

# Yonghan Kwon

PhD in Biostatistics and Computing

Yonsei University, Seoul, South Korea

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**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*

- [12] 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 PDFFF Measurements: A Prospective Study in Pediatric Patients With Suspected MASLD. *American Journal of Roentgenology*. [\[DOI\]](#)

- [11] J Lee, 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*. [\[DOI\]](#)
- [10] SM Ahn, 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. [\[DOI\]](#)
- [9] JE Lee, 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. [\[DOI\]](#)
- [8] J Kim, 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. [\[DOI\]](#)
- [7] YJ Suh, 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. [\[DOI\]](#)
- [6] **Y Kwon**, K Han. (2023). Development and Validation of a Prediction Model: Application to Digestive Cancer Research. *Journal of Digestive Cancer Research*, 11(3), 157–164. [\[DOI\]](#)
- [5] S Chang, 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. [\[DOI\]](#)
- [4] **Y Kwon**, K Han, YJ Suh, I Jung. (2023). Stability selection for LASSO with weights based on AUC. *Scientific Reports*, 13(1), 5207. [\[DOI\]](#)
- [3] SH Chun, 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. [\[DOI\]](#)
- [2] HS Park, 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. [\[DOI\]](#)
- [1] JA Gim, **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<sup>TM</sup> Plus Platform. *International Journal of Molecular Sciences*, 21(7), 2517. [\[DOI\]](#)

## Conference Presentations

### Oral Presentations

\* Underlined authors presented the work

- [6] **Y Kwon**, 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*.
- [5] **Y Kwon**, 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*.
- [4] H Yoon, 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*.
- [3] J Kim, 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*.
- [2] S Lee, 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.

- [1] JE Lee, 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*

- [7] M Kim, **Y Kwon**, I Jung. (2025). Evaluating Automated Calibration for Stability Selection in Penalized Logistic Regression. *Korean Society of Health Informatics and Statistics Conference*.
- [6] Y Kwon, 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)*.
- [5] Y Kwon, K Han, YJ Suh, I Jung. (2023). Comparative analysis of LASSO and Group LASSO: performance, practicality, and application. *Korean Statistical Society Winter Conference*.
- [4] Y So, **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*.
- [3] R Lee, **Y Kwon**, K Han, I Jung. (2022). Random survival forest-based weighted variable selection for survival data. *Korean Statistical Society Summer Conference*.
- [2] Y Kwon, K Han, I Jung. (2021). Stability selection for LASSO with weights based on AUC. *Korean Statistical Society Fall Conference*.
- [1] Y Jeon, **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

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### 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

- [13] **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.*
- [12] **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*
- [11] **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*
- [10] **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)*
- [9] **2024 Medical AI Clinic** (2024-31-0610) Aug 2024 – Dec 2024  
*PI: J Huh · Funded by National IT Industry Promotion Agency (NIPA)*
- [8] **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*
- [6] **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)*
- [5] **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)*
- [4] **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)*
- [3] **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)*
- [2] **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)*
- [1] **Treatment satisfaction comparison between tofacitinib citrate users and adalimumab users** (2019-31-1039) Feb 2021  
*PI: JM Nam · Funded by Pfizer Korea*

## Awards & Honors

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- **Poster Award** (Excellence) – Korean Society of Health Informatics and Statistics Fall Conference (2025)
- **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

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### 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

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