JONGSEONG BRAD CHOI, Ph.D.

Assistant Professor
Department of Mechanical Engineering
The State University of New York, SUNY Korea
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RESEARCH INTERESTS

Visual Analytics; Structural Health Monitoring and Prognostics; Computer Vision; SLAM; Deep Learning; Photogrammetry; Aerial Manipulation; Hypersonic Propulsion; Compressible Flow

EDUCATION

PhD., Mechanical Engineering, Purdue University, West Lafayette, IN, USA *05/2020*

- Dissertation: *Automating Visual Data Collection and Analytics toward Lifecycle Management of Engineering Systems*

MSc., Mechanical Engineering, University of Mississippi, University, MS, USA *05/2014*

- Thesis: *Parametric Scramjet Analysis*

BSc., Mechanical Engineering, University of Mississippi, University, MS, USA *05/2012*

EMPLOYMENT HISTORY

Assistant Professor, Department of Mechanical Engineering ..... *08/2020 – Present*
The State University of New York, SUNY Korea, Incheon, South Korea

Research Assistant Professor, Department of Mechanical Engineering ..... *08/2020 – Present*
The State University of New York, Stony Brook University, Stony Brook, USA

Postdoctoral Researcher, Systems Assessment Center..... *06/2020 – 07/2020*
Argonne Nation Laboratory, Lemont, IL, USA

Graduate Research Assistant, School of Mechanical Engineering ..... *08/2014 – 05/2020*
Purdue University, West Lafayette, IN, USA

Graduate Research and Teaching Assistant, Department of Mechanical Engineering ..... *08/2012 – 05/2014*
Unversity of Mississippi, University, MS, USA

PROFESSIONAL POSITION

Chair Committee, Board of Business ..... *01/2022 – Present*
The Korean Society of Mechanical Engineers (KSME) – Division of Reliability Engineering, South Korea
Chair Committee, Board of Internal Business ..... *01/2021 – Present*
The Korean Society of Prognostics and Health Management (KSPHM), South Korea
Committee, Board of Industry-Academia Collaboration ..... *01/2025 – Present*
The Korean Society of Mechanical Engineers (KSME) – Division of IT-Intelligence Convergence, South Korea
Committee, Board of Academic Affairs ..... *01/2025 – Present*
The Korean Reliability Society, South Korea

RESEARCH PROJECTS (Total held amount **3.101 billion KRW (2.584 million USD)** as PI, 1 USD = 1,200 KRW)

30.	**(PI) MetaReal: Commercialization of Hyper-Realistic Real Estate Spatial Information Metaverse Technology** supported by **RAPA** (Korea Radio Promotion Association), awarded funding amount of 683 million KRW (equivalent to 568.523K USD)	*05/2025 – 12/2027 (ongoing)*
29.	**(PI) PINN based EV Energy Consumption PHM model and EV Navigation System Development** supported by **Hyundai Motor Group**, awarded funding amount of 60 million KRW (equivalent to 50K USD)	*04/2025 – 11/2025 (ongoing)*
28.	**(PI) True Twin: AI-based Hyper-Realistic Industrial Digital Twin for Distributed Collaborative and Predictive Facility Maintenance in Mixed Reality** supported by **NRF** (National Science Foundation of Korea) under Grant No. NRF-2025R1F1A106361711, awarded funding amount of 1207.849 million KRW (equivalent to 1,007k USD).	*03/2025 – 02/2030 (ongoing)*
27.	**(PI) Ultracapacitor Smart Cell Balancing 2.0 Algorithm Development** supported by **LS Materials** and **KETI** (Korea Electronics Technology Institute) awarded funding amount of 25 million KRW (equivalent to 20.8k USD).	*02/2025 – 09/2025 (ongoing)*
26.	**(PI) AI-based Ultra-High-Resolution 3D Modeling Academic Service for Scaled-Down Models of Reactor Internal Structures**, supported by Korean Institute of Machinery and Materials (KIMM), award funding of 20 million KRW (equivalent to 16.7k USD)	*01/2025 – 06/2025*
25.	**(PI-internal) Graduate Student Research Assistantship Program**, support by SUNY Korea R&BDF, awarded funding of 17.6 million KRW (equivalent to 14.7k USD)	*09/2024 – 12/2024*
24.	**(PI-internal) International Joint Research Support Fund**, support by SUNY Korea R&BDF, awarded funding of 9 million KRW (equivalent to 7.5k USD)	*06/2024 – 11/2024*
23.	**(PI) Development of a 3D-based Ship Assessment Platform and Utilization through Web Service**, supported by **KR** (Korean Register of Shipping), awarded funding of 44 million KRW (equivalent to 36.7k USD)	*03/2024 – 10/2024*
22.	**(PI) Development of Image-based Indoor 3D Modeling Technique for Facility Digital Twin Models**, supported by **MDS Intelligence Inc.**, awarded funding of 60.5 million KRW (equivalent to 50.4k USD)	*11/2023 – 2/2024*
21.	**(PI) 2023 Global Product Service Localization Research**, supported by **ITP** (Incheon Technopark), awarded funding of 5 million KRW (equivalent to 4.2k USD).	*08/2023 – 10/2023*
20.	**(PI) Remote Inspection for Shipment Engine Reliability exploiting Metaverse and Digital Twin Models**, supported by **KR** (Korean Register of Shipping), awarded funding of 44 million KRW (equivalent to 36.7k USD)	*05/2023 – 12/2023*
19.	**(PI) 2023 Steam Activity Research Program for Incheon Academy of Science & Arts (IASA)**, supported by **IASA,** awarded funding of 16 million KRW (equivalent to 13.3k USD).	*03/2023 – 12/2023*
18.	**(PI) 2022 Global Product Service Localization Research**, supported by **ITP** (Incheon Technopark), awarded funding of 5 million KRW (equivalent to 4.2k USD).	*09/2022 – 12/2022*
17.	**(PI) Emulation and Enhancement of Human Capability on Infrastructure Assessment: Engineering Soft-Power Engaged Monitoring and 3 Major Techniques** supported by **NRF** (National Science Foundation of Korea) under Grant No. NRF-2022R1F1A106361711, awarded funding amount of 101.43 million KRW (equivalent to 84.5k USD).	*06/2022 – 02/2024*

16. **(PI) Development of An Integrated MCU (Mechanical Control Units) Component and Module Corresponding to Smart-Car Complex Control System** supported by **ITP** (Incheon Technopark), awarded funding of 28 million KRW (equivalent to 23.3k USD). *05/2022 – 12/2022*

15. **(PI) Space Exploration and In-Situ Resource Utilization Center (SRC)** supported by **NRF** (National Research Foundation of Korea) under Grant No. NRF-2022M1A3C2085237, awarded funding of 475 million KRW (equivalent to 395.8k USD). *04/2022 – 12/2026 (ongoing)*

