

# YONG-YEON JO (조 용연)

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## EXPERIENCE

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<b>Managing Director, AI Group</b>	<i>MedicalAI</i>	2021.03 - Present
<b>Manager, Data R&amp;D Team</b>	<i>Lifesemantics</i>	2020.09 - 2021.03
<b>Researcher, HealthCare AI Team</b>	<i>National Cancer Center</i>	2018.03 - 2020.09
<b>Visiting Scholar</b>	<i>Baylor University</i>	2016.08 - 2016.09

## EDUCATION

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<b>Hanyang University</b>	2013.03–2018.02
<b>Ph.D.</b>   <i>Department of Computer and Software</i>	<i>Seoul, Republic of Korea</i>
<b>Advisor:</b> Prof. Sang-Wook Kim	
<b>Hanyang University</b>	2011.03–2013.02
<b>M.S.</b>   <i>Department of Electronics Computer Engineering</i>	<i>Seoul, Republic of Korea</i>
<b>Hanyang University</b>	2007.03–2011.02
<b>B.S.</b>   <i>Department of Computer Engineering</i>	<i>Seoul, Republic of Korea</i>

## PROFESSIONAL SERVICE

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- **2026:** AAAI, TheWebConf, KDD
- **2025:** ICASSP, IJCNN, NeurIPS, KDD, CHIL, ICML, ICLR, AAAI, ML4H
- **2024:** AAAI, NeurIPS
- **2023:** ICASSP

## PUBLICATIONS

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Min Sung Lee, Jong-Hwan Jang, Sora Kang, Ga In Han, Ah-Hyun Yoo, **Yong-Yeon Jo**, Jeong Min Son, Joon-myung Kwon, Sooyeon Lee, Ji Sung Lee, Hak Seung Lee, Kyung-Hee Kim, “Transparent and robust Artificial intelligence-driven Electrocardiogram model for Left Ventricular Systolic Dysfunction”, *Diagnostics*, Vol 15. No. 15, 2025, 2025.

Jong-Hwan Jang, **Yong-Yeon Jo**, Sora Kang, Jeong Min Son, Hak Seung Lee, Joon-myung Kwon, Min Sung Lee, “A novel XAI framework for explainable AI-ECG using generative counterfactual XAI (GCX)”, *Scientific Reports*, Vol 15. No. 1, 2025, 2025.

JaeHo Park, TaeJun Park, Joon-myung Kwon, **Yong-Yeon Jo**, “Benchmarking ECG Delineation using Deep Neural Network-based Semantic Segmentation Models”, *Proceedings of the sixth Conference on Health, Inference, and Learning, PMLR 287*, 2025, 2025.

**Yong-Yeon Jo**, Byeong Tak Lee, Jeong-Ho Hong, Hak Seung Lee, Joon-myung Kwon, Beom Joon Kim, “Test-Time Calibration: A Framework for Personalized Test-Time Adaptation in Real-World Biosignals”, *Proceedings of the sixth Conference on Health, Inference, and Learning, PMLR 287*, 2025, 2025.

Byeong Tak Lee, **Yong-Yeon Jo**, Joon-Myoung Kwon, “Unveiling the secrets of neural network scaling for ECG classification”, *Informatics in Medicine Unlocked*, Vol 55., 2025, 2025.

Hak Seung Lee, Sora Kang, **Yong-Yeon Jo**, Jeong Min Son, Min Sung Lee, Joon-myung Kwon, Kyung-Hee Kim, “AI-Enabled Smartwatch ECG: A Feasibility Study for Early Prediction and Prevention of Heart Failure Rehospitalization”, *JACC: Basic to Translational Science, In Press, Corrected Proof*, 2025, 2025.

**Yong-Yeon Jo**, Byeong Tak Lee, Beom Joon Kim, Jeong-Ho Hong, Hak Seung Lee, Joon-myung Kwon, “New Test-Time Scenario for Biosignal: Concept and Its Approach”, *Findings paper presented at Machine Learning for Health (ML4H), arXiv:2411.17785*, 2024, 2024.

