

# Wonkeun Jo

PH.D. CANDIDATE OF THE CHUNGNAM NATIONAL UNIVERSITY

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## Experience

### National R&D project

트윈-디지털 스레드 기반 공작기계 지능화 및 공정 최적화 기술 개발

2023 +

Korean Ministry of Trade, Industry and Energy

박사과정생 연구장려금 지원 사업

2022 - 2023

No. 2022R1A6A3A13056750

Korean Ministry of Education

### Industrials

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

### Health Care

2019 - 2020

- 심박 데이터를 기반으로 한 혈압예측 인공지능 설계를 통한 기업지원

Korea Testing Laboratory

### Astronomy

2020

- 태양 이벤트 탐지 및 분류 방법 개발

Korea Astronomy

### 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 trcak

Jun, 2019

### Awards

The 3rd place, AI-factory, AI Graduate Challenge with KT Mi:dm

July, 2023

The 14th place, Dacon, Synthetic data-based object detection AI competition

May, 2023

## Journals

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

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

Jul. 2022

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

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

신경망 이미지 분할 모델을 이용한 세포의 형태학적 특성 군집화

Apr. 2023

KOREAN INSTITUTE OF INTELLIGENT SYSTEMS

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

## 특징 추출과 딥러닝을 활용한 항원 결정기 예측

KOREAN DATABASE CONFERENCE 2022

Both authors equally contributed.

## Neural additive models for nowcasting

KOREA DATA MINING SOCIETY CONFERENCE 2022

## Sleep Quality Prediction with E4 Wireless Dataset based on Machine Learning

KOREA COMPUTER CONGRESS 2022 (KCC2022)

## Interpretable Neural Network for Time Series Nowcasting

KOREA COMPUTER CONGRESS 2022 (KCC2022)

## Recommendation System Based on Graph Collaborative Filtering Using Explicit Information

KOREA SOFTWARE CONGRESS 2021 (KSC2021)

## Hybrid Sequential Recommendation System Using k-NN and Graph Neural Networks

KOREA SOFTWARE CONGRESS 2021 (KSC2021)

## Milling tool wear prediction based on sensor and time-series feature extraction

KOREA SOFTWARE CONGRESS 2021 (KSC2021)

## Methodology of Cutting Force Similarity Calculation in Milling Process using Siamese LSTM Structure

KOREA SOFTWARE CONGRESS 2021 (KSC2021)

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

KOREA COMPUTER CONGRESS 2021 (KCC2021)

## Blood pressure prediction based on deep learning with PPG and ECG

KOREA COMPUTER CONGRESS 2021 (KCC2021)

## Machine learning-based elderly depression prediction with pattern-of-life data

KOREA SOFTWARE CONGRESS 2020 (KSC2020)

## Intelligent data generation with generative adversarial nets for class-imbalanced problems

KOREA COMPUTER CONGRESS 2020 (KCC2020)

Nov. 2022

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

Nov. 2022

**Wonkeun Jo**, and Dongil Kim

Aug. 2022

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

Aug. 2022

**Wonkeun Jo**, and Dongil Kim

Dec. 2021

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

Dec. 2021

Hogeun Koo, Soomin Lee, **Wonkeun Jo**,  
and Dongil Kim

Dec. 2021

**Wonkeun Jo**, Hogeun Koo, Hyein Kim,  
Jeongin Koo, and Dongil Kim

Dec. 2021

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

Jun. 2021

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

Jun. 2021

Junwon Park, **Wonkeun Jo**, Kyhyup Oh,  
and Dongil Kim

Dec. 2020

Soomin Lee, Seonyoung Kim, **Wonkuen  
Jo**, Junyoung Choi, Hyungshin Kim, and  
Dongil Kim

Jul. 2020

**Wonkuen Jo**, and Dongil Kim

## Education

### Chungnam National University

PH.D. IN COMPUTER SCIENCE & ENGINEERING

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

Mar. 2021 +

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*