehyeon Kim, and **Joyce Jiyoung Whang***, "Unveiling the Threat of Fraud Gangs to Graph Neural Networks: Multi-Target Graph Injection Attacks against GNN-Based Fraud Detectors", *Proceedings of the 39th AAAI Conference on Artificial Intelligence (AAAI)*, pages 16028–16036, Feb. 2025.

5. `Workshop` Chanyoung Chung, Kyeongryul Lee, Sunbin Park, and **Joyce Jiyoung Whang***, "Unifying Inductive, Cross-Domain, and Multimodal Learning for Robust and Generalizable Recommendation", *International Workshop on Multimodal Generative Search and Recommendation (MMGenSR) at Conference on Information and Knowledge Management (CIKM)*, Nov. 2025.

6. `Workshop` Kyeongryul Lee, Heehyeon Kim, and **Joyce Jiyoung Whang***, "SAIF: A Comprehensive Framework for Evaluating the Risks of Generative AI in the Public Sector", *AI for Public Missions (AIPM) Workshop at AAAI Conference on Artificial Intelligence (AAAI)*, Mar. 2025.

7. `Conference` Jaejun Lee, Minsung Hwang, and **Joyce Jiyoung Whang***, "PAC-Bayesian Generalization Bounds for Knowledge Graph Representation Learning", *Proceedings of the 41st International Conference on Machine Learning (ICML)*, pages 26589–26620, Jul. 2024.

8. `Conference` Giwon Hong[‡], Jeonghwan Kim[‡], Junmo Kang[‡], Sung-Hyon Myaeng, and **Joyce Jiyoung Whang***, "Why So Gullible? Enhancing the Robustness of Retrieval-Augmented Models against Counterfactual Noise", *Findings of the Association for Computational Linguistics: NAACL 2024 (Findings of NAACL)*, pages 2474–2495, Jun. 2024.

9. `Workshop` Jinhyeok Choi, Heehyeon Kim, Minhyeong An, and **Joyce Jiyoung Whang***, "SpoT-Mamba: Learning Long-Range Dependency on Spatio-Temporal Graphs with Selective State Spaces", *Spatio-Temporal Reasoning and Learning (STRL) Workshop at International Joint Conference on Artificial Intelligence (IJCAI)*, Aug. 2024.

10. `Conference` Jaejun Lee, Chanyoung Chung, Hochang Lee, Sungho Jo, and **Joyce Jiyoung Whang***, "VISTA: Visual-Textual Knowledge Graph Representation Learning", *Findings of the Association for Computational Linguistics: EMNLP 2023 (Findings of EMNLP)*, pages 7314–7328, Dec. 2023.

11. `Conference` Jeonghwan Kim[‡], Giwon Hong[‡], Sung-Hyon Myaeng, **Joyce Jiyoung Whang***, "FinePrompt: Unveiling the Role of Finetuned Inductive Bias on Compositional Reasoning in GPT-4", *Findings of the Association for Computational Linguistics: EMNLP 2023 (Findings of EMNLP)*, pages 3763–3775, Dec. 2023. (short paper)

12. `Conference` Chanyoung Chung[‡], Jaejun Lee[‡], and **Joyce Jiyoung Whang***, "Representation Learning on Hyper-Relational and Numeric Knowledge Graphs with Transformers", *Proceedings of the 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, pages 310–322, Aug. 2023.

13. `Conference` Jaejun Lee, Chanyoung Chung, and **Joyce Jiyoung Whang***, "InGram: Inductive Knowledge Graph Embedding via Relation Graphs", *Proceedings of the 40th International Conference on Machine Learning (ICML)*, pages 18796–18809, Jul. 2023.

14. `Conference` Chanyoung Chung and **Joyce Jiyoung Whang***, "Learning Representations of Bi-level Knowledge Graphs for Reasoning beyond Link Prediction", *Proceed-*

ings of the 37th AAAI Conference on Artificial Intelligence (AAAI), pages 4208–4216, Feb. 2023.