Ki-Hyun Jeon, Hak Seung Lee, Sora Kang, Jong-Hwan Jang, **Yong-Yeon Jo**, Jeong Min Son, Min Sung Lee, Joon-myong Kwon, Ju-Seung Kwun, Hyoung-Won Cho, Si-Hyuck Kang, Wonjae Lee, Chang-Hwan Yoon, Jung-Won Suh, Tae-Jin Youn, In-Ho Chae, “AI-enabled ECG index for predicting left ventricular dysfunction in patients with ST-segment elevation myocardial infarction”, *Scientific Reports*, Vol 14. No. 1, 2024, 2024.

Junho Song, Jong-Hwan Jang, Byeong Tak Lee, DongGyun Hong, Joon-myong Kwon, **Yong-Yeon Jo**, “Foundation Models for Electrocardiograms”, *arXiv preprint*, arXiv:2407.0711, 2024, 2024.

Byeong Tak Lee, Joon-myong Kwon, **Yong-Yeon Jo**, “TADA: Temporal Adversarial Data Augmentation for Time Series Data”, *arXiv preprint*, arXiv:2407.15174, 2024, 2024.

Ki-Hyun Jeon, Jong-Hwan Jang, Sora Kang, Hak Seung Lee, Min Sung Lee, Jeong Min Son, **Yong-Yeon Jo**, Tae Jun Park, Il-Young Oh, Joon-myong Kwon, Ji Hyun Lee, “Identifying atrial fibrillation with sinus rhythm electrocardiogram in embolic stroke of undetermined source: a validation study with insertable cardiac monitors”, *Korean Circulation Journal*, Vol 53. No. 11, 2023, 2023.

**Yong-Yeon Jo**, Young Sang Choi, Jong-Hwan Jang, Joon-Myoung Kwon, “ECGT2T: Towards Synthesizing Twelve-Lead Electrocardiograms from Two Asynchronous Leads”, *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2023, 2023.

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Byeong Tak Lee, Seon-Yu Lim, Youngjae Song, Joon-myong Kwon, **Yong-Yeon Jo**, “Efficient Data Augmentation Policy for Electrocardiograms”, *Proceeding of the International Conference on Information and Knowledge Management (ACM CIKM)*, 2022, 2022.

**Yong-Yeon Jo**, Myung-Hwan Jang, Sunju Park, Sang-Wook Kim, “A Data Layout with Good Data Locality for Single-Machine based Graph Engines”, *IEEE Transactions on Computers*, Vol. 71 No. 8, 2022, 2022.

Yeji Lee, Byungjin Choi, Min Sung Lee, Uram Jin, Seokyoung Yoon, **Yong-Yeon Jo**, Joon-myong Kwon, “An artificial intelligence electrocardiogram analysis for detecting cardiomyopathy in the peripartum period”, *International Journal of Cardiology*, Vol. 352, 2022, 2022.

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Yoonsuk Kang, **Yong-Yeon Jo**, Jaehyuk Cha, Wan D. Bae, Sang-Wook Kim, “FORESEE: An Effective Efficient Framework for Estimating the Execution Times of IO Traces on the SSD”, *IEEE Transactions on Computers*, Vol 70. No. 12, 2021, 2021.

Joon-myong Kwon, Ye Rang Lee, Min-Seung Jung, Yoon-Ji Lee, **Yong-Yeon Jo**, Da-Young Kang, Soo Youn Lee, Yong-Hyeon Cho, Jae-Hyun Shin, Jang-Hyeon Ban, Kyung-Hee Kim, “Deep learning model for screening sepsis using electrocardiography”, *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, open access*, 2021, 2021.

Myung-Hwan Jang, **Yong-Yeon Jo**, Sang-Wook Kim, “RealGraph-Web: A Graph Analysis Platform on the Web”, *Proceeding of International Conference on Very Large Data Bases (VLDB), Demonstration Track*, 2021, 2021.

Joon-myong Kwon, **Yong-Yeon Jo**, Soo Youn Lee, Kyung-Hee Kim, “Artificial intelligence using electrocardiography: Strengths and pitfalls”, *European Heart Journal*, Vol 42. No 30, 2021, 2021.

