Yonghan Kwon

PhD in Biostatistics and Computing

Yonsei University, Seoul, South Korea

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in LinkedIn   Google Scholar

Research Interests: Biostatistics · Machine Learning · Network Analysis · Radiology · Radiomics

Education

Yonsei University, South Korea   Mar 2022 – Aug 2025

Doctor of Philosophy in Biostatistics and Computing

Thesis: Adaptive Group-Laplacian Regularization with Stability Selection: A Robust Approach to Variable Selection

Yonsei University, South Korea   Mar 2020 – Feb 2022

Master's Degree in Biostatistics and Computing

Thesis: Stability selection for LASSO with weights based on AUC

Kyonggi University, South Korea   2014 – 2020

Bachelor's Degree in Applied Statistics

Research Experience

Postdoctoral Researcher   Sep 2025 – Present

Department of Radiology, Yonsei University, South Korea

- Conducting advanced radiomics and biostatistics research under the supervision of Younghan Lee, MD, PhD and Kyunghwa Han, PhD

Researcher   Oct 2020 – Aug 2025

Yonsei University, South Korea

- Conducting radiology research at CCIDS under the guidance of Kyunghwa Han, PhD

Student Intern   Jun 2019 – Oct 2019

CCADD, Seoul National University, South Korea

- Contributed to dimensionality reduction modeling for clinical trial feasibility assessment using EMR data under Howard Lee, PhD

Student Intern   Mar 2019 – Jun 2019

Kyonggi University, South Korea

- Learned preprocessing microbiome data and statistical tests under Yujin Chung, PhD

Teaching Experience

Guest Lecturer   Fall 2025

Graduate School of Public Health, Yonsei University, South Korea

- Course: Big Data and Data Mining
- Topic: Data Mining Algorithms (1) – Classification Analysis
- Covered logistic regression, CART, and Random Forest methods
- Delivered lecture on November 4, 2025 (Week 9)

Peer-Reviewed Publications

* Underlined authors indicate first authors

[1] J Kim, EJ Lee, H Yoon, K Han, **Y Kwon**, H Koh, YW Kim, MJ Lee. (2026). Associations of Ultrasound-Derived Fat Fraction and MRI PDFF Measurements: A Prospective Study in Pediatric Patients With Suspected MASLD. *American Journal of Roentgenology.* [DOI]

[2] <u>J Lee</u>, J Go, SJ Lee, **Y Kwon**, NH Kim, JY Kim, HS Park. (2025). Comparative study of mastectomy using conventional techniques, multiport and single-port robotic surgical systems. *Cancer Research and Treatment*. [DOI]

[3] <u>SM Ahn</u>, DC Jung, MH Moon, JW Lee, K Han, **Y Kwon**. (2025). A potential imaging-based predictor for renal functional outcomes after partial nephrectomy for localized renal masses. *BMC Urology*, 25(1), 244. [DOI]

[4] <u>JE Lee</u>, NY Kim, YH Kim, **Y Kwon**, S Kim, K Han, YJ Suh. (2025). Long-term prognostic implications of thoracic aortic calcification on CT using artificial intelligencebased quantification in a screening population: a two-center study. *American Journal of Roentgenology*, 1–15. [DOI]

[5] <u>J Kim</u>, MJ Lee, HJ Lim, **Y Kwon**, K Han, H Yoon. (2025). Pediatric reference values for total psoas muscle area in Korean children and adolescents. *Frontiers in Pediatrics*, 12, 1443523. [DOI]

[6] <u>YJ Suh</u>, K Han, **Y Kwon**, H Kim, S Lee, SH Hwang, MH Kim, HJ Shin, et al. (2024). Computed Tomography Radiomics for Preoperative Prediction of Spread Through Air Spaces in the Early Stage of Surgically Resected Lung Adenocarcinomas. *Yonsei Medical Journal*, 65(3), 163. [DOI]

[7] **<u>Y Kwon</u>**, K Han. (2023). Development and Validation of a Prediction Model: Application to Digestive Cancer Research. *Journal of Digestive Cancer Research*, 11(3), 157–164. [DOI]

[8] <u>S Chang</u>, K Han, **Y Kwon**, L Kim, S Hwang, H Kim, BW Choi. (2023). T1 map-based radiomics for prediction of left ventricular reverse remodeling in patients with nonischemic dilated cardiomyopathy. *Korean Journal of Radiology*, 24(5), 395. [DOI]

[9] **<u>Y Kwon</u>**, K Han, YJ Suh, I Jung. (2023). Stability selection for LASSO with weights based on AUC. *Scientific Reports*, 13(1), 5207. [DOI]