15. `Workshop` Heehyeon Kim, Jinhyeok Choi, and **Joyce Jiyoung Whang***, "Dynamic Relation-Attentive Graph Neural Networks for Fraud Detection", *Proceedings of the IEEE International Conference on Data Mining (ICDM) Workshops, Machine Learning on Graphs (MLoG) Workshop*, pages 1092–1096, Dec. 2023.

16. `Journal` Ji Ho Kwak‡, Jaejun Lee‡, **Joyce Jiyoung Whang***, and Sungho Jo*, "Semantic Grasping Via a Knowledge Graph of Robotic Manipulation: A Graph Representation Learning Approach", *IEEE Robotics and Automation Letters (RA-L)*, Vol. 7, No. 4, pages 9397-9404, Oct. 2022.
    `Conference` ※Also presented at the *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022)*.

17. `Conference` Seongil Wi, Sijae Woo, **Joyce Jiyoung Whang**, and Sooel Son*, "HiddenCPG: Large-Scale Vulnerable Clone Detection Using Subgraph Isomorphism of Code Property Graphs", *Proceedings of the ACM Web Conference 2022 (TheWebConf, formerly known as WWW)*, pages 755–766, Apr. 2022.

18. `Conference` Chanyoung Chung and **Joyce Jiyoung Whang***, "Knowledge Graph Embedding via Metagraph Learning", *Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, pages 2212–2216, Jul. 2021. (short paper)

19. `Journal` Junghyun Bum, Hyunseung Choo, and **Joyce Jiyoung Whang***, "Image-Based Lifelogging: User Emotion Perspective", *Computers, Materials & Continua*, Vol. 67, No. 2, pages 1963-1977, Feb. 2021.

20. `Journal` Junghyun Bum, **Joyce Jiyoung Whang***, and Hyunseung Choo*, "Sentiment-based Sub-event Segmentation and Key Photo Selection", *Journal of Visual Communication and Image Representation*, Vol. 74, Jan. 2021.

21. `Conference` **Joyce Jiyoung Whang**, Rundong Du, Sangwon Jung, Geon Lee, Barry Drake, Qingqing Liu, Seonggoo Kang, and Haesun Park, "MEGA: Multi-View Semi-Supervised Clustering of Hypergraphs", *Proceedings of the 46th International Conference on Very Large Data Bases (VLDB)*, pages 698–711, Jan. 2020.

22. `Journal` Yoon Mo Jung, **Joyce Jiyoung Whang**, and Sangwoon Yun*, "Sparse Probabilistic K-means", *Applied Mathematics and Computation*, Vol. 382, Oct. 2020.

23. `Workshop` **Joyce Jiyoung Whang***, Yeonsung Jung, Seonggoo Kang, Dongho Yoo, and Inderjit S. Dhillon, "Scalable Anti-TrustRank with Qualified Site-level Seeds for Link-based Web Spam Detection", *Companion Proceedings of the Web Conference 2020, Workshop on CyberSafety: Computational Methods in Online Misbehavior*, pages 593–602, Apr. 2020.

24. `Conference` Geon Lee, Seonggoo Kang, and **Joyce Jiyoung Whang***, "Hyperlink Classification via Structured Graph Embedding", *Proceedings of the 42nd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, pages 1017–1020, Jul. 2019. (short paper)

25. `Journal` **Joyce Jiyoung Whang***‡, Yangyang Hou‡, David F. Gleich, and Inderjit S. Dhillon, "Non-exhaustive, Overlapping Clustering", *IEEE Transactions on Pattern*

Analysis and Machine Intelligence (TPAMI), Vol. 41, No. 11, pages 2644–2659, Nov. 2019.

26. `Journal` Namhyun Kim, Junseong Lee, **Joyce Jiyoung Whang**, and Jinkyu Lee*, "SmartGrip: Grip Sensing System for Commodity Mobile Devices through Sound Signals", *Personal and Ubiquitous Computing*, Vol. 24, pages 643–654, Nov. 2019.

