Sep. 12 (Tue)

JST (UTC+9)	Hall	Room A	Room B	Room C	Room D	Room E	2F Lobby

10:00–10:10 — Opening Ceremony (Hall)

10:20–10:50 — Keynote 1 (Hall)
Asteroid Sample Return Mission "Hayabusa2" – A Successful Example of Large-Scale Scientific Project Management
Prof. Yuichi Tsuda (JAXA)

11:20–11:30 — Sponsor Talk 1 (Hall)

12:00–12:30 — Lunch

Session 1 (12:40–13:50)

Room A — OS04-1: PHM for Commercial Airplanes — Chair: Junichiro Kaya (ANA)
Room B — OS5-1: Evolving Smart Manufacturing System by design and implementation of PHM — Chair: Makoto Imamura (Tokai University)
Room C — R01-1: PHM for Electric Power Systems — Chair: XX (XX)
Room D — OS01-1: Prognostic Discriminator under Uncertainty — Chair: Takahiro Saitoh (Gunma University)
Room E — OS06-1: PHM Applications for Urban Infrastructure Resilience and Maintenance — Chair: Ken Ueno (Toshiba)

Room A
- **OS04-01** (12:40) A Method for Executing Digital System Models and Digital Twins at Scale to Enrich Fleet Health Management; Daniel Newman[1]; 1. Boeing
- **OS04-02** (13:00) Operational Prognostic Model Evaluation; Sharhvat Prakash[1], and Katarina Vuckovic[1]; 1. Raytheon
- **OS04-03** (13:20) Applicability of Traditional and AI Models in Predictive Maintenance in Aviation; Dimitri Rekoutch[1]; 1. Lufthansa Technik
- **OS04-04** (13:40) MLOps for PHM systems; Mikael Yemane[1]; 1. Collins Aerospace

Room B
- **OS05-01** Quality Management Issues for Machine Learning-based Systems; Yutaka Oiwa[1]; 1. National Institute of Advanced Industrial Science and Technology
- **OS05-02** Smart Manufacturing Kaizen Level(SMKL) based maturity evaluation access to DX and decarbonization; Nicole S. Otaki[1], Yasuo Onodera[1], and Mitsuhiro Fujishima[1]; 1. Mitsubishi Electric
- **OS05-03** Development and operation of a piping corrosion external surface inspection system using Human in the Loop Machine Learning; Toshihiro Shimbo[1], Yousuke Okada[1], and Hitoshi Matsubara[1]; 1. Mitsubishi Gas Chemical Company, Inc, 2. ABEJA, Inc, 3. The University of Tokyo
- **OS05-04** Anomaly detection for yield improvement in glass production; Haruo Yoneman[1], Kenichi Arai[1], Hiroyuku Yamaoichi[1], Ichiro Sakata[1], and Makoto Imamura[1]; 1. AGC Inc, 2. Tokai University

Room C
- **R01-01** A monitoring method for detecting and localizing overheat faults in wind turbine nacelle; Minsoo Lee, Eunchan Do, and Ki Yong Oh[1]; 1. Hanyang University
- **R01-02** Research on the method of digital twin operation and maintenance platform for intelligent early warning of wind turbine tower; Yu Jia[1], and Xiaoma Jiang[1]; 1. Dalian University Of Technology
- **R01-03** A Survey of Prognostics and Health Management for Transformers: From Statistical Analysis to Condition-Based Diagnostics; Jiaxiang Cheng[1], Sungle Chin[1], Yap Peng Tan[1], and Guoqiang Hu[1]; 1. Nanyang Technological University, 2. Singapore Power
- **R01-04** Advanced Weibull Modeling with Outliers; Yipeng Pang[1], Guoqiang Hu[1], and Sungle Choi[1]; 1. Nanyang Technological University, 2. SP PowerGrid

Room D
- **OS01-01** Automatic Detection of Concrete Surface Defects Using Deep Learning and Laser Ultrasonic Visualization Testing; Takahiro Saitoh[1], Syunpei Ohyama[1], Tsuyoshi Kato[1], and Sohichi Hirose[1]; 1. Gunma University, 2. Tokyo Institute of Technology
- **OS01-02** Observation maintenance for bridges using early detection of deterioration progress; Hiroshi Ito[1], and Toshiaki Mizobuchi[1]; 1. Yachiyo Engineering Co, Ltd, 2. Hosei University
- **OS01-03** Study on the Estimation of Concrete Defects Volume on Dam Body Surface; Akira Ishii[1], Hiroaki Sugawara[1], and Masazumi Amakata[1]; 1. Yachiyo Engineering Co, Ltd
- **OS01-04** Outlier Analysis of Bridge Deflections using Satellite SAR and Structural Simulation: A Case Study on a Collapse Accident in a Water Pipe Bridge in Japan; Kosuke Kinoshita[1], Yoshiyuki Yajima[1], Takahiro Kumura[1], and Masyko Niizka[1]; 1. NEC, 2. University of Tsukuba

