

Wonkeun Jo

PH.D. IN COMPUTER SCIENCE & ENGINEERING OF THE CHUNGNAM NATIONAL UNIVERSITY

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“The better future of you and me with AI.”

Experience

National R&D project

트윈-디지털 스레드 기반 공작기계 지능화 및 공정 최적화 기술 개발

2023 - 2025

Korean Ministry of Trade, Industry and
Energy

박사과정생 연구장려금 지원 사업

2022 - 2023

No. 2022R1A6A3A13056750

Korean Ministry of Education

Medical

2024

- 병원 데이터를 활용한 LLM 연구 및 개발
- MRI의 ROI SEGMENTATION을 위한 방법론 연구 및 개발

Asan Medical Center – Asan Institute for
Life Science – BigData Research Center

Industrial

2020 - 2022

- 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

Korea Institute of Industrial Technology

Astronomy

2020

- 태양 이벤트 탐지 및 분류 방법 개발

Korea Astronomy

Health-Care

2019 - 2020

- 심박 데이터를 기반으로 한 혈압예측 인공지능 설계를 통한 기업지원

Korea Testing Laboratory

Teaching

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

Awards

The Best Presentation Award

May, 2024

Korea Data Mining Society

The 1st place of the HeLP Challenge 2023

Oct - Nov, 2023

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

Asan Medical Center & Naver cloud

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

Jul - Aug, 2023

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

AI factory

Dean's Award of the Graduate School

Aug, 2022

CNU

Machine Learning-based Tool Wear and Remaining Useful Life Prediction for Machining Process

2025+ (accepted)

THE INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY

Soomin Lee, **Wonkeun Jo**, Hogeun Koo,
Juheon Kwak, Hyein Kim, Jeongin Koo,
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=8.665, Q1, TOP 10%)

Wonkeun Jo, and Dongil Kim

Strong Rashba parameter of two-dimensional electron gas at CaZrO₃/SrTiO₃ 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

International conferences

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

Oct. 2022

INFORMS ANNUAL MEETING 2022

Wonkeun Jo, and Dongil Kim

Prediction of tool wear based on machine learning for cutting force

Oct. 2022

INFORMS ANNUAL MEETING 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

Oct. 2022

INFORMS ANNUAL MEETING 2022

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

Cutting force similarity calculation in milling process using siamese LSTM structure

Feb. 2022

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

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

Oct. 2021

INFORMS ANNUAL MEETING 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

Oct. 2021

INFORMS ANNUAL MEETING 2021

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

Improvement of class imbalanced classification performance with generative adversarial network

Nov. 2020

INFORMS ANNUAL MEETING 2020

Wonkuen Jo, Dongil Kim

Domestic conferences

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

KOREA SOFTWARE CONGRESS 2023 (KSC2023)

Dec. 2023

Hyeongseok Lee, Jeongmin Ha, **Wonkeun Jo**, and Youngkuk Kim

딥러닝 기반 공구 마모도 및 잔존수명 예측

KOREAN SOCIETY FOR PRECISION ENGINEERING 2023 AUTUMN CONFERENCE (KSPE2023-AUTUMN)

Nov. 2023

Juheon Kwak, Soomin Lee, Geonhee Jang, **Wonkeun Jo**, Sungmin Lim, Hyein Kim, Jungin Koo, and Dongil Kim

GAN 및 Diffusion Model 기반 Oversampling을 통한 클래스 불균형 개선

KOREA DATA MINING SOCIETY CONFERENCE 2023 (KDMS2023)

Nov. 2023

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

Diffusion model-based oversampling for class imbalanced problems

KOREA COMPUTER CONFERENCE 2023 (KCC2023)

Jun. 2023

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

Adversarial attacks of regression model based on deep learning using multivariate time series

KOREA DATA MINING SOCIETY CONFERENCE 2023 (KDMS2023)

Jun. 2023

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

신경망 이미지 분할 모델을 이용한 세포의 형태학적 특성 군집화

KOREAN INSTITUTE OF INTELLIGENT SYSTEMS (KIIS2023)

Apr. 2023

Hyemin Lim, **Wonkeun Jo**, Youngjoon Kho, and Dongil Kim

Machine learning-based prediction of user state on the computer tasking

KOREA CONFERENCE ON SOFTWARE ENGINEERING

Feb. 2023

Hyojeong Kang, Soomin Lee, **Wonkeun Jo**, and Dongil Kim

특징 추출과 딥러닝을 활용한 항원 결정기 예측

KOREAN DATABASE CONFERENCE 2022

Nov. 2022

Jungmin Ha, **Wonkeun Jo**, and Young-Kuk Kim

Both authors equally contributed.

Neural additive models for nowcasting

KOREA DATA MINING SOCIETY CONFERENCE 2022

Nov. 2022

Wonkeun Jo, and Dongil Kim

Sleep Quality Prediction with E4 Wireless Dataset based on Machine Learning

KOREA COMPUTER CONGRESS 2022 (KCC2022)

Aug. 2022

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

Interpretable Neural Network for Time Series Nowcasting

KOREA COMPUTER CONGRESS 2022 (KCC2022)

Aug. 2022

Wonkeun Jo, and Dongil Kim

Recommendation System Based on Graph Collaborative Filtering Using Explicit Information	Dec. 2021
KOREA SOFTWARE CONGRESS 2021 (KSC2021)	Hyungtaik Oh, Wonkeun Jo , 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, Wonkeun Jo , and Dongil Kim
Milling tool wear prediction based on sensor and time-series feature extraction	Dec. 2021
KOREA SOFTWARE CONGRESS 2021 (KSC2021)	Wonkeun Jo , 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, Wonkeun Jo , 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, Wonkeun Jo , 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, Wonkeun Jo , 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, Wonkuen Jo , 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)	Wonkuen Jo , and Dongil Kim

Education

Chungnam National University	Mar. 2021 - Feb. 2025
PH.D. IN COMPUTER SCIENCE & ENGINEERING	Daejeon, S.Korea
Adviser: Dong-il Kim (EHWA) & Sung-su Lim (CNU)	
Chungnam National University	Mar. 2019 - Feb. 2021
M.S. IN COMPUTER SCIENCE & ENGINEERING	Daejeon, S.Korea
Adviser: Dong-il Kim	
Chungnam National University	Mar. 2011 - Aug. 2018
B.S. IN PHYSICS	Daejeon, S.Korea