27. `Workshop` **Joyce Jiyoung Whang***, Yeon Seong Jeong, Inderjit S. Dhillon, Seonggoo Kang, and Jungmin Lee, "Fast Asynchronous Anti-TrustRank for Web Spam Detection", *Workshop on MIS2: Misinformation and Misbehavior Mining on the Web at ACM International Conference on Web Search and Data Mining (WSDM)*, Feb. 2018.

28. `Conference` **Joyce Jiyoung Whang*** and Inderjit S. Dhillon, "Non-Exhaustive, Overlapping Co-Clustering", *Proceedings of the 26th ACM Conference on Information and Knowledge Management (CIKM)*, pages 2367–2370, Nov. 2017. (short paper)

29. `Conference` **Joyce Jiyoung Whang***, "An Empirical Study of Community Overlap: Ground-truth, Algorithmic Solutions, and Implications", *Proceedings of the 26th ACM Conference on Information and Knowledge Management (CIKM)*, pages 2363–2366, Nov. 2017. (short paper)

30. `Conference` Yangyang Hou, **Joyce Jiyoung Whang**, David F. Gleich, and Inderjit S. Dhillon, "Fast Multiplier Methods to Optimize Non-exhaustive, Overlapping Clustering", *Proceedings of the 2016 SIAM International Conference on Data Mining (SDM)*, pages 297–305, May 2016.

31. `Journal` **Joyce Jiyoung Whang***, David F. Gleich, and Inderjit S. Dhillon, "Overlapping Community Detection Using Neighborhood-Inflated Seed Expansion", *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, Vol. 28, No. 5, pages 1272–1284, May 2016.

32. `Conference` Yangyang Hou‡, **Joyce Jiyoung Whang**‡, David F. Gleich, and Inderjit S. Dhillon, "Non-exhaustive, Overlapping Clustering via Low-Rank Semidefinite Programming", *Proceedings of the 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, pages 427–436, Aug. 2015.

33. `Conference` **Joyce Jiyoung Whang**, Andrew Lenharth, Inderjit S. Dhillon, and Keshav Pingali, "Scalable Data-Driven PageRank: Algorithms, System Issues, and Lessons Learned", *Proceedings of the 21st International European Conference on Parallel and Distributed Computing (Euro-Par)*, pages 438–450, Aug. 2015.

34. `Conference` **Joyce Jiyoung Whang**, Inderjit S. Dhillon, and David F. Gleich, "Non-exhaustive, Overlapping k-means", *Proceedings of the 2015 SIAM International Conference on Data Mining (SDM)*, pages 936–944, Apr. 2015.

35. `Conference` **Joyce Jiyoung Whang**, Piyush Rai, and Inderjit S. Dhillon, "Stochastic Blockmodel with Cluster Overlap, Relevance Selection, and Similarity-Based Smoothing", *Proceedings of the 2013 IEEE International Conference on Data Mining (ICDM)*, pages 817–826, Dec. 2013.

36. `Conference` **Joyce Jiyoung Whang**, David F. Gleich, and Inderjit S. Dhillon, "Overlapping Community Detection Using Seed Set Expansion", *Proceedings of the 22nd ACM Conference on Information and Knowledge Management (CIKM)*, pages 2099–2108, Oct. 2013.

37. `Conference` **Joyce Jiyoung Whang**, Xin Sui, and Inderjit S. Dhillon, "Scalable and Memory-Efficient Clustering of Large-Scale Social Networks", *Proceedings of the 2012 IEEE International Conference on Data Mining (ICDM)*, pages 705–714, Dec. 2012.

38. `Conference` Kai-Yang Chiang, **Joyce Jiyoung Whang**, and Inderjit S. Dhillon, "Scalable Clustering of Signed Networks Using Balance Normalized Cut", *Proceedings of the 21st ACM Conference on Information and Knowledge Management (CIKM)*, pages 615–624, Oct. 2012.