Room E
- **OS06-01** Anomaly Sign Detection for Automatic Ticket Gates by Histogram Limitation Method; Ken Ueno[1], Shigeru Maya[1], and Kariko Endo[1]; 1. Toshiba, 2. Toshiba Automation Systems Service
- **OS06-02** Predictive Maintenance for station equipment and Applications for the Space field; Ryoma Yokoyama[1], Ryosuke Kono[1], Atsushi Matsuda[1], and Yuhei Otsuki[1]; 1. West Japan Railway
- **OS06-03** Digital Twin for Diagnosis of Belt Looseness in HVAC Systems using multi-body dynamics simulation; Daegyeon Lim[1], Minho Jung[1], Sung Hyun Yun[1], Yong Hwa Park[1], and Jangwoo Jeon[1]; 1. Korea Advanced Institute of Science and Technology
- **OS06-04** Anomaly Detection in Air Handling Units using Motor Current Signal Imaging for Belt Looseness Detection; Sung Hyun Yun[1], Wooho Jung[1], Daegyeon Lim[1], and Yonghwa Park[1]; 1. Korea Advanced Institute of Science and Technology

14:00–14:10 — Coffee Break

Session 2 (14:10–15:30)

Room A — OS04-2: PHM for Commercial Airplanes — Chair: Masaru (Ken) Nishiwaki (ANA)
Room B — OS05-2: Evolving Smart Manufacturing System by design and implementation of PHM — Chair: Yutaka Oiwa[1]; 1. National Institute of Advanced Industrial Science and Technology
Room C — OS12-1: Advances in PHM for Tribology — Chair: Tomomi Honda (University of Fukui)
Room D — OS01-2: Prognostic Discriminator under Uncertainty — Chair: Takato Yasuno (Yachiyo Engineering, Co.Ltd)
Room E — OS06-2: PHM Applications for Urban Infrastructure Resilience and Maintenance — Chair: Ken Ueno (Toshiba)

Room A
- **OS04-05** (14:20) Model Based and Big data enabled Predictive Maintenance Capability Development Experience; Mark Mazariek[1], Darren Macer[1], and Changzhou Wang[1]; 1. Boeing
- **OS04-06** (14:40) Fleet Monitoring as a means of Operationalizing PHM; Surorai Sandaya[1]; 1. Collins Aerospace
- **OS04-07** (15:00) Lessons Learned from Aircraft Component Failure Prediction using Full Flight Sensor Data; Changzhou Wang[1], Darren Pulgh[1], Audrey Lo[1], Rhii Guo[1], Jun Yuan[1], and Mark Mazarek[1]; 1. Boeing
- **OS04-08** (15:20) Effect of Aircraft Health Management on Aircraft Maintenance Program Development by Aircraft Manufacturer; Takuro Koizumi[1], and Nozomu Kagino[1]; 1. Osaka Metropolitan University

Room B
- **OS05-05** Integration of health monitoring of cutting tools and production scheduling in smart factory; Hitoshi Komoto[1], German Herrera[1], Jonny Herwan[1], and Yoshiyuki Furukawa[1]; 1. National Institute of Advanced Industrial Science and Technology
- **OS05-06** Advancing Predictive Maintenance: A Study of Domain Adaptation for Fault Identification in Gearbox Components; Shreya Tsuruta[1], Koji Wakimoto[1], Takaaki Nakamura[1], Shahin Siahpour[1], Marcella Miller[1], John Taco[1], and Jay Lee[1]; 1. Mitsubishi Electric, 2. University of Cincinnati, 3. University of Maryland
- **OS05-07** Building the health monitoring and fault diagnosis models for stamping press; Yuan-Jen Chang[1], Lin-Jie Chen[1], Yuta Tu[1], Hung-Pin Yang[1], and Chen-Kang Lee[1]; 1. Feng Chia University, 2. Chin Fong Machine Industrial Co, LTD, 3. University of California San Diego
- **OS05-08** Expert Knowledge Transfer from CAE Models to CNN Models Using Enhanced Adversarial Domain Adaptation; Minsook Choi[1], Dongmin Lee[1], Mikjung Hwang[1], Dongishi Yoo[1], and Hyunseok Oh[1]; 1. Gwangju Institute of Science and Technology