14. **(PI) Development of IMU-based self-stabilizing autonomous guided vehicle (AGV) control system and hardware** supported by **AIDL co.**, awarded funding of 5.7 million KRW (equivalent to 4.8k USD). *03/2022 – 07/2022*

13. **(PI) 2021 Global Product Service Localization Research**, supported by **ITP** (Incheon Technopark), awarded funding of 10 million KRW (equivalent to 8.3k USD). *10/2021– 12/2021*

12. **(PI, Equipment Grant) Two Electric Rover Vehicles, Velodyne LiDar Puck, and RTKGPS Sensor**, supported by **KICT** (Korea Institute of Civil Engineering and Building Technology), awarded funding equivalent to 53 million KRW (equivalent to 44.2k USD). *06/2021 – 06/2031 (ongoing)*

11. **(Co- PI) XR based Intuitive Inventory System for Smart Factory,** supported by **RAPA** (Korea Radio Promotion Association), awarded funding of 200 million KRW (equivalent to 167k USD)**,** 3 conference paper published **[C6],[C7],[C8]**. *04/2021 – 12/2021*

10. **(PI) Automating Visual Assessment of Infrastructure exploiting Computer Vision and Big Visual Data**, supported by **NRF** (National Science Foundation of Korea) under Grant No. NRF-2021R1G1A1012298, awarded funding of 30 million KRW (equivalent to 25k USD)**,** 1 journal paper published **[J10], [A1]**. *03/2021 – 02/2022*

9. **Integrating Human and Machine for Post-Disaster Visual Data Analytics**, supported by **NSF** under Grant No. NSF-1835473, 2 journal paper published **[J7], [J9]**; 1 journal paper accepted **[J10]**; 1 conference paper accepted **[C9]**; 1 proposal submitted **[P5]**. *01/2019 – 05/2020*

8. **STORM: Safeguarding Cultural Heritage through Organizational Resources Management**, collaborated with **EU** (European Union) under Grant No. H2020 n. 700191, 1 conference paper published **[C4]**; 1 journal paper under review **[J13]**. *04/2017 – 05/2020*

7. **RETH: Resilience ExtraTerrestrial Habitat**, supported by New Horizon Program at **Purdue University** and **NASA** (The National Aeronautics and Space Administration), 3D models & videos were published in numerous articles worldwide (e.g., usatoday.com, space.com, etc.); Available in https://phys.org/news/2019-07-humans-lava-tubes-moon.html, 1 conference paper published **[C5]**. *08/2018 – 01/2019*

6. **Active Citizen Engagement to Enable Lifecycle Management of Infrastructure Systems**, supported by **NSF** under Grant No. NSF-1645047, 2 journal paper published **[J6], [J8]**. *05/2017 – 08/2018*

5. **Vision-based Visual Inspection System for A Large Number of Aerial Images**, 1 journal paper published **[J6]**; 1 proposal funded **[P5]** *01/2017 – 12/2017*

4. **Sensor Integrated Autonomous Flight UAV System Development**, 2 proposals generated **[P1]**, **[P2]** 05/2016 – 05/2021

3. **Automated Region-of-Interest Localization and Classification for Facility Visual Assessment**, 1 journal paper published **[J5]**; 1 conference paper published **[C2]**. *05/2015 – 05/2017*

2. **Image-Based Collection and Measurements for Construction Pay Items**, supported by **INDOT** (Indiana Department of Transportation) under Grant No. SPR-4006, 1 journal paper published **[J4]**; 1 conference paper published **[C1]**; 1 technical Report published **[C3]**. *05/2015 – 08/2017*

1. **Parametric Analysis of Scramjet Engine Varying Material and Fuel (Research Assistant),** supported graduate program by University of Mississippi, 3 journal papers published **[J1]**, **[J2]**, **[J3]**; 1 Master thesis generated *08/2012 – 05/2014*

TEACHING RECORDS

Course Teaching

MEC 559: **(Graduate Course) Mobile Robotics and Autonomous Vehicle – Computer Vision and Control** at *the State University of New York, SUNY Korea* *Sp 24, 25*

MEC 510: **(Graduate Course) Object-Oriented Programming for Scientists and Engineers** – ***Visual Analytics for Mechanical Engineers*** at *the State University of New York, SUNY Korea* *Sp22, 23, 24, 25*

MEC 410: **Design of Machine Elements** at *the State University of New York, SUNY Korea* *Sp22, 23*

MEC 301: **Thermodynamics** at *the State University of New York, SUNY Korea*: Recorded the highest course evaluation score in the department *Fa20, 21, 22, 23, 24*

MEC 320: **Numerical Methods in Engineering Design and Analysis** at *the State University of New York, SUNY Korea* *Fa21, 22, 23, 24*

MEC 363: **Mechanics of Materials** at *the State University of New York, SUNY Korea* *Sp21*

Student Advising (6 Ph.D., 2 Master's, 13 Bachelor's students in Aug 2025)

RAs - Ph.D. Course, *the State University of New York, SUNY Korea*

- **Jonathan Boyack**: Engineering-Soft-Power engaged Remote Sensing and Smart City *2022.01 – Present*
- **Ricardo Ortiz**: Development of RKTGPS-based Autonomous Vehicle using ROS *2024.01 – Present*
- **Hansol Lim**: LiDAR-3DGS System Development for SLAM *2024.07 – Present*
- **Alfredo Valenzuela**: PTZ Camera Calibration and App Development *2025.01 – Present*
- **Jee Won Lee**: MicroSplats: Image-based 3D Reconstruction using Micro Gaussian Splatting *2025.07 – Present*
- **Hanbeom Chang**: Development of LiDAR-RGB Sensing System *2025.08 – Present*

RAs - Master's Course, *the State University of New York, SUNY Korea*

- **Sooyeun Yang**: Digital Twin Operation through Omniverse *2025.03 – Present*
- **Hyeoji Chang**: 3D Gaussian Splatting SLAM *2025.01 – Present*
- **Hanbeom Chang**: Development of LiDAR-RGB Sensing System **(Graduated)** *2023.02 – 2025.06*
- **Jee Won Lee**: Camera Optimization for Gaussan Splatting **(Graduated)** *2022.03 – 2025.06*
- **Alfredo Valenzuela**: Long-Distance Monitoring using PTZ Camera Sensing **(Graduated)** *2022.08 – 2024.12*
- **Hansol Lim**: NeRF-based 3D Video Generation **(Graduated)** *2022.08 – 2024.06*
- **Ricardo Ortiz**: RTKGPS-based autonomous driving **(Graduated)** *2021.08 – 2023.12*
- **Jonathan Boyack**: Non-Thesis option **(Graduated)** *2020.08 – 2021.12*

RAs - Undergraduate Course Present

- **Cheyul Im**: Hyper-Resolution 3D Reconstruction and Blender *2025.01 – Present*
- **Sungwook Choi**: Multimodal Remote Sensing through Mixed/Virtual Reality *2025.01 – Present*
- **Gunwoo Kim**: Camera Calibration for Rapid Projection Matrix Generation *2025.01 – Present*