39. `Workshop` Xin Sui, Tsung-Hsien Lee, **Joyce Jiyoung Whang**, Berkant Savas, Saral Jain, Keshav Pingali, and Inderjit S. Dhillon, "Parallel Clustered Low-Rank Approximation of Graphs and Its Application to Link Prediction", *Proceedings of the 25th International Workshop on Languages and Compilers for Parallel Computing (LCPC)*, pages 76–95, Sep. 2012.

TEACHING EXPERIENCE

- **Spring 2026, Spring 2025, Spring 2024, Spring 2023, Spring 2022, Spring 2021**: Graph Machine Learning and Mining (KAIST CS471)
- **Fall 2025, Fall 2024, Fall 2023, Fall 2022, Fall 2021**: Machine Learning (KAIST CS376)
- **Spring 2026, Spring 2025, Spring 2024, Spring 2023, Fall 2022**: Theory and Practice for Deep Learning (KAIST KTP535, graduate course, co-teaching)
- **Fall 2023, Fall 2022, Fall 2020**: Advanced Data Mining (KAIST CS665 & DS532, graduate course)
- **Spring 2020, Spring 2019**: Introduction to Big Data Analytics (SKKU SWE3049)
- **Fall 2019**: Advanced Big Data Analytics (SKKU AIM4001, graduate course)
- **Spring 2018, Spring 2017**: Big Data Analytics (SKKU ECE4271, graduate course)
- **Spring 2020, Fall 2019, Spring 2019, Fall 2018, Spring 2018, Fall 2017, Spring 2017, Fall 2016**: Basis and Practice in Programming (SKKU GEDB029)
- **Fall 2018**: Database Project (SKKU SWE3033)
- **Fall 2017**: Special Topics in Software (SKKU SWE3024)
- **Fall 2016, Spring 2016**: Basic Programming Languages (SKKU CSE2014)
- **Spring 2016**: Introduction to Computer Engineering (SKKU ICE2010)

PROFESSIONAL SERVICES

- **Organizing Committee**: Workshop Chair for ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2026), Workshop Chair for International Conference on Database Systems for Advanced Applications (DASFAA 2026).
- **Area Chair or Senior Program Committee**: International Conference on Machine Learning (Area Chair for ICML 2026), Conference on Neural Information Processing Systems (Area Chair for NeurIPS 2024, 2025), International Conference on Learning Representations (Area Chair for ICLR 2025, 2026), ACL Rolling Review

(Area Chair for ARR 2025), ACM International Conference on Information and Knowledge Management (Senior Program Committee for CIKM 2024, 2025)

- **Associate Editor**: ACM Transactions on Knowledge Discovery from Data (TKDD 2026)

- **Conference Program Committee or Reviewer**: Conference on Neural Information Processing Systems (NIPS 2017, 2018, NeurIPS 2019, 2020, 2021, 2022, 2023), International Conference on Machine Learning (ICML 2017, 2018, 2021, 2022, 2023, 2024, 2025), ACL Rolling Review (ARR 2025), AAAI Conference on Artificial Intelligence (AAAI 2020, 2021, 2022, 2025, 2026), ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2022, 2023, 2024), The Web Conference (TheWebConf 2019, 2020, 2021, 2022, 2023), International Conference on Learning Representations (ICLR 2021, 2022), IEEE International Conference on Data Mining (ICDM 2019, 2020), IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2026), International Joint Conference on Artificial Intelligence (IJCAI 2024), ACM International Conference on Web Search and Data Mining (WSDM 2023), SIAM International Conference on Data Mining (SDM 2022, 2023), Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2019), International Conference on Database Systems for Advanced Applications (DASFAA 2020, 2026), ACM Symposium on Applied Computing (SAC 2020, 2021), IEEE International Conference on Big Data and Smart Computing (BigComp 2021, 2022), Korean DataBase Conference (KDBC 2018, 2019, 2020, 2024).

