Curriculum Vitae

Jung Sung Kang

jungsungkang@unist.ac.kr

H. P. +82-10-2701-4915

Ulsan National Institute of Science and Technology

UNIST Gil-50(44919), Ulsan, Republic of KOREA

AFFILIATION

Combined Master-Ph.D. Program (2019 ~ Present)
Nuclear **S**afety **A**ssessment and **P**lant **H**MI **E**volution Laboratory (NUSAPHE)
Ulsan **N**ational **I**nstitute of **S**cience & **T**echnology (UNIST)
UNIST-gil 50, Ulsan Metropolitan City, Republic of Korea, 44919

EDUCATION

- **Bachelor of Engineering**
  - Major: Mechanical, Aerospace and Nuclear Engineering (UNIST, Ulsan, Korea, Feb. 2012 ~ Feb. 2019)
    1st track: Mechanical and Aerospace Engineering
    2nd track: Nuclear Science Engineering

RESEARCH INTEREST

- **Nuclear Engineering**
  - Operator Support System
  - Human-System Interface
  - Nuclear Power Plant Operating Procedure

WORK EXPERIENCE

- **Project**
  - Jun. 2024 ~ Present: Development of operation support technology for intelligent proactive mitigation action of small modular reactors
  - Jun. 2024 ~ Present: Human performance data collection in a multi-module operation environment
  - Apr. 2022 ~ Present: Development of algorithms to support normal/abnormal operation of nuclear power plants based on AI/big data platform
  - Jan. 2019 ~ Jun. 2023: Intelligent system for NPP emergency operations using artificial intelligence
  - Feb. 2021 ~ Dec. 2021: Analysis of Methodologies and Issues for NPP Human-System Interface Evaluation
  - Sep. 2021 ~ Feb. 2022: Development of operation supporting technology based on artificial intelligence for nuclear power plant start up and shutdown operation

PUBLICATIONS (SCI ONLY)

1. **Jung Sung Kang**, Seung Jun Lee, "Concept of an Intelligent Operator Support System for Initial Emergency Responses in Nuclear Power Plants", *Nuclear Engineering and Technology*, Volume 54, Issue 7, July 2022, p.p. 2453-2466

   https://doi.org/10.1016/j.net.2022.02.010

INTERNATIONAL CONFERENCES

1. **Jung Sung Kang**, Seung Jun Lee, "The Conceptual Design of Integrated Emergency Operating Procedures with Hierarchical Structure", 2024 NUTHOS, Vancouver, Canada (Aug. 2024) -*oral*
2. **Jung Sung Kang**, Seung Jun Lee, "The Concept of Seamless Dynamic Emergency Operating Procedure", 2023 NPIC&PSA, Knoxville, USA (Jul. 2023) -*oral*
3. **Jung Sung Kang**, Seung Jun Lee, "A framework of safety margin simulation for optimized emergency operation in nuclear power plants", 2022 ESREL, Dublin, Ireland (Aug. 2022) -*oral*
4. **Jung Sung Kang**, Seung Jun Lee, "A Framework of Evaluation for Intelligent Initial Emergency Response Support System in NPPs", 2021 ISOFIC, Online, Okayama, Japan (Nov. 2021) -*oral*
5. **Jung Sung Kang**, Seung Jun Lee, "An Operator Support System Framework and Prototype for Initial Emergency Response in Nuclear Power Plants", 2021 ESREL, Online, France (Sep. 2021) -*oral*
6. **Jung Sung Kang**, Seung Jun Lee, "Initial Emergency Response Support System using Multilevel Flow Modelling in Nuclear Power Plants", 2020 IWFM, Online, DTU & Okayama University, (Oct. 2020) -*oral*
7. **Jung Sung Kang,** Jeeyea Ahn and Seung Jun Lee, "An intelligent operator support system for early state emergency operations in nuclear power plants", 2019 ANS Winter Meeting, Washington D.C., USA (Nov. 2019) – *oral*

DOMESTIC CONFERENCES

1. **Jung Sung Kang**, Seung Jun Lee, "Insights from Human Performance Experiments Integrating Operator Support Systems in Emergency Situations", 2024 KNS Spring, Jeju, Korea (May. 2024) – *oral*, **Outstanding Paper Award**
2. **Jung Sung Kang**, Seung Jun Lee, "Development of Integrated Dynamic Emergency Operating Procedure with Hierarchical Structure", 2023 KNS Spring, Jeju, Korea (May. 2023) -*oral*
3. **Jung Sung Kang**, Seung Jun Lee, "A Concept of Dynamic Emergency Operating Procedures Using Safety Margin Simulation", 2022 KNS Autumn, Changwon, Korea (Oct. 2022) -*oral*
4. **Jung Sung Kang**, Seung Jun Lee, "Conceptual Operator Support System Interface Design for Early Emergency Responses in Nuclear Power Plants", 2021 KNS Autumn, Online, Changwon, Korea (Oct. 2021) -*oral*
5. **Jung Sung Kang**, Seung Jun Lee, "An Intelligent Operator Support System for Initial Emergency Responses in NPPs", 2020 KNS Spring Meeting, Online, Korea (Jul. 2020) -*oral*
6. **Jung Sung Kang**, Seung Jun Lee, "An Intelligent Operator Support System for Standard Post Trip Action in Nuclear Power Plants", 2019 KNS Autumn Meeting, Goyang, Korea (Oct. 2019) -*oral*, **Outstanding Paper Award**

REPORTS

1. Seung Jun Lee, **Jung Sung Kang**, Jae Min Kim, Jeonghun Choi, Geunhee Kim, Ji-tae Kim, Young Mi Kim, Analysis of Methodologies for NPP Human-System Interface Evaluation. NSTAR-21NS41-276. Nuclear Safety and Security Commission. 2021.

RESEARCH EXPERIENCES

- **APR 1400 Simulator operating training by Korea Institute of Nuclear Safety** (Deajeon, South Korea, 2022.08)

- Nuclear power plant simulator operation training

- **RELAP5, TRACE, RELAP/SCDAPSIM, MARS-KS training course** (Barcelona, Spain, Jun. 2019)
  - Thermal-hydraulic code training

- **Compact Nuclear Simulator training course** (Daejeon, Republic of Korea, Feb. 2019)
  - Nuclear power plant simulator operation training

AWARDS AND SCHOLARSHIPS

2020	2019 Spring KNS Conference Outstanding Paper Award
2021	Outstanding Award at the Nuclear Power-Artificial Intelligence Fusion Case Study Presentation (원자력−인공지능 융합 사례연구 발표회 우수상)
2023	2023 KNS Scholarship
2024	2024 Spring KNS Conference Outstanding Paper Award