Dissertation Committee, **Ph.D. Student,** *the State University of New York, SUNY Korea*

- **Mark Anthony Rotor**: Designing tidal turbine (HATT) blades utilizing Artificial Neural Network (ANN) where I serve as chair of the committee *2021.01– 2023.08*

- **Saebom Jin**: Breaking the Vicious Cycle: How Vulnerable Cities Can Develop Smart and Sustainable with Adaptation Planning *2023.04– 2023.12*

Theis Committee, **Master Student,** *the State University of New York, SUNY Korea* *2021.08– 2023.06*

- **Suyeon Lee**: Prognostics using Nonlinear Cumulative Damage Model for Electronic Devices where I serve as member of the committee

Undergraduate Supervisee Graduations, *the State University of New York, SUNY Korea*

- **Hye Jee Chang**: Visual Analytics (Fa20, Sp21), Georgia Tech, Undergrad's program, USA
- **Pureun Jeong**: Visual Analytics (Fa21, Sp22), Yujin Robotic Co. South Korea
- **Sooyon Chang**: SLAM for visual assessment (Fa20, Sp21, Fa21), Purdue Univ., Ph.D. program, USA
- **Hyunseung Cha**: Motor driver development for EV (Fa20, Sp21, Fa21), Hyundai Rotem, South Korea
- **Prince-David Malendele**: SLAM for visual assessment (Fa20, Sp21), Brookhaven Natl. Lab., USA
- **Jimin Shin**: Lidar sensing and rover control (Sp22, Fa22), SUNY Korea, Master's program, South Korea
- **Seunghyun Cha**: Lidar sensing and rover control (Sp22, Fa22), KT Co., South Korea
- **Dannielle Macmaster**: Aerospace metabus platform development (Sp23, Fa23), undecided
- **Leeloy Makusha**: Aerospace metabus platform development (Sp23, Fa23), UT Alington Master's Program
- **Jaewon Lee**: PTZ Camera Control (Fa22, Sp23), SUNY Korea, Master's program, South Korea
- **Yoonseong Kim**: Indoor Mapping through Photogrammetry (Fa23, Sp24), KITECH, South Korea
- **Sambridha Bhattarai**: Hexabot Control and Manipulation (Fa23, Sp24), Found a start-up
- **Soo-Jung Chi**: LiDAR-RGB 3D Modeling of a Large Facilities (Sp24, Fa24), Janssen Korea, South Korea
- **Hojin Song**: Vision-based Autonomous Vehicle, Korean Military Service, South Korea
- **Eunjae Lee**: 3D Reconstruction and Vision Sensing, Skyes Blackchain, South Korea
- **Sooyeun Yang**: Visual Analytics and Sensing, SUNY Korea, Master's program, South Korea

Research Mentor, **Undergraduate Research Course**, *Purdue University*

- **Wookjin Chung**: 6 credits of undergraduate research (Sp2018, Fal2019)
- **Jonghyun Park**: 6 credits of undergraduate research (Sp2018, Fa2019)
- **Gun Wook Park**: 6 credits of undergraduate research (Sp2017, Fa2017)
- **Sharda Parth**: 3 credits of undergraduate research (Sp2018)
- **Yisong Yin**: 6 credits of undergraduate research (Fa2016, Sp2017)

Curriculum Development and Educational Service

Graduate Course Development – *MEC 559 Mobile Robotics and Autonomous Vehicles: Computer Vision and Control* *2024 - present*

- Students are to be trained to manipulate a Robot Operating System (ROS) package, work on related tasks

Graduate Course Development – *MEC 510 Object-Oriented Programming for Scientists and Engineers: Visual Analytics and Sensing* *2022 – present*

- Providing Computer Vision (CV) and Machine Learning (ML) techniques in various mechanical engineering subjects

High School Credit System and Curriculum *2016 – 2017*

- Chosen and served as an instructor for the 16-hour course "Computer Vision and Sustainable Cities Applications" organized by Incheon Metropolitan City Office of Education

TRAILS: Teachers and Researchers Advancing Integrated Lessons in STEM, *Purdue University* *2016 – 2017*

- Supported by NSF under Grant No. NSF-1513248

- Participated as a graduate research assistant in promoting practices that increase students' motivations and capacities to pursue careers in STEM area.

SLED: Science Learning through Engineering Design, *Purdue University* *2015- 2016*

- Supported by NSF under Grant No. NSF-0962840
- Participated as a graduate research assistant in collaboration between STEM disciplinary faculty and grades 3-6 teachers.

SYNERGISTIC LEADERSHIP POSITION

Organizing Committee & Session Organizer & Session Chair for a Conference

- **ICMR 2024, Busan**, South Korea *12/2024*
- **AeroNDT 2023, Busan**, South Korea *11/2023*
- **KSME Annual Meeting 2023**, Incheon, South Korea *11/2023*
- **PHM Korea 2023**, Seoul, South Korea *07/2023*
- **KSME-Reliability Division Annual Meeting 2023**, Jeju, South Korea *03/2023*
- **KSME Annual Meeting 2022**, Jeju, South Korea *11/2022*
- **PHM Korea 2022**, Seoul, South Korea *07/2022*
- **KSME-Reliability Division Annual Meeting 2022**, Jeju, South Korea *03/2022*
- **PHM Korea 2021**, Jeju, South Korea *07/2021*
- **PHM Asia-Pacific 2021**, Jeju South Korea *07/2021*

Banquet Master & MC service for a conference

- **AeroNDT 2023**, Busan, South Korea *11/2023*
- **PHM Korea 2023**, Seoul, South Korea *07/2023*

Seminar Organizer

Human-Machine Collaboration through MR & VR, SUNY Korea, Incheon, South Korea *10/2022*

- Hosted Prof. Chul Min Yeum, University of Waterloo, to hold an open seminar to SUNY Korea community

Lecture Series Co-Organizer *Twice every year*

Annual PHM Lecture Series for Industry, Yonsei University, Seoul, South Korea

- Assisted organizing 3-days lecture series and was in charge of generating and online publishing high-quality video disseminating PHM workflow

Session Chair *07/2022*

Korean Society of Prognostics and Health Management (KSPHM) 2022, Seoul, South Korea

- Served as a chair of the session "Future Mobility and Battery"

Colloquium Organizer *06/2022*

Two Departments Collaborating Seminar (Biomedical Engineering at Purdue Univ. and Mechanical Engineering at SUNY Korea), SUNY Korea, Incheon, South Korea

- Hosted 6 prestigious scholars for this colloquium (3 from Purdue and 3 from SUNY Korea) to share ideas with SUNY Korea students and searching future collaboration between two institutions