- **Journal Reviewer**: IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI 2019, 2020, 2021, 2022, 2023, 2024), IEEE Transactions on Knowledge and Data Engineering (TKDE 2014, 2015, 2016, 2017, 2018, 2021, 2022, 2023), IEEE Transactions on Neural Networks and Learning Systems (TNNLS 2021, 2022), ACM Transactions on Knowledge Discovery from Data (TKDD 2022), Data Mining and Knowledge Discovery, Artificial Intelligence, ACM Computing Surveys (CSUR 2018, 2019, 2021), Journal of Machine Learning Research (JMLR 2019), IEEE Transactions on Systems, Man and Cybernetics: Systems (SMC 2020), IEEE Transactions on Cybernetics, PLOS ONE, Journal of the Association for Information Science and Technology (JASIST), Journal of Experimental & Theoretical Artificial Intelligence, KSII Transactions on Internet and Information Systems (TIIS), Journal of Information Science, IEEE Transactions on Emerging Topics in Computing (TETC), World Wide Web: Internet and Web Information Systems (WWW 2019).

- Committee of Women in Computing at Korean Institute of Information Scientists and Engineers (KIISE), 2018/03/01–present.

- Trustee of KIISE Data Society, 2017/09/01–present.

- Committee of NAVER News Algorithm Review (3rd), 2023/06/29–present.

- Committee of NAVER News Algorithm Review (2nd), 2021/08/19–2022/01/31.

Patents

- [Korean Patent] **Joyce Jiyoung Whang** and Chanyoung Chung, METHOD FOR BI-LEVEL KNOWLEDGE GRAPH EMBEDDING AND SYSTEM THEREOF, Patent Number: 10-2834344, Registration: Jul. 10, 2025.

SELECTED HONORS & AWARDS

- Google exploreCSR Award (USD 15,000), 2023.
- National Science Foundation (NSF) Graduate Research Fellowship Program Honorable Mention, 2012.
- Dean's Excellence Award from the College of Natural Sciences, The University of Texas at Austin, 2010.
- The Special Prize of the University President, Ewha Womans University, 2010.
- National Science & Technology Scholarship, Korea Student Aid Foundation, Fall 2008.
- Honor Scholarship, Ewha Womans University, Fall 2006 – Fall 2009.

INVITED TALKS & LECTURES

- "Key Facets in Modern Knowledge Graph Representation Learning (KeyKGRL)", *International Semantic Web Conference (ISWC)*, Tutorial, November 2025.
- "AI Agents and Graph Machine Learning: Towards an Interconnected World", *Samsung Global Research*, September 2025.
- "Representation Learning on Knowledge Graphs", *IEEE International Conference on Big Data and Smart Computing (BigComp)*, Tutorial, February 2025.
- "Recent Studies on Hyper-Relational Knowledge Graph Representation Learning", *Korea Electronics Technology Institute (KETI)*, June 2025.
- "Knowledge Graph Representation Learning with Multimodality, Structure, and Theoretical Grounds", *The University of Edinburgh*, July 2024.
- "Graph Machine Learning for AI", *KAIST Graduate School of Data Science Colloquium*, September 2024.
- "Representation Learning on Knowledge Graphs: A Way to Inject Human Knowledge into Machines", *KAIST SW Graduate Colloquium*, April 2023.
- "Mining and Learning with Graphs: Clustering, Hypergraphs, and Representation Learning", *Seoul National University*, May 2021.
- "Knowledge Graph Embedding: Methods and Applications", *IEEE International Conference on Big Data and Smart Computing (BigComp)*, Tutorial, January 2021.
- "Graph Mining and Network Analysis", *NAVER*, December 2019.
- Invited Lecture on "Introduction to Data Science", *Samsung Electronics*, July 17–19 & August 19–27, 2019.
- "Non-Exhaustive, Overlapping Clustering of Hypergraphs", *NAVER AI Colloquium*, April 2019.
- "Overlapping Community Detection in Massive Social Networks", *KAIST School of Computing Colloquium*, February 2019.
- "Sensor-based Semiconductor Chip Data Analysis via Novelty Detection", *Samsung Electronics Tech Day*, November 2018.
- "Fast Asynchronous Anti-TrustRank for Web Spam Detection", *NAVER AI Colloquium*, March 2018.

