

# Shiwon Kim

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## RESEARCH INTERESTS

Continual Learning, Few-Shot Learning, Medical AI, Medical Image Analysis, Digital Healthcare

## EDUCATION

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|---|--|
| <b>Yonsei University</b><br><i>M.S., Digital Analytics</i> <ul style="list-style-type: none"><li>• Advisor: Prof. Yu Rang Park</li><li>• Thesis: <a href="#">Debiasing Few-Shot Class-Incremental Learning via Dynamic Feature-Classifier Alignment</a></li></ul> | <i>Mar. 2023 - Aug. 2025</i><br>Seoul, Korea |
| <b>Yonsei University</b><br><i>B.B.A., Business Administration</i> <ul style="list-style-type: none"><li>• Major GPA: 3.73/4.3</li></ul>  | <i>Mar. 2017 - Feb. 2023</i><br>Seoul, Korea |
| <b>University of Washington</b><br><i>Undergraduate Exchange Student, Foster School of Business</i> <ul style="list-style-type: none"><li>• Dean's List, Winter 2019</li></ul>  | <i>Sep. 2018 - Jun. 2019</i><br>Seattle, WA  |

## PUBLICATIONS

(P: Preprint, J: Journal, C: Conference, W: Workshop, \*: Equal contribution, †: Corresponding author)

- [W1] [Does Prior Data Matter? Exploring Joint Training in the Context of Few-Shot Class-Incremental Learning](#)  
**Shiwon Kim\***, Dongjun Hwang<sup>†</sup>, Sungwon Woo\*, Rita Singh<sup>†</sup>  
*ICCV 2025 Workshop on Continual Learning in Computer Vision (CLVision)*
- [J1] [Classification Models for Arthropathy Grades of Multiple Joints Based on Hierarchical Continual Learning](#)  
Bong Kyung Jang\*, **Shiwon Kim\***, Jae Yong Yu, JaeSeong Hong, Hong Seon Lee, Jiwoo Park, Jeessoo Woo, Young Han Lee<sup>†</sup>, Yu Rang Park<sup>†</sup>  
*La Radiologia Medica* (IF 2024: 9.7)

## RESEARCH EXPERIENCE

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|--|--|
| <b>Digital Healthcare Lab (DHLab)</b><br>Department of Biomedical Systems Informatics, College of Medicine, Yonsei University<br><i>Graduate Research Assistant</i> (Advisor: Prof. Yu Rang Park)  | <i>Mar. 2023 - Jun. 2025</i><br>Seoul, Korea   |
| <ul style="list-style-type: none"><li>• <b>Continual Classification of Arthropathy Grades in Multiple Joints</b> <a href="#">[Paper]</a> <a href="#">[Slides]</a> <a href="#">[Code]</a><br/>Developed and validated a continual learning framework for arthropathy grade classification scalable across multiple joints, using hierarchically labeled radiographs of the knee, elbow, ankle, shoulder, and hip from three tertiary hospitals.</li><li>• <b>Robust Medical Image Classification Against Data Contamination and Poisoning</b> <a href="#">[Slides]</a><br/>Designed a deep mutual learning framework that jointly trains two networks to learn a shared representation space anchored by a fixed equiangular tight frame (ETF) classifier, improving model robustness and generalization.<br/>» 🏆 2nd Place, Yonsei Digital Healthcare Cybersecurity Competition</li><li>• <b>Statistical Feature-Based Memory-Efficient Machine Learning Pipeline for Fake Image Detection</b> <a href="#">[Slides]</a><br/>Developed a machine learning-based fake image detection pipeline that leverages pixel-level statistics, texture patterns, and edge information, achieving higher accuracy with lower memory usage than CNN-based deep learning approaches.<br/>» 🎤 Presented at Digital Healthcare Human Resources Development Program</li></ul> |  |
| <b>Carnegie Mellon University</b><br>Software and Societal Systems Department (S3D), School of Computer Science<br><i>Visiting Scholar, Intensive AI Education Program, fully funded by the Korean Government (IITP)</i>   | <i>Aug. 2024 - Feb. 2025</i><br>Pittsburgh, PA |
| <ul style="list-style-type: none"><li>• <b>Exploring Joint Training in the Context of Few-Shot Class-Incremental Learning</b> <a href="#">[Paper]</a> <a href="#">[Poster]</a> <a href="#">[Video]</a> <a href="#">[Code]</a><br/>Challenged the assumption of limited access to prior data in few-shot class-incremental learning, and compared joint training with incremental learning to empirically assess the practical impact of full data access on model performance.</li></ul>   |  |

- **AI-Driven Automated Target Prioritization and Engagement** [\[Slides\]](#) [\[Video\]](#)  
Implemented a real-time nearest-target tracking algorithm and a shoot (and don't shoot) logic based on fine-tuned YOLOv11s. Deployed the system on Jetson Orin Nano and demonstrated engagement of both stationary and moving targets.
- **Image Quality and Abstract Perception Evaluation** [\[Report\]](#)  
Enhanced the interpretation of abstract image perceptions by combining CLIP-IQA and UIQA with a multi-branch backbone, demonstrating superior accuracy and faster convergence compared to existing image quality assessment (IQA) methods.

## WORK EXPERIENCE

**Medical Informatics Collaboration Unit (MCU)** Jul. 2025 - Present  
Department of Biomedical Systems Informatics, College of Medicine, Yonsei University  
*Research Assistant in AI and Data Science* Seoul, Korea

## HONORS AND AWARDS

**Academic Excellence Award (2nd Place), Intensive AI Education Program, IITP** Feb. 2025  
Awarded to top 3 of 34 participants for academic excellence in selected courses at Carnegie Mellon University.  
Selected courses:

- 11-785 Introduction to Deep Learning
- 11-775 Large Scale Multimedia Analysis
- 11-611 Natural Language Processing

**2nd Place, Yonsei Digital Healthcare Cybersecurity Competition, Yonsei University** Aug. 2024  
Recognized for developing a robust medical image classification model against data poisoning.

**1st Place, NAVER Shopping × ISSU IT Collaboration Project, Yonsei University** Jun. 2021  
Recognized for proposing user-centric product search and recommendation systems for e-commerce.

**Quarterly Dean's List, University of Washington** Winter 2019  
Awarded to students who achieved academic excellence in 12 or more graded credits.

## GRANTS AND FELLOWSHIPS

**Intensive AI Education Program @ Carnegie Mellon University** Aug. 2024  
Institute of Information & Communications Technology Planning & Evaluation (IITP)  
*Selected as one of 34 graduate students nationwide, full support of tuition and living expenses*

## SELECTED TALKS

**Digital Healthcare Human Resources Development Program** Jan. 2024  
Korea Institute for Advancement of Technology (KIAT), Ministry of Trade, Industry and Energy (MOTIE) Seoul, Korea  
*Student Project Presentation on Medical AI and Cybersecurity*

## LEADERSHIP AND ACTIVITIES

**Yonsei University Ski Team** Mar. 2017 - Present  

- Alumni Executive Member since 2023
- Team Captain in 2020-21
- Training Lead in 2019-20 and 2021-22

**Information System SIG of Undergraduate (ISSU), Yonsei University** Mar. 2021 - Dec. 2021  

- Vice President in Fall 2021

**University of Washington Husky Ski Team** Sep. 2018 - Jun. 2019

**Yonsei University × Claremont McKenna College (CMC) Summer Leadership Program** Jul. 2018 - Aug. 2018  

- Collaborated with 10 CMC students on a business project and Singapore networking trip.