[10] <u>SH Chun</u>, YJ Suh, K Han, **Y Kwon**, AY Kim, BW Choi. (2022). Deep learning-based reconstruction on cardiac CT yields distinct radiomic features compared to iterative and filtered back projection reconstructions. *Scientific Reports*, 12(1), 15171. [DOI]

[11] <u>HS Park</u>, J Lee, JY Kim, JM Park, **Y Kwon**. (2022). A prospective randomized study to compare postoperative drainage after mastectomy using electrosurgical bipolar systems and conventional electrocautery. *Journal of Breast Cancer*, 25(4), 307. [DOI]

[12] <u>JA Gim</u>, **Y Kwon**, HA Lee, KR Lee, S Kim, Y Choi, YK Kim, H Lee. (2020). A Machine Learning-Based Identification of Genes Affecting the Pharmacokinetics of Tacrolimus Using the DMET^{TM} Plus Platform. *International Journal of Molecular Sciences*, 21(7), 2517. [DOI]

Conference Presentations

Oral Presentations

* Underlined authors presented the work

[1] **<u>Y Kwon</u>**, K Han, YJ Suh, I Jung. (2025). Adaptive Group-Laplacian Regularization with Stability Selection: A Robust Approach to Variable Selection. *Korean Statistical Society Summer Conference.*

[2] **<u>Y Kwon</u>**, J Kim, H Yoon, Y Kim, H Koh, E Lee, K Han, M Lee. (2025). Optimal Minimal Number for the Proper Acquisition of Multisample Ultrasound Point Shear Wave Elastography for Evaluating Pediatric Liver in Consideration With the Effect of Breathing. *The 56th Annual Congress of Korean Society of Ultrasound in Medicine.*

[3] <u>H Yoon</u>, J Kim, K Han, **Y Kwon**, Y Kim, H Koh, E Lee, M Lee. (2025). Optimum Minimal Number for Proper Acquisition of Ultrasound-Derived Fat Fraction in Pediatric Patients With Suspicious Fatty Liver Disease in Consideration With the Effect of Breathing. *The 56th Annual Congress of Korean Society of Ultrasound in Medicine.*

[4] <u>J Kim</u>, H Yoon, K Han, **Y Kwon**, H Koh, Y Kim, E Lee, M Lee. (2025). Correlation Between Ultrasound Derived Fat Fraction and Proton Density Fat Fraction for Evaluating Pediatric Hepatic Steatosis With Consideration of the Breathing Effect. *The 56th Annual Congress of Korean Society of Ultrasound in Medicine.*

[5] <u>S Lee</u>, K Han, **Y Kwon**, YJ Suh. (2024). Development and Validation of a Machine-Learning Model for Synthetic Hematocrit Estimation in Cardiac MRI without Blood Sampling. *Korean Congress of Radiology (KCR)*, October 3.

[6] <u>JE Lee</u>, N Kim, **Y Kwon**, K Han, YJ Suh. (2024). Long-term prognostic implications of AI-based thoracic aorta calcification quantification in a screening population: a multicenter study. *Radiological Society of North America Annual Meeting.*

Poster Presentations
* Underlined authors presented the work

[1] <u>M Kim</u>, **Y Kwon**, I Jung. (2025). Evaluating Automated Calibration for Stability Selection in Penalized Logistic Regression. *Korean Society of Health Informatics and Statistics Conference.*

[2] <u>**Y Kwon**</u>, K Han, YJ Suh, I Jung. (2025). Adaptive Group-Laplacian Regularization with Stability Selection: A Robust Approach to Variable Selection. *IASC-ARS 2025 (International Association for Statistical Computing - Asian Regional Section).*

[3] <u>**Y Kwon**</u>, K Han, YJ Suh, I Jung. (2023). Comparative analysis of LASSO and Group LASSO: performance, practicality, and application. *Korean Statistical Society Winter Conference.*

[4] <u>Y So</u>, **Y Kwon**, K Han, I Jung. (2023). Comparison of variable selection through the combination of sub-sampling method and weighting method with imbalanced data. *Korean Statistical Society Summer Conference.*

[5] <u>R Lee</u>, **Y Kwon**, K Han, I Jung. (2022). Random survival forest-based weighted variable selection for survival data. *Korean Statistical Society Summer Conference.*

[6] <u>**Y Kwon**</u>, K Han, I Jung. (2021). Stability selection for LASSO with weights based on AUC. *Korean Statistical Society Fall Conference.*

[7] <u>Y Jeon</u>, **Y Kwon**, H Lee. (2019). A dimensionality reduction model to increase the efficiency and accuracy of clinical trial feasibility assessment using electronic medical records. *Korean Society of Medical Informatics Fall Conference.*

Research Projects

As Principal Investigator

[1] **Development and clinical application of variable selection methodology via network-based clustering of high-dimensional radiomics data** (2024-31-0853, 2025-31-0219)   Sep 2024 – Aug 2025
Funded by National Research Foundation of Korea (NRF)
Research Subsidies for Ph.D. Candidates, Award Amount: 50,000,000 KRW (2-year grant, Sep 2024 – Aug 2026)

As Researcher

[1] **Statistical analysis for clinical trial of chest X-ray generative AI software (M4CXR)** (2024-31-1615)   Sep 2025 – Feb 2026
PI: K Han · Funded by DeepNoid Inc.

