

# Wonkeun Jo

POSTDOCTORAL RESEARCHER IN BIOMEDICAL ENGINEERING RESEARCH CENTER OF AMC

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"A better future for you and me with AI."

## Experience

### Biomedical Engineering Research Center - Asan Medical Center

Seoul, S.Korea

POSTDOCTORAL RESEARCHER

Sep. 2025 - Present

- CPR-ECPR 전환 방법 연구
- Human-in-the-Loop 기반의 암 수술 후 진단 결과에 대한 라벨링 방법 연구 및 개발
- 범용 LLM 기반 환자 수술 동의서 RAG-챗봇 PoC
- 기타 병원 내부 수요에 따른 단기 개발 프로젝트

### innoWithus

Daejeon, S.Korea

AI RESEARCHER

Apr. 2025 - Aug. 2025

- 우주 환경 예보 모델 개발
- 우주 환경 예보 일지 생성 모델 개발

### BigData Center - Asan Medical Center

Seoul, S.Korea

VISITING RESEARCHER

Mar. 2024 - Dec. 2024

- 병원 내 의학 데이터를 RAG-LLM 연구 및 개발
- MRI의 RoI segmentation을 위한 방법론 연구 및 개발

### Chungnam National University

Daejeon, S.Korea

PH.D. RESEARCHER

Mar. 2021 - Feb. 2025

- 생성 신경망을 활용한 정형 데이터 오버샘플링 연구
- 설명 가능한 시계열 예보 신경망 연구
  - 2022 박사과정생 연구장려금 지원 사업 - No.2022R1A6A3A13056750
- 트윈-디지털 스레드 기반 공작기계 지능화 및 공정 최적화 기술 개발
  - 공구 상태 분류 모델 및 가공조건/장비 변화 적응형 학습방법론 개발
  - 딥러닝 기반 절삭력 유사도 지표 및 공구 수명 예측 방법론 개발
  - 가공공정 데이터 기반 변화 및 외부 데이터 적응형 머신러닝 학습 방법론 개발
  - 공정 데이터 기반 가공 조건 민감도 분석

### Chungnam National University

Daejeon, S.Korea

GRADUATE RESEARCHER

Mar. 2019 - Feb. 2021

- 태양 이벤트 탐지 및 분류 방법 개발
- 심박 데이터를 기반으로 한 혈압예측 인공지능 설계를 통한 기업지원

Semi-supervised learning-based postoperative recurrence and metastasis label generation from computed tomography radiology reports

2026+

SUBMITTED

**Wonkeun Jo**, Bumwoo Park, and  
Ji-Hoon Sim

A framework for tool wear and remaining useful life prediction in machining process using monitoring data and machine learning

Apr. 2025

THE INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY

Soomin Lee, **Wonkeun Jo**, Hogeun Koo,  
Juheon Kwak, Hyein Kim, Jeongin Koo,  
and Dongil Kim

NFCL: Simply interpretable neural networks for a short-term multivariate forecasting

May, 2024

ARXIV - SUBMITTED - MAJOR REVISION

**Wonkeun Jo**, and Dongil Kim

Attention-based sequential recommendation system using multimodal data

May. 2024

ARXIV

Hyungtaik Oh, **Wonkeun Jo**, and Dongil  
Kim

Neural additive time-series models: explainable deep learning for multivariate time-series prediction

Oct. 2023

EXPERT SYSTEMS WITH APPLICATIONS, VOL 228 (SCIE, IF=8.5, Q1, TOP 10%)

**Wonkeun Jo**, and Dongil Kim

Strong Rashba parameter of two-dimensional electron gas at CaZrO<sub>3</sub>/SrTiO<sub>3</sub> heterointerface

Sep. 2023

SCIENTIFIC REPORT 13, (SCIE, IF=4.6, Q2)

Duhyuk Kwon, Yongsu Kwak, Doopyo  
Lee, **Wonkeun Jo**, Byeong-Gwan Cho,  
Tae-Yeong Koo, Jonghyun Song

Deep learning-based cutting force prediction for machining process using monitoring data

Mar. 2023

PATTERN ANALYSIS AND APPLICATIONS, (SCIE, IF=3.9, Q2)

Soomin Lee, **Wonkeun Jo**, Hyein Kim,  
Jeongin Koo, Dongil Kim

OBGAN: minority oversampling near borderline with generative adversarial networks