- "Scalable Data-driven PageRank and Non-exhaustive, Overlapping Co-clustering", *Purdue University*, August 2017.
- "Overlapping Community Detection in Massive Social Networks", *POSTECH*, March 2016.
- "Non-exhaustive, Overlapping Clustering via Low-Rank Semidefinite Programming", *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, Sydney, Australia, August 2015.
- "Non-exhaustive, Overlapping *k*-means", *SIAM International Conference on Data Mining (SDM)*, Vancouver, British Columbia, Canada, April 2015.
- "Stochastic Blockmodel with Cluster Overlap, Relevance Selection, and Similarity-Based Smoothing", *IEEE International Conference on Data Mining (ICDM)*, Dallas, Texas, USA, December 2013.
- "Overlapping Community Detection Using Seed Set Expansion", *ACM Conference on Information and Knowledge Management (CIKM)*, Burlingame, California, USA, October 2013.
- "Scalable and Memory-Efficient Clustering of Large-Scale Social Networks", *IEEE International Conference on Data Mining (ICDM)*, Brussels, Belgium, December 2012.
- "Scalable Clustering of Signed Networks Using Balance Normalized Cut", *ACM Conference on Information and Knowledge Management (CIKM)*, Maui Hawaii, USA, October 2012.

SELECTED GRANTS

- "Responsible Multimodal Graph AI", National Research Foundation of Korea, Principal Investigator, Mar. 2025 – Feb. 2028.
- "AI Agent-based Omni Knowledge Graph Construction and its Applications", Samsung Electronics, Principal Investigator, Oct. 2025 – Sep. 2030.
- "LG AI STAR Talent Development Program for Leading Large-Scale Generative AI Models in the Physical AI Domain", IITP, Jul. 2025 – Dec. 2028.
- "Development of AI Technology to support Expert Decision-making that can Explain the Reasons/Grounds for Judgment Results based on Expert Knowledge", IITP, Apr. 2022 – Dec. 2026.
- "Extendable Graph Representation Learning", National Research Foundation of Korea, Principal Investigator, Mar. 2022 – Feb. 2025.
- "Multimodal Cross-Domain Recommendation Systems for Personalized Services", Kyobo Book & DPLANEX, Principal Investigator, Dec. 2024 – Nov. 2025.
- "GNN-based Insurance Fraud Detection", Kyobo Life Insurance & DPLANEX, Principal Investigator, Aug. 2022 – Nov. 2025.
- "MARS Artificial Intelligence Integrated Research Center" (ERC at KAIST), National Research Foundation of Korea, Aug. 2018 – Feb. 2024.
- "Knowledge Graph Modeling for Semiconductor Data", Samsung Electronics, Principal Investigator, Sep. 2020 – Sep. 2023.

- "Augmented Knowledge Graph Embedding with Numerical Data", Samsung SDS, Principal Investigator, May 2021 – Dec. 2022.

- "Semi-Supervised Multi-View Learning with Graphs", National Research Foundation of Korea, Principal Investigator, Mar. 2019 – Feb. 2022.

- "Improving Performances of Search Engines by Analyzing the Structure of Real-World Web Graphs", NAVER, Principal Investigator, May 2017 – May 2019.

- "Modeling Information Propagation by Exploiting the Clustering Structure of Massive Social Networks", National Research Foundation of Korea, Principal Investigator, Nov. 2016 – Oct. 2019.

- "User Modeling and Classification on IPTV by Pattern Mining", SK Broadband, Principal Investigator, Mar. 2016 – Dec. 2019.

- "Data-driven Semiconductor Chip Damage Detection", Samsung Electronics, Jan. 2018 – Aug. 2018.