

In Kyu Lee

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Education

Ph.D. University of California, San Diego, CA

Sept 2024 - Present

- Major: Mechanical Engineering
- Advisor: Claire Acevedo, PhD

M.S. University of Kansas, Lawrence, KS

July 2022

- Major: Bioengineering – Computational Bioengineering | *with Honors*
 - GPA: 3.86/4.0
- Advisor: Jiwoong Choi, PhD

B.S. University of Minnesota-Twin Cities, Minneapolis, MN

May 2020

- Major: Aerospace Engineering and Mechanics
 - GPA: 3.70 /4.0
- Minor: Computer Science
- Advisor: Hyun Soo Park, PhD

Experience

Graduate Research Assistant [UCSD: F2 lab]

August 2024 – Present

- Developed a segmentation and quantification pipeline for analyzing microCT
- Analyzed how chronic lymphocytic leukemia affects bone using synchrotron microCT

Research Scientist [Medipixel]

August 2022 – August 2024

- Developed a local refinement module for lesion and bifurcation
- Led the MICCAI ARCADE Challenge 2023 for stenosis and artery segmentation
- Developed a video based coronary complication detection model
- Automated a CFD pipeline using ANSYS Fluent (Pyfluent)

Graduate Research Assistant [University of Kansas Medical Center]

August 2020 – July 2022

- Built a quantitative CT (QCT) pipeline for analysis
 - Deep learning airway and lung segmentation
 - Image registration
 - Machine learning and statistical analysis

Research Assistant [Seoul National University Hospital]

Summer 2019, Summer 2020

- Advisor: Chang Hyun Lee, MD
- Participated in Korea Environmental Industry & Technology Institute project “CT image matching technology development for structural and functional assessment of environmentally induced lung disease” funded by Korea Ministry of Environment
 - PCA and K-means clustering of air pollution exposure in adults with asthma, COPD, IPF, or no known lung disease
 - Statistical analysis to find associations between QCT variables and PM exposure

Undergraduate Research Assistant [Computer Vision]

January 2019 – March 2020

- Human Multiview Behavior Imaging Dataset (HUMBI) Processing
 - Reconstructed 3D mesh of human body from 2D camera images

Undergraduate Teaching Assistant

Spring 2019

- AEM 3031 [Deformable Body Mechanics]

SMART Learning peer tutor

September 2018 – May 2020

- Tutored undergraduate science & calculus courses

Korean Army [Sergeant]

September 2015 – June 2017

- Worked as an ammunition specialist

Publication

Thesis

Lee IK. Extended Quantitative Computed Tomography Analysis of Lung Structure and Function. MS thesis, The University of Kansas, **2022.**

Paper

Lee IK, Obata Y, Pmicter A, Williams J, Kikani B, Jensen C, Sborov D, Stephens D, Acevedoe C. Disruption of marrow microenvironments in chronic lymphocytic leukemia by High-resolution synchrotron micro-computed tomography. **bioRxiv** (preprint) **2025**.

Seo S, Lee IK, Kim H-W, Min J, Jung C-H. Diffusion-Bassed User-Guided Data Augmentation for Coronary Stenosis Detection. *International Conference on Medical Image Computing And Computer Assisted Intervention (MICCAI) 2025.*

Lee IK, Ku J, Choi Y. Gray's anatomy for Segmenting Anything Model: Optimizing Grayscale Medical Images for Fast and Lightweight Segmentation. **CVPR workshop MedSAMonLaptop 2024.**

Lee IK, Shin J, Lee Y-H, Ku JH, Kim H-W. SASS: Semi-Supervised Approach for Stenosis Segmentation. *Automatic Region-based Coronary Artery Disease diagnostics using x-ray angiography imagEs challenge (ARCADE). MICCAI Challenge 2023.* | [arXiv:2311.10281](https://arxiv.org/abs/2311.10281)

Ku JH, Lee Y-H, Shin J, Lee IK, Kim H-W. MPSeg: Multi-Phase strategy for coronary artery Segmentation. *Automatic Region-based Coronary Artery Disease diagnostics using x-ray angiography imagEs challenge (ARCADE). MICCAI Challenge 2023.* | [arXiv:2311.10306](https://arxiv.org/abs/2311.10306)

Yu Z, Yoon JS, Lee IK, Venkatesh P, Park J, Yu J, Park HS. HUMBI: A Large Multiview Dataset of Human Body Expressions. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, virtual, June 16 - June 18, **2020.**

Conference Abstract and Presentation

Lee IK, Obata Y, Pmicter A, Williams J, Kikani B, Jensen C, Sborov D, Acevedoe C, Stephens D. Disruption of marrow microenvironments in chronic lymphocytic leukemia by High-resolution synchrotron micro-computed tomography. *Society of Engineering Science.* Atlanta, GA, Oct 12-15, **2025.** (oral)

Lee IK, Choi J, Castro M, Kim T, Kang HR, LeeCH. Quantitative CT and CFD Explain Bronchodilator-induced Regional Ventilation Improvement in Asthma. *International Collaborative Asthma Network (ICAN),* San Francisco, CA, May 12-13, **2022.** (oral)

Lee IK, Choi J, Park EK, Tutkun E, Hoffman EA, Castro M, Lee CH. Toward extended quantitative CT imaging application with deep transfer learning. *American Thoracic Society International Conference,* San Diego, CA (virtual), May 14-19, **2021.** Am J Respir Crit Care Med 2021;203:A4591 (poster)

Honors & Awards

American Society of Hematology (ASH) Abstract Achievement Award	October 2025
MICCAI 2023: ARCADE challenge	October 2023
● Stenosis segmentation: 1 st place	
● Coronary artery segmentation: 2 nd place	
2023 Social Issues Data & AI Analysis Competition	October 2023
● 2 nd place (\$1,600) Awarded by President of National Research Council	
The University of Kansas: Outstanding Student Researcher Award	May 2023
Burn Diagnosis AI Challenge - hosted by The Ministry of Science and ICT in Korea	November 2022
● 1 st place (\$2,400)	
Lung Cancer Segmentation Competition - hosted by Ajou University Medical Center	December 2022
● 2 nd place (\$2,400)	
Undergraduate Research Opportunity Program (UROP) Award	May 2019
Chester Gaskell Aeronautical Engineering Scholarship	Fall 2019
● Merit-based scholarship given to top undergraduates who have outstanding academic records	
University of Minnesota: Dean's List	
● Fall 2014, Spring 2015, Fall 2017, Spring 2018, Fall 2018, Spring 2019	
International Collaborative Asthma Network (ICAN) Travel Award	March 2022

Activities

AI Kaggle Competition Expert	
Appreciation Plaques – President of the Korean American Society of Greater Kansas City	July 2022

Certifications & Patents

Patent	
● Method and apparatus for matching medical images considering phase of respiration signal	
● Method and electronic device for labeling medical image	
● Prediction model training method, FFR data generating method and electronic device performing the same	
Udacity: AI for healthcare Nanodegree	September 2020
NVIDIA: Fundamentals of accelerated computing with CUDA python	June 2021
College Reading & Learning Association (CRLA) Certification Certified Tutor	October 2018
● Level III Master Tutor	May 2019

Skill

Languages

- English, Chinese, Korean

Programming Languages

- MATLAB, Python, Fortran