Jul. 2022

EXPERT SYSTEMS WITH APPLICATIONS, VOL 197, 1 (SCIE, IF=8.665, Q1, TOP 10%)

**Wonkeun Jo**, and Dongil Kim

Solar Event Detection Using Deep-Learning-Based Object Detection Methods

2021

SOLAR PHYSICS, VOL. 296, 160 (SCIE, IF=2.961, Q2)

Ji-Hye Baek, Sujin Kim, Seonghwan Choi,  
Jongyeob Park, Jihun Kim, **Wonkeun Jo**,  
and Dongil Kim

(등록)가공 모니터링 데이터와 기계학습을 이용한 가공공정 절삭력 예측 시스템 및 방법

Dec. 2025

SYSTEM AND METHOD FOR PREDICTING MACHINING PROCESS CUTTING FORCE USING MACHINING MONITORING  
DATA AND MACHINE LEARNING

Dongil Kim, **Wonkeun Jo**, Soomin Lee,  
Hogeun Koo, Juheon Kwak

(출원)딥러닝 기반 병변 검출 방법 및 장치

Sep. 2025

DEEP LEARNING-BASED LESION DETECTION METHOD AND APPARATUS

**Wonkeun Jo**

(출원)텍스트 생성 방법 및 시스템

Dec. 2024

METHOD AND SYSTEM FOR TEXT GENERATION

**Wonkeun Jo**

(출원)기계학습 기반 가공공정 공구 마모도 및 잔존 수명 예측 시스템 및 방법

Dec. 2022

MACHINE LEARNING-BASED MACHINING PROCESS TOOL WEAR AND REMAINING LIFE PREDICTION SYSTEM AND  
METHOD

Dongil Kim, **Wonkeun Jo**, Soomin Lee,  
Hogeun Koo, Juheon Kwak

# International conferences

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Deep Learning-Accelerated Automated Segmentation of Plexiform Neurofibroma in Patients  
with Neurofibromatosis Type 1

Nov. 2025

RADIOLOGICAL SOCIETY OF NORTH AMERICA 2025 (RSNA2025)

Jeong Min Song, **Wonkeun Jo**, and Hee  
Mang Yoon

Neural Forecasting Layer: Straightforward connected interpretable neural forecaster for  
multivariate time-series

Oct. 2024

INFORMS ANNUAL MEETING 2024

**Wonkeun Jo**, and Dongil Kim

Transformer-based unsupervised anomaly detection with multivariate time series

Oct. 2023

INFORMS ANNUAL MEETING 2023

Soomin Lee, Juheon Kwak, **Wonkeun Jo**,  
Sungsu Lim, and Dongil Kim

Diffusion model-based oversampling for class imbalanced problems

Oct. 2023

INFORMS ANNUAL MEETING 2023

Geonhee Jang, **Wonkeun Jo**, Sungsu  
Lim, and Dongil Kim

Clustering morphological properties of cells using neural network-based image segmentation  
models

Oct. 2023

INFORMS ANNUAL MEETING 2023

Hyemin Lim, Geonhee Jang, **Wonkeun  
Jo**, Yeong Jun Koh, and Dongil Kim

Cutting Force Similarity Calculation in Milling Process Using Siamese LSTM Structure

Feb. 2023

THE 2ND INTERNATIONAL CONFERENCE ON MECHATRONICS AND ELECTRICAL ENGINEERING

Juheon Kwak, **Wonkeun Jo**, Soomin Lee,  
Hyein Kim, Jeongin Koo, Dongil Kim

The explainable neural networks for nowcasting

INFORMS ANNUAL MEETING 2022

Oct. 2022

**Wonkeun Jo**, and Dongil Kim

Prediction of tool wear based on machine learning for cutting force

INFORMS ANNUAL MEETING 2022

Oct. 2022

Hoguen Koo, Soomin Lee, **Wonkeun Jo**,  
Hyein Kim, Jeongin Koo, Juheon Kwak,  
and Dongil Kim

Machine learning-based sleep quality prediction with body signal data

INFORMS ANNUAL MEETING 2022

Oct. 2022

Hyojeong Kang, Juheon Kwak,  
**Wonkeun Jo**, and Dongil Kim

Cutting force similarity calculation in milling process using siamese LSTM structure

THE 11TH INTERNATIONAL CONFERENCE ON INDUSTRIAL TECHNOLOGY AND MANAGEMENT (ICITM)

