Date of preparation of CV: 2025.11.05

Jieun Park

School of Mechanical Engineering, Korea University
Email: jieunpark0325@gmail.com
Mobile: +82-10-3083-5056

PERSONAL DATA

- **Gender:** Female
- **Date of Birth:** March 25, 1989
- **Nationality:** Republic of Korea (South Korea)

RESEARCH INTERESTS

Computational Solid Mechanics, Finite Element Analysis, Machine-Learning based Simulations, Design Optimization Methodology, AI-based Design Optimization Framework

EDUCATION

Korea University, Seoul, Korea Sep. 2021 – Aug. 2025
Ph.D. candidate, Dept. of Mechanical Engineering. (Transferred)

- Dissertation:
  Two-stage surrogate modeling for reliability-based design optimization
- Advisor: Gunwoo Noh, Associate Professor
- GPA: 3.75/4.5

Kyungpook National University, Daegu, Korea Mar. 2020 – Aug. 2021
Ph.D. candidate, Dept. of Mechanical Engineering.

- Advisor: Gunwoo Noh, Associate Professor

Kyungpook National University, Daegu, Korea Mar. 2018 – Feb. 2020
S.M., Dept. of Mechanical Engineering.

- Thesis:
  Implant placement in the implant-supported mandibular advancement device for completely edentulous patients: A finite element study
- Advisor: Gunwoo Noh, Associate Professor
- GPA: 3.82/4.3

Pukyong National University, Busan, Korea Mar. 2011 – Aug. 2014
B.S., Dept. of Mechanical Engineering. (Transferred)

- GPA: 3.66/4.5

Kyungnam University, Changwon, Korea Mar. 2008 – Feb. 2011
B.S., Dept. of Naval Architecture and Ocean System Engineering.

- GPA: 4.02/4.5

PUBLICATIONS

Corresponding authors are underlined. *:equal contributions

Articles in International Journals

1. T. Park*, D. Noh*, J. Lee, **J. Park**, H. Lim, J. Park, W. Choi, G. Noh, Progressive DNN-metaheuristics for programmable broadband mechanical metamaterial absorbers design, International Journal of Mechanical Sciences (IF=9.4, JCR=2.5%), 296, 110297, 2025

2. **J. Park***, J. Hur*, S. Park, D. N. Kim, G. Noh, Auxetic pattern design for concentric-tube robots using an active DNN-metaheuristics optimization, Thin-Walled Structures (IF=6.6, JCR=5.6%), 197, 111603, 2024

3. S. Park*, J. Kim*, **J. Park**, B. K. Jessica, G. Noh, Design of patterns in tubular robots using DNN-metaheuristics optimization, International Journal of Mechanical Sciences (IF=9.4, JCR=2.5%), 251, 108352, 2023

4. **J. Park**, S. Park, I. Kang, G. Noh, Biomechanical effects of bone quality and design features in dental implants in long-term bone stability, Journal of Computational Design and Engineering (IF=6.1, JCR=6.6%), 9(5), 1538-1548, 2022 – **EDITOR'S CHOICE**

5. S. Park, **J. Park**, I. Kang, H. Lee, G. Noh, Effects of assessing the bone remodeling process in biomechanical finite element stability evaluations of dental implants, Computer Methods and Programs in Biomedicine (IF=4.8, JCR=13.3%), 221, 106852, 2022

6. S. M. Park, S. Park, **J. Park**, M. Choi, L. Kim, G. Noh, Design process of patient-specific osteosynthesis plates using topology optimization, Journal of Computational Design and Engineering (IF=6.1, JCR=6.6%), 8(5), 1257-1266, 2021

7. **J. Park**, S. J. Ahn, H. Lee, G. Noh, Implant placement in the removable mandibular advancement device for completely edentulous patients: A finite element study, Journal of Computational Design and Engineering (IF=6.1, JCR=6.6%), 8(1), 140-148, 2021 – **EDITOR'S CHOICE**

Articles in Domestic Journals

1. **박지은**, 최민욱, 박소연, 유민철, 김윤현, 노건우, 완전 무치악 환자의 다양한 임플란트 배치를 통한 하악 전방 이동장치의 안정성 평가, 대한기계학회 논문집 A 권, 44(6), 443-449, 2020

2. **박지은**, 이현종, 노건우, Biomechanical Effects of Retention Types (Cement and Screw-Cement Retained Prosthesis) in Implant Prosthesis, 한국정밀공학회지, 37(3), 225-230, 2020

3. 김윤현, **박지은**, 이현종, 신상균, 노건우, 임플란트 구조의 다양한 초기 조건에 따른 뼈 재구성에 의한 임플란트 주변 뼈의 밀도 변화 양상, 대한기계학회 논문집 A 권, 43 (11), 821-828, 2019

CONFERENCES

- **Conference 1:** 18th U.S. National Congress on Computational Mechanics
  - Title: An adaptive ML-Metaheuristics framework for reliability-based design optimization
  - Location & Date: Chicago, United States of America, 20 – 24 Jul. 2025