Workshop Director *04/2019*

4th Midwest Smart Structure Colloquium at *Purdue University*, West Lafayette, IN, USA

- Organize, design, and direct a 3-days colloquium with 50 participants which is held in Bowen Laboratory at Purdue University

HONORS & AWARDS

Awards

Outstanding Presentation Award from Intl. Conf. on Precision Engineering and Sustainable Manufacturing (PRESM 2025) *07/2025*

- "Physics-informed Neural Network (PINN) and Hyper-realistic Digital Twin (3DGS) for Predictive Engineering System Assessment" presented by **Jongseong Choi***

Young Scientist Award from Korean Society of Mechanical Engineers Reliability Division 2025 *04/2025*

- The paper entitled "EV-PINN: Electric Vehicle Battery Surrogate Model using Transformer-Based Physics Informed Neural Network" and many other contributions in the society

Grand Prize from "Idea Challenge Competition" held by Korean Society of Mechanical Engineers Chungcheong Division and KIMM 2024 *12/2024*

- "Physics-Informed Neural Network for EV Battery Prediction" authored by Hansol Lim, Jeewon Lee, Hanbeom Chang, Sooyeun Yang, and **Jongseong Choi***

Outstanding Paper Award from 7th Intl. Conf. on Materials and Reliability (ICMR 2025) *12/2024*

- "Development of a 3D Gaussian Splatting Digital Twining Platform for Remote Ship Assessment" authored by Jeewon Lee, Hansol Lim, **Jongseong Choi***, Sangho Song, Jaechul Park, and Hwasup Jang.

Best Poster Award from Annual Conf. of the PHM Korea Society (PHM Korea 2024) *10/2024*

- "LiDAR-Camera based Real-time 3D Reconstruction with Mixed Reality Visualization System" authored by Hanbeom Chang and **Jongsoeng Choi***

Outstanding Thesis Award from Korean Society of Mechanical Engineers Reliability Division 2024 *03/2024*

- Mr. Ricardo Ortiz's Master's Thesis entitled "Autonomous Manipulation of Unmanned Ground Vehicle (UGV) with an User-Guided-Path on a Map: Quantitative Simulation and Analysis", supervised by **Jongseong Choi**

Outstanding Paper Award from 14th Intl. Symposium on NDT in Aerospace (AeroNDT 2023) *11/2023*

- "Real-Time 3D Video Generation Using NeRF", authored by Hansol Lim and **Jongseong Choi***. Only 4 papers were selected for this award among all papers submitted to the conference.

Best Paper Award from 14th Intl. Symposium on NDT in Aerospace (AeroNDT 2023)

- "Region of Interest Locator with Digital Twin Model Generation of Large-Scale Facility", authored by Jonathan Boyack, Hansol Lim, Alfredo Valenzuela, **Jongseong Choi***, Sangho Song, Yongseok Choi, and Dongguk Im. Only 10 papers were selected for this award among all papers submitted to the conference. *11/2023*

Excellent Presentation Award from Korean Society of Mechanical Engineers Annual Meeting 2023 *11/2023*

- The paper entitled "Seamless 3D Scene Control of NeRF Generated Digital Twin Environments", authored by Hansol Lim and **Jongseong Choi***, received the Excellent Presentation Award.

Best Paper Award from Korean Society of Mechanical Engineers Annual Meeting 2023 *11/2023*

- The paper entitled "Falling Hazard Assessment Application: Automated Labelling Large Data Sets for Transfer Learning Models", authored by Jonathan Boyack and **Jongseong Choi***, received the Best Paper Award.

Outstanding Project Award from Incheon Technopark (ITP) *11/2023*

- The team MEIC (Ricardo Ortiz, Jonathan Boyakck, Alfredo Valenzuela, and Sambridha Bhattarai, supervised by Prof. Brad Choi, won "2023 Global Product-Service Localization Research Award Competition" held by ITP

The Early-Career Scientist Award from Annual Conference of the PHM Korea Society (PHM Korea 2023) *07/2023*

- Dr. Jongseong Brad Choi talk is entitled "Engineering-Soft-Power engaged visualization analytics and human-machine collaboration remote assessment for large-scale structures" and won the Promising Young Scientist Award.

Best Paper Award from Annual Conference of the PHM Korea Society (PHM Korea 2023) *07/2023*

- The paper entitled "Real-Time, Non-Intrusive Inspection of Structures and Machines Using Visual Analytics and SfM-Based Digital Twin Generation", authored by Hansol Lim and **Jongseong Choi***, received the Best Paper Award.

Best Paper Award from *Korean Society of Mechanical Engineering Annual Meeting 2022* *11/2022*

- The paper entitled "A Real-Time Log Data Analytics-based Electric Vehicle Path Optimization", authored by Jonathan Boyack and **Jongseong Choi*** won the best paper award. Only 2 papers were selected for this award among all papers submitted to the Reliability Division in KSME.

Best Paper Award from *Korean Society of Mechanical Engineering Annual Meeting 2022, KSME* *11/2022*

- The poster entitled "Indoor Navigation System Designed for a Safety of Construction Site", authored by Pureun Jeong, Jimin Shin, Seung Hyun Cha, **Jongseong Choi*** won the best paper award. Only 2 papers were selected for this award among all papers submitted to the Reliability Division in KSME.

Outstanding Project Award from Incheon Technopark (ITP)

- The team MEIC (Jonathan Boyakck, Ricardo Ortiz, and Jee Won Lee, supervised by Prof. Brad Choi, won "2022 Global Product-Service Localization Research Award Competition" held by ITP *11/2022*

Travel Award & Workshop Invitation from *NHERI RAPID Experimental Facility, NSF* *07/2019*

- This award selects 20 attendees who has professional research background for the RAPID 4 days Equipment Training Workshop at the University of Washington, Seattle, as well as support up to $1,500 Travel Fund.

Travel Award for Conference from College of Engineering, *Purdue University* *05/2018*

Honorable Mentions from 3rd Midwest Smart Structure Colloquium, *University of Illinois (UIUC)* *10/2017*

- This award recognizes excellence PhD candidates supporting up to $1,000 for 2019 EWSHM conference at Hilton Hotel, Manchester, UK

Resident Assistant Scholarship from University of Mississippi *08/2012 – 08/2013*

Honor Program Scholarship from University of Mississippi *01/2011*

- This scholarship is awarded to prominent undergraduate students in the School of Engineering.