**Yong-Yeon Jo**, Joon-myong Kwon, Ki-Hyun Jeon, Yong-Hyeon Cho, Jae-Hyun Shin, Yoon-Ji Lee, Min-Seung Jung, Jang-Hyeon Ban, Kyung-Hee Kim, Soo Youn Lee, Jinsik Park, Byung-Hee Oh, “Detection and classification of arrhythmia using an explainable deep learning model”, *Journal of Electrocardiology*, Vol. 67, 2021, 2021.

**Yong-Yeon Jo**, Joon-myong Kwon, Ki-Hyun Jeon, Yong-Hyeon Cho, Jae-Hyun Shin, Yoon-Ji Lee, Min-Seung Jung, Jang-Hyeon Ban, Kyung-Hee Kim, Soo Youn Lee, Jinsik Park, Byung-Hee Oh, “Artificial intelligence to diagnose paroxysmal supraventricular tachycardia using electrocardiography during normal sinus rhythm”, *European Heart Journal - Digital Health*, Vol 2. No 2., 2021, 2021.

**Yong-Yeon Jo**, Younghoon Cho, Soo YounLee, Joon-myong Kwon, Kyung-Hee Kim, Ki-Hyun Jeon, Soohyun Cho, Jinsik Park, Byung-Hee Oh, “Explainable artificial intelligence to detect atrial fibrillation using electrocardiogram”, *International Journal of Cardiology*, Vol. 328, 2021, 2021.

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**Yong-Yeon Jo**, Jai Hong Han, Hyun Woo Park, Hyojung Jung, Jaedong Lee, Jipmin Jung, Hyo Soungh Cha, Dae Kyung Sohn, Yul Hwangbo, "Prediction of the prolonged length of hospital stay after cancer surgery using the machine learning on electronic health records: Retrospective cross-sectional study", *Journal of Medical Internet Research Medical Informatics*, Vol. 9 No. 2, 2021, 2021.

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**Yong-Yeon Jo**, Myung-Hwan Jang, Sang-Wook Kim, Sunju Park, "RealGraph: A graph engine leveraging the power-law distribution of real-world graphs", *Proceeding of the World Wide Web (WWW) Conference*, 2019, 2019.

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**Yong-Yeon Jo**, Myung-Hwan Jang, Sang-Wook Kim, Kyungsik Han, "Efficient processing of recommendation algorithms on a single-machine-based graph engine", *Journal of Supercomputing*, Vol. 76, 2018, 2018.

**Yong-Yeon Jo**, Myung-Hwan Jang, Hyungsoo Jung, Sang-Wook Kim, "A high-performance graph engine for efficient social network analysis", *Proceeding of the World Wide Web (WWW) Conference*, 2018, 2018.

**Yong-Yeon Jo**, Kyuhwan Lee, Myung-Hwan Jang, Sang-Wook Kim, Eunjee Song, "Efficient processing of large-scale sparse matrix-matrix multiplications on a single machine", *Proceeding of the IEEE International Conference on Systems, MAN, and Cybernetics Society (IEEE SMC)*, 2017, 2017.

Yoonsuk Kang, **Yong-Yeon Jo**, Jaehyuk Cha, Wan D. Bae, Sang-Wook Kim, "FORESEE: a framework for effective and efficient estimation of the execution time of an IO trace on the SSD", *Proceeding of the International Conference on Information and Knowledge Management (ACM CIKM)*, 2017, 2017.

**Yong-Yeon Jo**, Myung-Hwan Jang, Sang-Wook Kim, "Efficient processing of alternating least squares on a single machine", *Proceeding of the International Conference on Emerging Database (EDB)*, 2017, 2017.

**Yong-Yeon Jo**, Sang-Wook Kim, Sung-Woo Cho, Duck-Ho Bae, Hyunok Oh, "High-performance data mining with intelligent SSD", *Journal of Cluster Computing*, Vol. 20 No. 2, 2017, 2017.

**Yong-Yeon Jo**, Jiwon Hong, Myung-Hwan Jang, Jae-Geun Bang, Sang-Wook Kim, "Data locality in graph engines: implications and preliminary experimental results", *Proceeding of the International Conference on Information and Knowledge Management (ACM CIKM)*, 2016, 2016.

Yoonsuk Kang, **Yong-Yeon Jo**, Jaehhyuk Cha, Sang-Wook Kim, Young Kyun Shin, "The uFLIP benchmark revisited for evaluating SSDs", *Journal of Communication Systems*, Vol. 29, 2016, 2016.