- **Conference 2:** The Eleventh International Conference on Engineering Computational Technology
  - Title: *Optimization of design parameters in auxetic lattice structure for relieving surface stress concentrations*
  - Location & Date: Montpellier, France, 23 – 25 Aug. 2022

- **Conference 3:** 대한기계학회 CAE 및 응용역학부문 2020 년 춘계학술대회
  - Title: *The effect of bone remodeling process on the biomechanical stability of implant systems*
  - Location & Date: Gyeongju, Korea, 19 – 21 Aug. 2020

- **Conference 4:** Asian Pacific Congress on Computational Mechanics (APCOM) 2019
  - Title: *A biomechanical analysis for implant placement in the implant-supported mandibular advancement device for complete edentulous patients*
  - Location & Date: Taipei, Taiwan, 17 – 20 Dec. 2019

- **Conference 5:** 대한기계학회 2019 년 학술대회
  - Title: *Implant placement optimization and biomechanoid stability evaluation of implant-supported mandibular advancement devices for complete edentulous patients*
  - Location & Date: Jeju, Korea, 13 – 16 Nov. 2019

- **Conference 6:** 대한기계학회 CAE 및 응용역학부문 2019 년도 춘계학술대회
  - Title: *Biomechanical analysis of the mandibular advancement device with various implant placements in patients with complete edentulism*
  - Location & Date: Jeju, Korea, 18 – 20 Apr. 2019

RESEARCH EXPERIENCE

Computational Mechanics & Design Optimization Lab,
Dept. of Mech. Eng., Korea University, Seoul, Korea Sep. 2021 – Aug. 2025

1. **Project: 인공지능 기반 설계 최적화 프레임워크 활용 척추 임플란트의 단위구조-전역 형상 최적화, funded by NRF**
   - Project duration: Sep. 2024 – Aug. 2025
   - Took the lead role as principal investigator, overseeing all research activities throughout the project
   - Developed Python-based code to automatically generate training data, contributing to improved data-driven learning processes
   - Designed and implemented machine learning–based acceleration algorithms
   - Performed metaheuristic optimization using AI surrogate models to derive optimal design parameters

2. Project: 2 차원 결과 특성 분포 예측을 위한 공정 지능화 모델 개발, funded by LG Innotek

- Project duration: Aug. 2023 – Jun. 2024
- Took a team leader role in the overall research phase of the project
- Developed Python-based code to automatically generate virtual plating training data, contributing to improved data-driven learning processes
- Implemented code for the automatic training / optimization of virtual plating networks using simulation-driven data

3. Project: 시뮬레이션 데이터 기반 머신러닝 개발 방법론 정립 및 공정 지능화 연구, funded by LG Innotek

- Project duration: Aug. 2022 – May. 2023
- Took a team leader role in the overall research phase of the project
- Developed software for the automatic generation of virtual data from a simulation model
- Implemented AI-Metaheuristic optimization algorithm that recommends optimal process parameters

4. Project: 골유합 극대화와 침강현상을 줄인 음의 포아송비 미세구조 기반 3D 프린팅 기반 척추 케이지 개발 (사업단 우수성과 선정), funded by KMDF

- Project duration: Sep. 2020 – Dec. 2022
- Developed automated in-house ABAQUS script to design intervertebral fusion cages using auxetic unit cell structure with negative Poisson's ratio

Computational Mechanics & Design Optimization Lab, Mar. 2018 – Aug. 2021
Dept. of Mech. Eng., Kyungpook National University, Daegu, Korea

1. Project: 유한요소해석을 이용한 기계적 구조물 안정성 분석

- Project duration: 21 – 29 Sep. 2020
- Created analytical models that resemble real-world models using commercial CAD and finite element analysis programs
- Analyzed the structural stability of equipment based on finite element analysis results

2. Project: 유한요소해석을 이용한 DPF 의 구조 및 진동 해석, funded by Yoochang Tech

- Project duration: 29 Apr. – 3 May 2019
- Performed a structural stability analysis of a Diesel Particulate Filter (DPF) equipped inside a tank using commercial finite element analysis software
- Utilized vibration analysis to analyze the spread of vibration in the DPF in relation to the oscillator's frequency

3. Project: Table Lift 의 전도 가능성 및 안정성 유한요소해석, funded by ILSHINHITECH

- Project duration: 1 – 2 Apr. 2019
- Conducted a finite element analysis to measure strain and stress distribution, to assess changes in the center of gravity with height and structural stability

AWARDS

- Outstanding Graduate Student Award (4 graduate students selected from the Department of Mechanical Engineering) – Department of Mechanical Engineering, KU (2023)
- Silver Award – PKNU The 3rd Capstone Design Competition (2012): "Vehicle Solar Light-Sensing Automatic Sunshade"

SKILLS

- **Computer Languages**
  - MATLAB, Python
  - Applying Machine Learning algorithms using open-source tools (e.g., Tensorflow, PyTorch)
- **Mechanical design and FE-based programs**
  - [Commercial] ABAQUS, COMSOL, ANSYS, Creo, SolidWorks
  - In-house ABAQUS script, In-house COMSOL script
- **Design optimization for real-world engineering problems**
  - Using Metaheuristic algorithms based on MATLAB code