PROFESSIONAL TALKS & PRESENTATION

[T23] **Invited Speaker,** "Hyper-Realistic Digital Twin and 3D Perception for Predictive Engineering System Assessment", Dept. of Math Graduate Seminar Series in Ewha Womans University, Seoul, South Korea *9/2025*

[T22] **Invited Speaker,** "Digital Twin-based Structural Anomaly Detection Technology Utilizing Visual Intelligence", Workshop on Advanced SMR Design Technologies held by Korea Hydro & Nuclear Power (KHNP), Seoul, South Korea *8/2025*

[T21] **Invited Speaker**, "Hyper-realistic 3D Neural Rendering Technology and Physics-Informed Neural Networks for Intelligent Industrial Equipment Prognostics and Health *7/2025*

Management", Seminar Central Research Institute, Korea Hydro & Nuclear Power (KHNP), Daejeon, South Korea

[T20] **Invited Lecturer,** "Physics-Informed Neural Network; History and Current", Workshop on Industrial Application Technologies in the Energy and Machinery Sector for Carbon Neutrality, Incheon, South Korea *1/2025*

[T19] **Invited Speaker**, "Human-Machine Distributed Collaborative Remote Sensing and Visual Analytics for Asset Assessment", ME Graduate School Seminar Series, Sungkyunkwan University, South Korea *1/2025*

[T18] **Invited Speaker**, "Visual Analytics; History and Current", Autonomous Vehicle Research Society, Institute of Control, Robotics and Systems (ICROS), Holiday Inn Songdo, South Korea *10/2024*

[T19] **Invited Speaker**, "Human-Machine Distributed Collaborative Remote Sensing and Visual Analytics for Asset Assessment", ME Graduate School Seminar Series, UNIST, South Korea *10/2024*

[T18] **Invited Plenary Speaker**, "Visual Analytics; History and Current", Inha University 70th anniversary symposium (인하대 개교 70 주년 기념 국제 심포지엄), Inha University, South Korea *04/2024*

[T17] **Invited Speaker**, "Remote Sensing through Engineering-Soft-Power", Korea Electronics Technology Institute (KETI), South Korea *12/2023*

[T16] **Invited Speaker,** "A Real-Time Log Data Analytics-based Electric Vehicle Path Optimization", Argonne National Lab., IL, USA *05/2023*

[T15] **Invited Guest Lecturer**, "Human-Machine Collaborative Remote Monitoring and Sensing", Korean Register, Busan, South Korea *12/2022*

[T14] **Invited Guest Lecturer**, "Human-Machine Collaborative Remote Monitoring and Sensing", ME Seminar Series, Hanyang University, Seoul, South Korea *11/2022*

[T13] **Invited Guest Lecturer**, "Computer Vision engaged Infrastructure Remote Sensing", Dept. Architecture Engineering Seminar Series, Inha University, Incheon, South Korea *11/2022*

[T12] **Invited Speaker**, "Citizen Engaged Infrastructure Assessment and Remote Sensing", Young Promising Scientists Session (유망과학자 세션), Korean Society of Mechanical Engineers (KSME) Annual Conference 2022, Jeju, South Korea *11/2022*

[T11] **Invited Guest Lecturer**, "Cultural Heritage Long-term Preservation and Monitoring". National Museum of Modern and Contemporary Art, Cheongju, South Korea *09/2022*

[T10] **Invited Guest Lecturer**, "Citizen Engaged Infrastructure Assessment and Remote Monitoring", Artificial Intelligence Winter School, The Korean Society for Mechanical Engineers (KSME) – AI-Machine Research Group, KAIST, Daejeon, South Korea *02/2022*

[T9] **Research Seminar**, "AI to Enable Water Quality Control", Magpiesoft co., Daejeon, South Korea *02/2022*

[T8] **Research Seminar**, "AI for Possible Military Applications", HANCOM Intelligence co., Seongnam, South Korea *11/2022*

[T7] **Research Seminar**, "Citizen Engaged Building Cultural Heritage Management", Incheon City Hall, Incheon, South Korea *11/2021*

[T6] **Invited Speaker**, "Automating Visual Data Analytics to Aid Lifecycle Management of Infrastructure toward Sustainable Cities", Conference on Toward 'Ontact' Industries through PHM (PHM Korea 2021), Korea Society for Prognostics and Health Monitoring (KSPHM), Jeju, South Korea *09/2021*

[T5] **Research Seminar**, "Infrastructure Management with Automated Vision Systems", Incheon City Museum, Incheon, South Korea *10/2021*

[T4] **Research Seminar**, "Vision-based visual inspection for large-scale infrastructure", Korea Institute of Construction Technology (KICT), Ilsan, South Korea *09/2020*

[T3] **Research Seminar**, Midwest Smart Structure Colloquium (MSSC), Midwest area US *10/16, 10/17, 4/19*

[T2] **Research Seminar**, 9th European Workshop on SHM, Manchester, UK, July *08/2018*

[T1] **Poster Session**, Herrick board meeting, West Lafayette, IN, USA *11/2015, 11/2016, 11/2018*

PATENTS

[A7] **Jongseong Choi*(2025.04),** 3D Gaussian Splatting Digital Twin Platform. Korean Patent No. 10-2025-0046922 *04/2025*

[A6] **Jongseong Choi*(2025.04),** Digital Twin Generation System for Vision-Based Structural Health Monitoring. Korean Patent No. 10-2025-0046923 *04/2025*

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[A1] **Jongseong Choi*** (2021.11), Computer Vision Technique to Extract Structural Information from Citizen Science Data: Automated Lifecycle Infrastructure Monitoring Application. Korean Patent No. 10-2021-1068454 *11/2021*

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[B1] Changwoon Han and **Jongseong Choi** (2022.10). Chapter 10: Information of PHM research and facilities, *PHM BOK Guide: Prognostics and Health Management Body of Knowledge* (pp. 307-345). Hongreung Publishing. ISBN: 979-11-5600-966-5 **(2023 Sejong's Choice Selection)**

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[J26] Hansol Lim, Hanbeom Chang, **Jongseong Choi***, Chul Min Yeum (2025), LiDAR-3DGS: LiDAR Reinforcement for multimodal initialization of 3D Gaussian Splats, *Computers & Grapics*. *(accepted).*

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[J23] Francisco Yumbla*, Marcelo Fajardo, Anthony Piguave, Diego Ronquillo, Ricardo Ortiz, **Jongseong Choi**, Gabriel Diaz, and Xicu Garcia (2025), An Open-Source Multi-Robot Framework System for Collaborative Environments Based on ROS2, *IEEE Access*, vol. 13, pp. 16288-16302. doi: 10.1109/ACCESS.2025.3530391

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[J12] Xiao-Le Han, Ning-Jun Jiang*, Yu-Fei Yang, **Jongseong Choi**, Devandra N. Singh, Yan-Jun Du, & Yi-Jie Wang (2022), Deep Learning Approach for the Detection and Instance Segmentation of Clayey Soil Desiccation Crack, *Computers and Geotechnics*, 146, 104733. doi: 10.1016/j.compgeo.2022.104733

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[J7] Ali Lenjani*, Shirley J. Dyke, Ilias Bilionis, Chul Min Yeum, Kenzo Kamiya, **Jongseong Choi**, Xiaoyu Liu, & Arindam G. Chowdhury (2020), Towards Fully Automated Post-event Data Collection and Analysis: Pre-event and Post-event Information Fusion. *Engineering Structure,* 109884. doi: 10.1016/j.engstruct.2019.109884

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[C63] Hansol Lim, Jeewon Lee, Sooyeun Yang, and **Jongseong Choi***, "Small Lagrangian Networks for Nonlinear Model Predictive Control", The 25th International Conference on Control, Automation, and System (ICCAS 2025), Incheon, South Korea, Nov 4 – 7, 2025. (accepted)

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[C61] **(Invited) Jongseong Choi***, "Visual Intelligence for Predictive Engineering System Assessment", The 15th International Conference on Quality, Reliability, Risk, Maintenance, and Safety Engineering (QR2MSE 2025), Hohhot, China, Jul 23 – 26, 2025.