Feb. 2022

Juheon Kwak, **Wonkeun Jo**, Soomin Lee,  
Hyein Kim, Jeongin Koo, and Dongil Kim

Blood pressure prediction based on deep learning with PPG and ECG signal data

INFORMS ANNUAL MEETING 2021

Oct. 2021

Junwon Park, **Wonkeun Jo**, Hogeun  
Koo, Hyungtaik Oh, Kyhyup Oh, and  
Dongil Kim

Deep learning-based cutting force prediction with machining process monitoring data

INFORMS ANNUAL MEETING 2021

Oct. 2021

Soomin Lee, **Wonkeun Jo**, Dongil Kim,  
Hyein Kim, and Jeongin Koo

Improvement of class imbalanced classification performance with generative adversarial network

INFORMS ANNUAL MEETING 2020

Nov. 2020

**Wonkuen Jo**, Dongil Kim

## Domestic conferences

AI 기반 우주 환경 예보 프레임워크 개발

INSTRUMENTATION FOR ASTRONOMY AND SPACE SCIENCE 2025 (IASS2025)

Jul. 2025

**Wonkeun Jo**, Eunsu Park, Ji-Hye Baek,  
and Seong-Hwan Choe

딥러닝 기법을 이용한 가공공정 모니터링 데이터 기반 공구 잔존수명 예측

KOREA COMPUTER CONFERENCE 2024 (KCC2024)

Jun. 2024

Soomin Lee, Geonhee Jang, **Wonkeun Jo**, and Dongil Kim

단기 다변량 시계열 예보를 위한 해석 가능한 신경망

KOREA DATA MINING SOCIETY CONFERENCE 2024 (KDMS2024)

May. 2024

**Wonkeun Jo**, and Dongil Kim

Detecting estrus in Korean native cattle using the Swin Transformer model	Dec. 2023
KOREA SOFTWARE CONGRESS 2023 (KSC2023)	Hyeongseok Lee, Jeongmin Ha, <b>Wonkeun Jo</b> , and Youngkuk Kim
딥러닝 기반 공구 마모도 및 잔존수명 예측	Nov. 2023
KOREAN SOCIETY FOR PRECISION ENGINEERING 2023 AUTUMN CONFERENCE (KSPE2023-AUTUMN)	Juheon Kwak, Soomin Lee, Geonhee Jang, <b>Wonkeun Jo</b> , Sungmin Lim, Hyein Kim, Jungin Koo, and Dongil Kim
GAN 및 Diffusion Model 기반 Oversampling을 통한 클래스 불균형 개선	Nov. 2023
KOREA DATA MINING SOCIETY CONFERENCE 2023 (KDMS2023)	Geonhee Jang, <b>Wonkeun Jo</b> , Sungsu Lim, and Dongil Kim
Diffusion model-based oversampling for class imbalanced problems	Jun. 2023
KOREA COMPUTER CONFERENCE 2023 (KCC2023)	Geonhee Jang, <b>Wonkeun Jo</b> , Sungsu Lim, and Dongil Kim
Adversarial attacks of regression model based on deep learning using multivariate time series	Jun. 2023
KOREA DATA MINING SOCIETY CONFERENCE 2023 (KDMS2023)	Juheon Kwak, <b>Wonkeun Jo</b> , Soomin Lee, and Dongil Kim
신경망 이미지 분할 모델을 이용한 세포의 형태학적 특성 군집화	Apr. 2023
KOREAN INSTITUTE OF INTELLIGENT SYSTEMS (KIIS2023)	Hyemin Lim, <b>Wonkeun Jo</b> , Youngjoon Kho, and Dongil Kim
Machine learning-based prediction of user state on the computer tasking	Feb. 2023
KOREA CONFERENCE ON SOFTWARE ENGINEERING	Hyojeong Kang, Soomin Lee, <b>Wonkeun Jo</b> , and Dongil Kim
특징 추출과 딥러닝을 활용한 항원 결정기 예측	Nov. 2022
KOREAN DATABASE CONFERENCE 2022	Jungmin Ha, <b>Wonkeun Jo</b> , and Young-Kuk Kim
Both authors equally contributed.	
Neural additive models for nowcasting	Nov. 2022
KOREA DATA MINING SOCIETY CONFERENCE 2022	<b>Wonkeun Jo</b> , and Dongil Kim
Sleep Quality Prediction with E4 Wireless Dataset based on Machine Learning	Aug. 2022
KOREA COMPUTER CONGRESS 2022 (KCC2022)	Hyojeong Kang, Juheon Kwak, <b>Wonkeun Jo</b> , and Dongil Kim
Interpretable Neural Network for Time Series Nowcasting	Aug. 2022
KOREA COMPUTER CONGRESS 2022 (KCC2022)	<b>Wonkeun Jo</b> , and Dongil Kim