Room C
- **OS12-01** A Feature Selection Method for Machine Tool Wear Diagnosis; Kuji Honma[1]; 1. Mitsubishi Electric
- **OS12-02** Modeling of Journal Bearings for Wear Diagnosis and its Verification Using SVM; Masaki Goto[1], Tsuyoshi Inoue[1], Akira Heya[1], Keiichi Katayama[1], Shigo Kimura[1], Shigeyuki Tomimatsu[1], and Shota Yakui[1]; 1. Nagoya University, 2. DMM, 3. Tokyo City University
- **OS12-03** Field study toward anomaly road damage detection with drive recorder; Masato Tsuchiya[1], Ken Miyamoto[1], Takeshi Ota[1], and Yasuchi Sugama[1]; 1. Mitsubishi Electric

Room D
- **OS01-05** Imbalanced Anomaly Detection Using Augmented Deeper FCDDs for Wooden Sleeper Deterioration Prognostics; Takato Yasuno[1], Junichiro Fujii[1], and Masahiro Okano[1]; 1. Yachiyo Engineering Co, Ltd
- **OS01-06** Condition-based Maintenance of Brake Pads and Tires in Shared Vehicles using Cloud-based Health monitoring and prognostics; Jeong Hee Lee[1], Jaewook Oh[1], Jeongwoo Lee[1], Seungyoung Park[1], Jihyeon Lee[1], and Namsu Kim[1]; 1. Konkuk University, 2. HL Mando
- **OS01-07** Automating daily inspection for Expressways using anomaly detection model; Hiroshi Inoue[1], Ken Hirakida[1], Makoto Kanemaru[1], and Pang Chen[1]; 1. Toshiba, 2. Central Nippon Expressway Company Limited

Room E
- **OS06-05** A new approach to multivariate statistical process control and its application to wastewater treatment process monitoring; Osamu Yamanaka[1], and Yukio Hiraoka[1]; 1. Toshiba Infrastructure Systems & Solutions
- **OS06-06** Condition-based Maintenance of Brake Pads and Tires in Shared Vehicles using Cloud-based Health monitoring and prognostics; Jeong Hee Lee[1], Jaewook Oh[1], Jeongwoo Lee[1], Seungyoung Park[1], Jihyeon Lee[1], and Namsu Kim[1]; 1. Konkuk University, 2. HL Mando
- **OS06-07** Development of a method for detecting V-belt looseness; Hiroshi Inoue[1], Ken Hirakida[1], Makoto Kanemaru[1], and Pang Chen[1]; 1. Mitsubishi Electric, 2. Ohe University
- **OS06-08** Few-Shot Learning for Full Ceramic Bearing Fault Diagnosis with Acoustic Emission Signals; David Ho[1], Miao He[1], and Alessandro Taffer[1]; 1. University of Illinois at Chicago, 2. Siemens Technology

15:40–15:50 — Coffee Break

Session 3 (15:50–17:10)

Room A — OS04-3: PHM for Commercial Airplanes — Chair: Junichiro Kaya (ANA)
Room B — OS05-3: Evolving Smart Manufacturing System by design and implementation of PHM — Chair: Koji Wakimoto (Mitsubishi Electric)
Room C — OS12-2: Advances in PHM for Tribology — Chair: Osamu Yoshimatsu (NSK)
Room D — OS01-3: Prognostic Discriminator under Uncertainty — Chair: Yasutaka Narazaki (Zhejiang University)
Room E — OS06-3: PHM Applications for Urban Infrastructure Resilience and Maintenance — Chair: Ken Ueno (Toshiba)

Room A
- **OS04-09** (16:00) Big data platform as a foundation of airlines predictive and health management; William Bernard[1]; 1. Airbus
- **OS04-10** (16:20) Deep dive into Prediction with AVATAR with in-service examples from Airbus; Mia Witzig[1]; 1. Lufthansa Technik
- **OS04-11** (16:40) The role of visualizations in Ascentia, analytics-based aircraft maintenance; Armen Haddad[1]; 1. Collins Aerospace
- **OS04-12** (17:00) A New Challenge in Predictive Maintenance Analysis for Aircraft; Takashi Takamura[1]; 1. JAL

Room B
- **OS05-09** (16:00) Design of a framework for demand forecasting using time series decomposition based approach; Hayuki Shibayama[1], Aya Ishigaki[1], Takazumi Kobe[1], Takafumi Ueda[1], Daichi Arimizu[1], and Takaaki Nakamura[1]; 1. Tokyo University of Science, 2. Deloitte Tohmatsu Consulting LLC, 3. Mitsubishi Electric
- **OS05-10** (16:20) Prediction of Remaining Life of Turbo Pump inducer for Spacecraft Using Cumulative Damage Model; Hatsuo Mori[1], and Makoto Imamura[1]; 1. IHI, 2. Tokai University
- **OS05-11** (16:40) Deep Learning/Machine Learning Techniques for Vibration Condition Monitoring of Major Facilities in Automobile Assembly/Painting Plants; Gun SIk Kim[1], Dong Hyeon Kim[1], Jin Woo Park[1], and Ju Hoon Hwang[1]; 1. Hyundai Motors
- **OS05-12** (17:00) A case study of applying power consumption optimization in EAF using time series prediction; Jaehyuk Lee[1], Songhwan Kim[1], Bossen Yoo[1], and Jaeok Choi[1]; 1. Inwip