[C60] **(Invited) (Best Presentation Award) Jongseong Choi***, "Physics-Informed Neural Network (PINN) and Hyper-Realistic Digital Twin (3DGS) for Predictive Engineering System Assessment", International Conference on Precision Engineering and Sustainable Manufacturing (PRESM 2025), Jul 6 – 11, 2025.

[C59] **(Keynote) Jongseong Choi***, "Physics-Informed Neural Network (PINN) and Hyper-Realistic Digital Twin (3DGS) for Predictive Engineering System Assessment", Annual Conference of Drive & Control, KSFC, Jun 26 – 27, 2025.

[C58] Hanbeom Chang, Hyeji Chang, Sungwook Choi, and **Jongseong Choi***, "PHM-Driven XR-Enabled Sensor Fusion Platform for Remote Structural Health Management and Collaborative Inspection", Annual Conference of the PHM Korea (PHM Korea 2025), Jeju, South Korea, Jun 23 – 25, 2025.

[C57] Alfredo Valenzuela, Hugo Zuniga, Felipe Zuniga, and **Jongseong Choi***, "ROS-Based PTZ Camera System for Visual Monitoring in PHM", Annual Conference of the PHM Korea (PHM Korea 2025), Jeju, South Korea, Jun 23 – 25, 2025.

[C56] Sooyeun Yang and **Jongseong Choi***, "An Integrated Framework for Object Reconstruction with 3D Gaussian Splatting and Reinforcement-Learned Sliding-Mode Landing Control", Annual Conference of the PHM Korea (PHM Korea 2025), Jeju, South Korea, Jun 23 – 25, 2025.

[C55] Jonathan Boyack, Hansol Lim, and **Jongseong Choi***, "An Integrated Framework for Object Reconstruction with 3D Gaussian Splatting and Reinforcement-Learned Sliding-Mode Landing Control", Annual Conference of the PHM Korea (PHM Korea 2025), Jeju, South Korea, Jun 23 – 25, 2025.

[C54] Jeewon Lee and **Jongseong Choi***, "Linear Optimization Strategy for Individual Battery Cell Power Controller to Extend its Remaining Useful Life using PHM", Annual Conference of the PHM Korea (PHM Korea 2025), Jeju, South Korea, Jun 23 – 25, 2025.

[C53] Hansol Lim and **Jongseong Choi***, "Interpretable Surrogates via Lagrangian Energy Heads", Annual Conference of the PHM Korea (PHM Korea 2025), Jeju, South Korea, Jun 23 – 25, 2025.

[C52] Sooyeun Yang, Jeewon Lee, Hansol Lim, **Jongseong Choi***, "OPTIMIS: Omniverse-Powered 3D Gaussian Splatting", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2025, Gyeongju, South Korea, Apr 9 – 11, 2025.

[C51] Hansol Lim, Jeewon Lee, Sooyeun Yang, and **Jongseong Choi***, "Physics-Informed Diffusion Models for 2D Heat Equation", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2025, Gyeongju, South Korea, Apr 9 – 11, 2025.

[C50] Alfredo Valenzuela, **Jongseong Choi***, Felipe Zuniga, and Hugo Zuniga, "Visual Monitoring Assessments System through Robot Operating System (ROS)", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2025, Gyeongju, South Korea, Apr 9 – 11, 2025.

[C49] Cheyul Im, Hansol Lim, and **Jongseong Choi***, "Virtual Reality based Remote Controlled Perspective Synchronized Snowplow", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2025, Gyeongju, South Korea, Apr 9 – 11, 2025.

[C48] Sungwook Choi, Hanbeom Chang, **Jongseong Choi***, "Remote Collaboration and Real-Time Visualization System Using Mixed Reality: Application in Construction and Industrial Sites", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2025, Gyeongju, South Korea, Apr 9 – 11, 2025.

[C47] Jeewon Lee, Hansol Lim, Sooyeun Yang, **Jongseong Choi***, Sang Hyuk Lee, Dongsoo Kang, Hankwang Choi, and Yongkyu Kim, "NuClearView: Object-Centric 3D Reconstruction and Automated Defect Localization for Nuclear Reactor Inspection", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2025, Gyeongju, South Korea, Apr 9 – 11, 2025.

[C46] Lesus Davila, Alfredo Valenzuela, Ricardo Ortiz, **Jongseong Choi**, Francisco Yumbla*, "Software Architecture and Simulation Interface for Autonomous Underwater Vehicles", IEEE Ecuador Technical Chapters Meeting 2024 (ETCM 2024), Cuenca, Ecuador, Oct 15 – 18, 2024

[C45] Jee Won Lee, Hansol Lim, **Jongseong Choi***, Sangho Song, Jaechul Park, Hwasup Jang, "Development of a 3D Gaussian Splatting Digital Twining Platform for Remote Ship Assessment", 7th International Conference on Materials and Reliability (ICMR-2024), Busan, South Korea, Dec 3-6, 2024

[C44] Hansol Lim, Jonathan Boyack, **Jongseong Choi***, "Runge-Kutta Neural Networks as PINN Alternative", 7th International Conference on Materials and Reliability (ICMR-2024), Busan, South Korea, Dec 3-6, 2024

[C43] Hansol Lim, Hanbeom Chang and **Jongseong Choi***, "Transforming SLAM Data into 3D Gaussian Splatting Models", 12th International Conference on Robot Intelligence Technology and Applications (RiTA2024), Ulsan, South Korea, Dec 4 – 7, 2024.

[C42] Hanbeom Chang, Hansol Lim, and **Jongseong Choi***, "3D Reconstruction by Looking: Instantaneous Visualization of Point Cloud Registration on an MR Device", 12th International Conference on Robot Intelligence Technology and Applications (RiTA2024), Ulsan, South Korea, Dec 4 – 7, 2024.

[C41] **(Grand Prize)** Hansol Lim, Jeewon Lee, Sooyeun Yang, and Jongseong Choi*, "Real-time Digital Twin Registration System for Visual Inspection in Mixed Reality", Korean Society of Mechanical Engineers (KSME)-Chungcheong Division 2024, Daejeon, South Korea, Nov 21, 2024.