Recommendation System Based on Graph Collaborative Filtering Using Explicit Information	Dec. 2021
KOREA SOFTWARE CONGRESS 2021 (KSC2021)	Hyungtaik Oh, <b>Wonkeun Jo</b> , and Dongil Kim
Hybrid Sequential Recommendation System Using k-NN and Graph Neural Networks	Dec. 2021
KOREA SOFTWARE CONGRESS 2021 (KSC2021)	Hogeun Koo, Soomin Lee, <b>Wonkeun Jo</b> , and Dongil Kim
Milling tool wear prediction based on sensor and time-series feature extraction	Dec. 2021
KOREA SOFTWARE CONGRESS 2021 (KSC2021)	<b>Wonkeun Jo</b> , Hogeun Koo, Hyein Kim, Jeongin Koo, and Dongil Kim
Methodology of Cutting Force Similarity Calculation in Milling Process using Siamese LSTM Structure	Dec. 2021
KOREA SOFTWARE CONGRESS 2021 (KSC2021)	Juheon Kwak, <b>Wonkeun Jo</b> , Soomin Lee, Hyein Kim, Jeongin Koo, and Dongil Kim
Deep learning-based cutting force prediction with machining process monitoring data	Jun. 2021
KOREA COMPUTER CONGRESS 2021 (KCC2021)	Soomin Lee, <b>Wonkeun Jo</b> , Hyein Kim, Jeongin Koo, and Dongil Kim
Blood pressure prediction based on deep learning with PPG and ECG	Jun. 2021
KOREA COMPUTER CONGRESS 2021 (KCC2021)	Junwon Park, <b>Wonkeun Jo</b> , Kyhyup Oh, and Dongil Kim
Machine learning-based elderly depression prediction with pattern-of-life data	Dec. 2020
KOREA SOFTWARE CONGRESS 2020 (KSC2020)	Soomin Lee, Seonyoung Kim, <b>Wonkuen Jo</b> , Junyoung Choi, Hyungshin Kim, and Dongil Kim
Intelligent data generation with generative adversarial nets for class-imbalanced problems	Jul. 2020
KOREA COMPUTER CONGRESS 2020 (KCC2020)	<b>Wonkuen Jo</b> , and Dongil Kim

## Awards

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### The Best Presentation Award

KOREA DATA MINING SOCIETY

May, 2024

Korea Data Mining Society

### The 1st place of the HeLP Challenge 2023

ASAN MEDICAL CENTER, MINISTRY OF HEALTH AND WELFARE, AND MINISTRY OF SCIENCE AND ICT

Oct - Nov, 2023

Asan Medical Center & Naver cloud

### The 3rd place of The AI Graduate Challenge with KT Mi:dm

MINISTER OF SCIENCE AND ICT, ARTIFICIAL INTELLIGENCE GRADUATE SCHOOL COUNCIL, AND KT

Jul - Aug, 2023

AI factory

### Dean's Award of the Graduate School

CHUNGNAM NATIONAL UNIVERSITY

Aug, 2022

Chungnam National University

## Teaching

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Deep learning, Daejeon Information & Culture Industry Promotion Agency

May - Jun, 2023

Advanced machine learning & Deep learning, Samsung Electronics' semiconductor division

Aug, 2019

Basic machine learning, Samsung Electronics' semiconductor division

Jul, 2019

Basic machine learning, Samsung Electronics' SWAT track

Jun, 2019

## Education

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### Chungnam National University

PH.D. IN COMPUTER SCIENCE & ENGINEERING

Adviser: Dong-il Kim (EHWA) & Sung-su Lim (CNU)

Mar. 2021 - Feb. 2025

Daejeon, S.Korea

### Chungnam National University

M.S. IN COMPUTER SCIENCE & ENGINEERING

Adviser: Dong-il Kim

Mar. 2019 - Feb. 2021

Daejeon, S.Korea

### Chungnam National University

B.S. IN PHYSICS

Mar. 2011 - Aug. 2018

Daejeon, S.Korea