DONGEON LEE (이동언)

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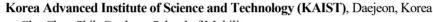


RESEARCH INTERESTS

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⁺ code with the supercritical CO₂(S-CO₂) 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 Language: Python, MATLAB
Operating System: Linux, Docker, Windows
Framework: PyTorch, TensorFlow

LICENSE

Big Data Analysis [Details on the license]

Engineer • 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)

- 3. **Lee, D.**, and Kang, N.*, "Generative Model-driven Design Optimization to Address Small Data Challenges in Manufacturing (tentative title)", (In Preparation)
- 2. **Lee, D.**[†], Lee, U.[†], 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.