[C40] Sooyeun Yang, Jeewon Lee, Hanbeom Chang, and Jongseong Choi*, "PhysGaussian-Enhanced Digital Twin for Building Safety Assessment", Korean Society of Mechanical Engineers (KSME)-Chungcheong Division 2024, Daejeon, South Korea, Nov 21, 2024.

[C39] Jeewon Lee, Hansol Lim, Hanbeom Chang, Sooyeun Yang, and Jongseong Choi*, "Augmented Reality-Driven Remote Inspection: Head-Movement and Gesture-Based PTZ Camera Control in Real-Time", Korean Society of Mechanical Engineers (KSME)-Chungcheong Division 2024, Daejeon, South Korea, Nov 21, 2024.

[C38] **(Invited) Jongseong Choi***, "Visual Analytics and Human-Machine Collaborative Remote Assessment Approach for Infrastructure Management", 20th World Conference on Non-Destructive Testing 2024 (WCNDT 2024), Incheon, South Korea, May 27 – 31, 2024.

[C37] Hansol Lim and **Jongseong Choi***, "NeRF Generated Digital Twin Model for Real-Time, Perspective-Free Visual Analytics", 20th World Conference on Non-Destructive Testing 2024 (WCNDT 2024), Incheon, South Korea, May 27 – 31, 2024.

[C36] **(Best Poster Award)** Hanbeom Chang, Soo-Jung Chi, **Jongseong Choi***, and Chul Min Yeum, "LiDAR-Camera based Real-time 3D Reconstruction with Mixed Reality Visualization System", Annual Conference of the PHM Korea (PHM Korea 2023), Seoul, South Korea, Jun 25 – 26, 2024.

[C35] Hansol Lim, Hanbeom Chang, and **Jongseong Choi***, "ChromaFilter: Color-Based LiDAR Filter for Real-Time Feature Extraction and Optimization", Annual Conference of the PHM Korea (PHM Korea 2023), Seoul, South Korea, Jun 25 – 26, 2024.

[C34] Sooyeun Yang, Hojin Song, Eugene Pak, and **Jongseong Choi***, "CNN-Driven Pothole Detection and Road Hazard Localized DB Development", Annual Conference of the PHM Korea (PHM Korea 2023), Seoul, South Korea, Jun 25 – 26, 2024.

[C33] Yoonseong Kim, Hansol Lim, and **Jongseong Choi***, "Photogrammetry-Based Approach to Indoor Space Digital Twin Model Generation", Annual Conference of the PHM Korea (PHM Korea 2023), Seoul, South Korea, Jun 25 – 26, 2024.

[C32] Hanbeom Chang, **Jongseong Choi***, Ricardo Ortiz, and Chul Min Yeum, "Digital Twin Platform for Remote Assessment: Application in Extensive Ship Engine Inspection", 20th World Conference on Non-Destructive Testing 2024 (WCNDT 2024), Incheon, South Korea, May 27 – 31, 2024.

[C31] Alfredo Valenzuela, Jee Won Lee, Chul Min Yeum, Ricardo Ortiz, and **Jongseong Choi***, "Remote Monitoring Assessment Through Pan-Tilt-Zoom Automated Camera Control", 20th World Conference on Non-Destructive Testing 2024 (WCNDT 2024), Incheon, South Korea, May 27 – 31, 2024.

[C30] Jonathan Boyack, & **Jongseong Choi***, "Data Localization on A Digital Twin Model to Enable Remote Assessment: Implementation on a full-scale Ship Engine", 20th World Conference on Non-Destructive Testing 2024 (WCNDT 2024), Incheon, South Korea, May 27 – 31, 2024.

[C29] Ricardo Ortiz, Alfredo Valenzuela, and Jongseong Choi*, "Enhanced Construction Site Monitoring with RTK-GPS Guided Unmanned Mobile Robot and Mapping API Integration", 20th World Conference on Non-Destructive Testing 2024 (WCNDT 2024), Incheon, South Korea, May 27 – 31, 2024.

[C28] **(Outstanding Paper Award)** Hansol Lim and **Jongseong Choi***, Hansol Lim, Alfredo Valenzuela, and Hanbeom Chang, "Real-Time 3D Video Generation using NeRF", The 14th International Symposium on NDT in Aerospace (AeroNDT2023), Busan, South Korea, Nov 5 – 8, 2023.

[C27] **(The Best Paper Award)** Jonathan Boyack, Hansol Lim, Alfredo Valenzuela, **Jongseong Choi***, Sangho Song, Yongseok Choi, and Dongguk Im, "Region of Interest Locator with Digital Twin Model Generation of Large-Scale Facility", The 14th International Symposium on NDT in Aerospace (AeroNDT2023), Busan, South Korea, 5 – 8 Nov 2023.

[C26] Alfredo Valenzuela, Jee Won Lee, Chul Min Yeum, Ricardo Ortiz, and **Jongseong Choi***, "Automated Pan-Tilt-Zoom Camera Control to Enable Monitoring Assessment", The 14th International Symposium on NDT in Aerospace (AeroNDT2023), Busan, South Korea, 5 – 8 Nov 2023.

[C25] **(Best Paper Award)** Jonathan Boyack, & **Jongseong Choi***, "Falling Hazard Assessment Application: Automated Labelling Large Data Sets for Transfer Learning Models", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2023, Incheon, South Korea, Nov 1 – 4, 2023.

[C24] Alfredo Valenzuela, Ricardo Ortiz, Sambridha Bhattarai, and **Jongseong Choi***, "Localize Map Update Mobile App to Enable Construction Sites Monitoring: User-Guided Path Generation for Robot Operation", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2023, Incheon, South Korea, Nov 1 – 4, 2023.

[C23] **(Excellent Presentation Award)** Hansol Lim and **Jongseong Choi***, "Seamless 3D Scene Control of NeRF Generated Digital Twin Environments", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2023, Incheon, South Korea, Nov 1 – 4, 2023.

[C22] Hanbeom Chang, Jaewon Lee, Danielle Macmaster, Leeroy Makusha, **Jongseong Choi***, and Chul Min Yeum, "Human-Machine Collaborative Platform in Metaverse", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2023, Songdo, South Korea, Nov 1 – 4, 2023.

[C21] Alfredo Valenzuela and **Jongseong Choi***, "Locally Update Scenes to Enable a User-Guided Path Planning", Annual Conference of the PHM Korea (PHM Korea 2023), Seoul, South Korea, July 7 – 8, 2023.

[C20] **(Best Paper Award)** Hansol Lim and **Jongseong Choi***, "Real-Time, Non-Intrusive Inspection of Structures and Machines Using Visual Analytics and SfM-Based Digital Twin Generation", Annual Conference of the PHM Korea (PHM Korea 2023), Seoul, South Korea, July 7 – 8, 2023.