[2] **Clinical efficacy evidence and multinational, multicenter clinical trial for global competitiveness of breast/thyroid ultrasound real-time AI system** (2024-31-1162)   Sep 2025 – Dec 2025
PI: JH Yoon · Funded by National Medical Device R&D Program

[3] **Multinational, multicenter, post-market clinical trial for strengthening global business capabilities of SwiftMR product** (2024-31-1221)   Sep 2025 – Dec 2025
PI: YH Lee · Funded by National Medical Device R&D Program

[4] **Data augmentation using generative AI and novel imaging biomarker discovery: Development of high-performance automated diagnostic model for precision malignancy diagnosis of refractory solid tumors** (2025-31-0325)   Mar 2025 – Aug 2025
PI: DC Jung · Funded by National Research Foundation of Korea (NRF)

[5] **2024 Medical AI Clinic** (2024-31-0610)   Aug 2024 – Dec 2024
PI: J Huh · Funded by National IT Industry Promotion Agency (NIPA)

[6] **Optimal treatment decision system for incidentally discovered early solid tumors: Prediction of residual function after treatment based on self-adaptive deep learning image segmentation model** (2024-31-0249)   Mar 2024 – Feb 2025
PI: DC Jung · Funded by National Research Foundation of Korea (NRF)

[7] **Comparative study of sample size calculation methods for diagnostic accuracy comparison of multiple readers** (2024-32-0069)   Mar 2024 – Feb 2025
PI: K Han · Funded by Yonsei University Medical Center

[8] **Graph theory-based integrative statistical methodology for multi-layer data** (2023-31-0129) Dec 2023 – Feb 2024
PI: MJ Ha · Funded by National Research Foundation of Korea (NRF)

[9] **Development of statistical methods for evaluating radiomics feature stability and validating imaging-based diagnostic prognostic prediction models in multicenter or multi-reader data** (2023-31-0262) Mar 2023 – Feb 2024
PI: K Han · Funded by National Research Foundation of Korea (NRF)

[10] **Development of optimization algorithms for cardiac calcification assessment on chest CT** (2023-31-0090) Mar 2023 – Feb 2024
PI: YJ Suh · Funded by National Research Foundation of Korea (NRF)

[11] **Statistical methods for evaluating radiomics feature stability and validating imaging-based diagnostic prognostic prediction models in multicenter or multi-reader data** (2022-31-0091) Jun 2022 – Feb 2023
PI: K Han · Funded by National Research Foundation of Korea (NRF)

[12] **Development of optimization algorithms for cardiac calcification assessment on chest CT** (2021-31-0455) Mar 2021 – Feb 2022
PI: YJ Suh · Funded by National Research Foundation of Korea (NRF)

[13] **Treatment satisfaction comparison between tofacitinib citrate users and adalimumab users** (2019-31-1039) Feb 2021
PI: JM Nam · Funded by Pfizer Korea

Awards & Honors

- **Graduate Student Outstanding Paper Award** (Encouragement) – Yonsei University College of Medicine (2022)
- **Poster Award** (3rd place/25 teams) – Korean Statistical Society Summer Conference (2022)
- **Poster Award** (3rd place/42 teams) – Korean Statistical Society Fall Conference (2021)
- **3rd Prize** – Seoul National University Medical AI Competition (2020)
- **2nd Prize** – Data Analysis Contest, Kyonggi University (2019)
- **Excellence Award** – 7th University Student Reliability Project Contest (2017)

Scholarships

Yonsei University (2020–2024)
- Yonsei Graduate Fellowship (YGF): 5,000,000 KRW
- Academic Research Fellowship (ARF): 1,000,000 KRW
- Chief Professor GSRA: 5,000,000 KRW
- Work/Teaching Assistantships: 22,100,000 KRW
- BK21 Plus Scholarship: 600,000 KRW

Kyonggi University (2018–2019)
- Academic Scholarship: 1,932,000 KRW
- KGU Recommended Type A: 1,500,000 KRW
- Academic/Employment Scholarships: 1,300,000 KRW

Languages

- **Korean:** Native proficiency
- **English:** Professional working proficiency