# **DONGEON LEE** (이동언)

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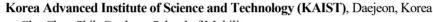


### **RESEARCH INTERESTS**

Generative Design, Data-driven Design Optimization, Bayesian Optimization (BO), Uncertainty Quantification (UQ), Engineering Applications of Artificial Intelligence, Virtual Product Development (VPD)

### **EDUCATION**

Integrated PhD Student Feb. 2023 ~ Present



Cho Chun Shik Graduate School of MobilityAdvisor: Prof. Namwoo Kang



B.S.

Mar. 2011 ~ Feb. 2017



### Pusan National University (PNU), Busan, Korea

- Department of Mechanical Engineering
- Advisor: Prof. Changmin Son
  - (Currently at Virginia Tech (USA), Rolls-Royce Commonwealth Professor)
- Received Academic Excellence Scholarship for all semesters (Incl. National Science & Technology Scholarship)
- Graduated Summa Cum Laude (GPA: 4.20 / 4.5)

### PROFESSIONAL EXPERIENCE

Hanwha Defense (Currently Hanwha Aerospace)

Associate Research Engineer, ILS (Integrated Logistics Support) Center, Research Institute

Changwon, Korea Dec. 2016

~ May 2022



KAIST NQe (Nuclear & Quantum Engineering) Internship Program Intern Researcher, NPNP (Nuclear Power and Propulsion Laboratory)

Daejeon, Korea July 2015



#### RESEARCH PROJECT

Mar. 2023

Development of fundamental technology for virtual product design to analyze suitable areas for

~ Present renewable ocean energy

Sponsored by KRISO (Korea Research Institute of Ships & Ocean Engineering)

• Role: Project Leader

Mar. 2023 Real-time prediction of wave height using AI for digital twin of wave energy converter

~ July 2023 Sponsored by KRISO (Korea Research Institute of Ships & Ocean Engineering)

• Role: Project Leader

Nov. 2019 Development of Redback IFV ILS (Integrated Logistics Support) elements (CBM+/Training (VR/AR))

~ May 2022 Sponsored by CoA (Commonwealth of Australia) & HDA (Hanwha Defense of Australia)

• Role: Project Engineer

Dec. 2016 Development of K21 IFV (Infantry Fighting Vehicle) depot maintenance elements

~ Oct. 2019 Sponsored by ROK (Republic of Korea) Army

• Role: Project Engineer

July 2015 Verification of the GAMMA<sup>+</sup> code with the supercritical CO<sub>2</sub>(S-CO<sub>2</sub>) compressor test data about the

accident scenarios which are related to cooling water loop

Sponsored by KAIST NQe NPNPAdvisor: Prof. Jeongik LeeRole: Intern Researcher

### TECHNICAL SKILLS

Programming Languages: Python, MATLAB
Operating System: Linux, Docker, Windows
Framework: PyTorch, TensorFlow

### LICENSE

### **Big Data Analysis**

**Engineer** 

### [Details on the license]

- License Number: BAE-003002950 (Dec. 31, 2021)
- Relevant Government Ministries: Ministry of Science and ICT & Statistics Korea
- Implementing Agency: Korea Data Agency

## **TEACHING EXPERIENCES**

### **KAIST**

Teaching Assistant, Fall 2024, CoE491: Smart Mobility Design for Designer, Engineer, and Data Scientist (Practice Codes: https://www.smartdesignlab.org/teaching/dl kaist coe)

### **PUBLICATIONS**

\* corresponding author, † equal contribution

### **Journal Papers (International)**

- 2. **Lee, D.**<sup>†</sup>, Lee, U.<sup>†</sup>, Shin, J., Lee, Y.\* and Kang, N.\*, "Multi-scale and Multi-physics Design Optimization for EVs (tentative title)", (In preparation)
- 1. **Lee, D.**, Yang, S., Oh, J., Cho, S., Kim, S., and Kang, N.\*, "AI-powered Digital Twin of the Ocean: Reliable Uncertainty Quantification for Real-time Wave Height Prediction with Deep Ensemble", (Under Review)

### **Conference Proceeding (Korean)**

- 9. **Lee, D.**, Kim, S., Kim, J., Cho, S., and Kang, N.\* (2024) "파력발전시스템의 연간 에너지 생산량 예측 모델을 위한 베이지안 하이퍼파라미터 최적화에 대한 연구", 대한기계학회 2024 년 학술대회
- 8. **Lee, D.**, Yang, S., Oh, J., Cho, S., Kim, S., and Kang, N.\* (2024) "파력발전시스템의 디지털 트윈을 위한 딥러닝 기반 실시간 수위 예측의 불확실성 정량화에 대한 연구", 대한기계학회 CAE 및 응용역학부문 2024 년도 춘계학술대회
- 7. **Lee, D.**, Oh, J., Cho, S., and Kang, N.\* (2023) "도메인 지식 기반 딥러닝을 활용한 불규칙 시계열 데이터 실시간 예측 연구: OWC-WEC 시스템 사례", 대한기계학회 2023 년 학술대회
- 6. **Lee, D.**, Oh, J., Kim, K., Cho, S., and Kang, N.\* (2023) "LSTM 을 이용한 진동수주형 파력발전장치 수주높이 실시간 예측 연구", 대한기계학회 CAE 및 응용역학부문 2023 년도 춘계학술대회
- 5. Lee, D., Lee, D., (2021) "해외사업 기반의 상태기반정비 (CBM) 적용대상 선정 프로세스 연구", 한국군사과학기술학회, pp. 1501-1502.
- 4. **Lee, D.**, Sung, R., Lee, D., (2021) "호주 LAND400 Ph.3 사업기반 ADDIE 모델을 활용한 군 교육훈련 개발방안 연구", 한국군사과학기술학회, pp. 1499-1500.
- 3. Park, M., Sohn, J., **Lee, D.**, (2020) "훈련 시스템의 개방형 아키텍처 적용에 관한 연구", 한국군사과학기술학회, pp. 1851-1852.
- 2. Sohn, J., Park, M., Lee, D., (2020) "전투차량 수출사업 훈련시스템 요구사항에 대한 고찰", 한국군사과학기술학회, pp. 1837-1838.
- 1. Lee, D., Lee, D., Lee, S., (2018) "사용자 중심의 창정비 종합군수지원요소 식별 및 적용방안에 대한 연구", 한국군사과학기술학회, pp. 1983-1984.