[C19] Ricardo Ortiz, Alfredo Valenzuela & **Jongseong Choi***, "Development of RTK-GPS Engaged Autonomous Mobility: Implementation and Analysis for Structural Health Monitoring Application", Advanced Smart Materials and Structures 2nd International Conference (ASMaS2023), Ho Chi Minh, Vietnam, Jun 28 – 30, 2023.

[C18] Jonathan Boyack, & **Jongseong Choi***, "An Automated Falling Hazard Assessment of High-Rise Buildings Using Transfer Learning and Orthophoto Generation", Advanced Smart Materials and Structures 2nd International Conference (ASMaS2023), Ho Chi Minh, Vietnam, Jun 28 – 30, 2023.

[C17] **Jongseong Choi***, "Automating Visual Analytics to Aid Lifecycle Management of Infrastructure", Structural Congress 2023, New Orleans, LA, May 3 – 6, 2023.

[C16] Jeewon Lee, Hanbeom Chang, **Jongseong Choi***, and Chul Min Yeum, "Automated Pan-Tilt-Zoom Camera Control Enabling Long-Range Visual Exploration for Extraterrestrial Missions", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2023, Jeju, South Korea, Mar 22 - 24, 2023.

[C15] **(Best Paper Award)** Pureun Jeong, Hansol Lim, Jimin Shin, and **Jongseong Choi***, "SLAM for Skid-Steering Mobile Robot Systems", Korean Society of Mechanical Engineers (KSME)-Reliability Division 2023, Jeju, South Korea, Mar 22 - 24, 2023.

[C14] Ricardo Ortiz, Jee Won Lee, Jonathan Boyack, & **Jongseong Choi***, "Development of User-Designated-Path Driving Ground Robot for Construction Sites", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2022, Jeju, South Korea, Nov 9 – 12, 2022.

[C13] Jee Won Lee, Chul Min Yeum, Ricardo Ortiz, & **Jongseong Choi***, "Automated Pan-Tilt-Zoom Camera Control to Enable Long-Range Visual Assessment and Localization", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2022, Jeju, South Korea, Nov 9 – 12, 2022.

[C12] **(Best Paper Award)** Jonathan Boyack & **Jongseong Choi***, "A Real-Time Log Data Analytics-based Electric Vehicle Path Optimization", Korean Society of Mechanical Engineers (KSME) Annual Meeting 2022, Jeju, South Korea, Nov 9 – 12, 2022.

[C11] Jonathan Boyack & **Jongseong Choi***, "Electric Vehicle Path Optimization using Real-Time Log Data for Decision Making", Annual Conference of the PHM Korea, Jun 29 – July 1, 2022.

[C10] **Jongseong Choi** & Shirley J. Dyke*, "ARIO: Automatic Reconnaissance Image Organizer to Learn from Earthquake", Annual Conference of Korean Society of Mechanical Engineers, Division of Reliability, Jeju, South Korea, Mar 23 – 25, 2022.

[C9] Shirley J. Dyke*, Xiaoyu Liu, **Jongseong Choi**, Chul Min Yeum, Juan Park, Ali Lenjani, Julio A. Ramirez, & Randall Poston, "Learning from Earthquakes Using the Automatic Reconnaissance Image Organizer," Proceedings of 17th World Conference on Earthquake Engineering, Sendai, Japan, Sep 27- Oct 2, 2021.

[C8] **Jongseong Choi*** & Jonathan Boyack, "Automating Visual Data Analytics to Aid lifecycle Management of Infrastructure toward Sustainable cities", Annual Conference of the PHM Korea, Sep 8 – 10, 2021.

[C7] **Jongseong Choi***, Ju An Park, Chul Min Yeum, & Shirley J Dyke, "Similarity Learning to Building Search Capability: Post-event Image Data Application", Proceedings of Asia Pacific Conference of the Prognostics and Health Management Society 2021, Jeju, South Korea, Sep 8 – 11, 2021.

[C6] Jonathan Boyack & **Jongseong Choi***, "Machine Learning Approach for a Rapid Falling Hazard Assessment on High-Rise Buildings", Proceedings of Asia Pacific Conference of the Prognostics and Health Management Society 2021, Jeju, South Korea, Sep 8 – 11, 2021.

[C5] Audai Theinat, Anahita Modiriasari, Antonio Bobet, Jay Melosh, Shirley J. Dyke*, Julio A. Ramirez, **Jongseong Choi**, Amin Maghareh, & Daniel Gomez (2019, March), "Geology Explorations of Lava Tubes in the National Beds Lava Monuments," In Lunar and Planetary Science Conference (Vol. 50).

[C4] **Jongseong Choi***, Chul Min Yeum, Shirley J. Dyke, Mohammad R. Jahanshahi, & Gun Wook Park (2018), "Rapid Vision-Based Inspection of Nonstructural Components in Buildings," Proceedings of the 9th European Workshop on Structural Health Monitoring, Manchester, UK, July 10-13, 2018.

[C3] Chul Min Yeum*, Anup Mohan, Shirley J. Dyke, Mohammad R. Jahanshahi, **Jongseong Choi**, Ziyi Zhao, & Julio A. Ramirez (2017), "Image-Based Collection and Measurements for Construction Pay Items," Purdue University e-publication.

[C2] Chul Min Yeum*, **Jongseong Choi**, & Shirley J. Dyke (2017), "Automated Region-of-Interest Localization and Classification for Visual Assessment on Civil Infrastructure," Proceedings of the 11th International Workshop on Structural Health Monitoring, Stanford, CA, September 12-14, 2017.

[C1] Chul Min Yeum*, **Jongseong Choi**, & Shirley J. Dyke (2017), "Image Localization for Computer-enhanced Visual Inspection of Civil Infrastructure," Proceedings of Engineering Mechanics Institute Conference, San Diago, CA, United States, June 4-7, 2017.

PROPOSAL DEVELOPMENT to U.S. GOVERNMENT (5 generated, 1 awarded).

[P5] **Active Citizen Engagement to Enable Lifecycle Management of Infrastructure Systems** *07/2016*

- **(Funded** under Grant No. **CMMI-1645047)** Co-authored successful proposal with funded $100,000 from National Science Foundation (NSF).

[P4] **Automating Damage Quantification, Localization and BIM Updating Using Optical Data** *02/2020*

- Co-authored successful proposal and requested $400,000 to National Science Foundation (NSF).

[P3] **HDBE (E-Defense): Enabling Building Damage Assessment by Engaging Remote Experts** *01/2018*

- Co-authored and requested $700,000 to National Science Foundation (NSF).

[P3] **S&SA: Autonomous Infrastructure Inspection and Condition-Based Maintenance** *05/2017*

- Co-authored proposal and requested to National Science Foundation (NSF).

[P1] **S&SA: Reconfigurable Aerial Robots for Intelligent Assessment to Industrial Disasters** *11/2016*

- Co-authored proposal and requested to National Science Foundation (NSF).