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**Yong-Yeon Jo**, Sungwoo Cho, Sang-Wook Kim, Hyunok Oh, "Collaborative processing of data-intensive algorithms with CPU, intelligent SSD, and GPU", *Proceeding of the International Conference on ACM/SIGAPP Symposium on Applied Computing (ACM SAC)*, 2016, 2016.

**Yong-Yeon Jo**, Moonjun Chung, Sang-Wook Kim, Hyunok Oh, “Data mining in intelligent SSD: simulation-based evaluation”, *Proceeding of the International Conference on Big Data and Smart Computing (BigComp)*, 2016, 2016.

**Yong-Yeon Jo**, Sang-Wook Kim, Duck-Ho Bae, “Efficient sparse matrix multiplication on GPU for large social network analysis”, *Proceeding of the International Conference on Information and Knowledge Management (ACM CIKM)*, 2015, 2015.

**Yong-Yeon Jo**, SungWoo Cho, Sang-Wook Kim, Duck-Ho Bae, Hyunok Oh, “On running data-Intensive algorithms with intelligent SSD and host CPU: a collaborative approach”, *Proceeding of the International Conference on ACM/SIGAPP Symposium on Applied Computing (ACM SAC)*, 2015, 2015.

**Yong-Yeon Jo**, Sang-Wook Kim, Duck-Ho Bae, “GPU-based matrix multiplication methods for social networks analysis”, *Proceeding of the International Conference on Research in Adaptive and Convergent Systems (ACM RACS)*, 2014, 2014.

Yoonsuk Kang, **Yong-Yeon Jo**, Jaehyuk Cha, Sang-Wook Kim, Young Kyun Shin, “Exploiting the uFLIP benchmark for analyzing SSDs performance”, *Proceeding of the International Conference on Network Infrastructure and Digital Content (IEEE IC-NIDC)*, 2014, 2014.

Yoonsuk Kang, **Yong-Yeon Jo**, Duck-Ho Bae, Sang-Wook Kim, “Running data mining algorithms on SSDs”, *Proceeding of the International Conference on Emerging Databases-Technologies, Applications, and Theory (EDB)*, 2013, 2013.

**Yong-Yeon Jo**, Duck-Ho Bae, Sang-Wook Kim, “Efficient computations of link-based similarity measures on the GPU”, *Proceeding of the IEEE International Conference on Network Infrastructure and Digital Content (IEEE IC-NIDC)*, 2012, 2012.

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조용연, 정민영, 황보육, “전자의무기록 데이터에서의 적대적 생성 알고리즘 기반 경측값 대치 알고리즘 성능분석”, *한국정보처리학회 추계학술발표대회*, 2019, 2019.

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강윤석, 조용연, 김상욱, “SSD 성능에 영향을 주는 특징 분석 방법”, *한국정보처리학회 추계학술발표대회*, 2018, 2018.

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장명환, 조용연, 김상욱, “그래프 기반 추천 알고리즘의 효율적인 수행”, *한국지능시스템학회 추계학술대회*, 2018, 2018.

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강윤석, 조용연, 차재혁, 배안덕, 김상욱, “SSD를 위한 IO 트레이스 수행시간 예측 방안”, *한국컴퓨터종합학술대회*, 2017, 2017.

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조용연, 장명환, 김상욱, “실 세계 빅 그래프의 특징을 고려한 싱글 머신 기반 그래프 엔진”, *한국컴퓨터종합학술대회*, 2017, 2017.

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조용연, 김상욱, 배덕호, “효율적인 빅 데이터 마이닝을 위한 iSSD 기반 협업 처리 방안”, *한국통신학회 논문지, Vol. 42, No. 02, 2017*, 2017.

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이현진, 조용연, 김상욱, “FlashGraph에서 너비우선탐색 알고리즘의 성능 개선 방안”, *정보처리학회 추계학술발표대회*, 2016, 2016.

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정문준, 조용연, 김상욱, 오현옥, “시뮬레이터 기반 iSSD에서 데이터 마이닝 알고리즘 성능 평가”, *정보처리학회 추계학술발표대회*, 2015, 2015.

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