Room C
- **OS12-05** (16:00) coustic Signal based Non-Contact Ball Bearing Fault Diagnosis Using Adaptive Wavelet De-Noising; Wonho Song[1], Sung Hyun Yun[1], and Yong Hwa Park[1]; 1. Korea Advanced Institute of Science and Technology
- **OS12-06** (16:20) Time Shifting Data Augmentation to Alleviate Class Imbalance Problem for Cross-Domain Bearing Fault Diagnosis; Donghvi Yoo, Minsook Choi, and Hyunseok Oh[1]; 1. Gwangju Institute of Science and Technology
- **OS12-07** (16:40) A quantitative analysis of domain discrepancies between general-speed and very low-speed bearings and its applications to fault diagnosis of very low-speed bearings using transfer learning; Seungyun Lee[1], Sungjong Kim[1], Su-Ji Kim[1], Jieun Lee[1], Hoonjin Yoon[1], and Byeng D. Youn[1]; 1. Seoul National University, 2. OnePredict, 3. Soongsil University
- **OS12-08** (17:00) On-site degradation diagnosis method for the antioxidants by the colorimetric analysis of membrane patches; Tomomi Honda[1]; 1. University of Fukui

Room D
- **OS01-08** (16:00) Digital Twin of Built Structures assisted by Computer Vision Techniques: Overview and Preliminary Results; Yasutaka Narazaki[1]; 1. Zhejiang University
- **OS01-09** (16:20) Digital Twin for condition based maintenance within a railway infrastructure testing lab; Antonio L Guillen Lopez[1], Juan Fco. Gómez Fernández[1], Pedro Urda[1], Jose Luis Escalona[1], Adolfo Crespo Márquez[1], and Fernando Olivencia[1]; 1. Universidad de Sevill
- **OS01-10** (16:40) Efficient Inspection of Civil Engineering Structures for Railways and Roads Using Images and GNSS; Tomoya Abe[1]; 1. Nakashacreative.co

Room E
- **OS06-09** (16:00) Semi-supervised machine learning for motor eccentricity fault diagnosis; Bingnan Wang[1], Shen Zhang[1], Hiroshi Inoue[1], and Makoto Kanemaru[1]; 1. Mitsubishi Electric Research Laboratories, 2. Georgia Institute of Technology, 3. Mitsubishi Electric
- **OS06-10** (16:20) Extracting Broken-Rotor-Bar Fault Signature of Varying Speed Induction Motors; Jiahong Liu[1], Arantzazu Varashaurgar[1], and Abraham Goldsmith[1]; 1. Mitsubishi Electric Research Laboratories
- **OS06-11** (16:40) Fault detection of rotor bars in inverter-fed induction motors based on current signature analysis technique; Tomoyuki Iwasaki[1], Makoto Kanemaru[1], Yuto Yasuhara[1], and Toshihiko Miyauchi[1]; 1. Mitsubishi Electric
- **OS06-12** (17:00) Data-driven pump performance analysis using online monitoring data accumulated with supervisory control and data acquisition system; Ryo Namba[1], Hiroyuki Hokari[1], and Hideaki Kamma[1]; 1. Toshiba Infrastructure Systems & Solutions

17:20 — Coffee Break

Session 4 (17:20–)

Room A — OS04-4: PHM for Commercial Airplanes — Chair: Masaru (Ken) Nishiwaki (ANA)
Room C — OS12-3: Advances in PHM for Tribology — Chair: Osamu Yoshimatsu (NSK)
Room D — R02-1: Smart Monitoring/Maintenance/Operation — Chair: XX (XX)
Room E — OS06-4: PHM Applications for Urban Infrastructure Resilience and Maintenance — Chair: Ken Ueno (Toshiba)

17:30 — Coffee Break (Rooms B/C/E area)

Room A
- **OS04-13** (17:30) Prognostic is nothing without fulfilment – Set-up of an holistic fleet management and integration into daily processes; Sebastian Lang[1], and Mia Witzig[1]; 1. Lufthansa Technik
- **OS04-14** (17:50) Anomaly Detection in Airline Centrifugal Compressor using sensor data during the climb phase; Saidanan Shigetomi[1], Makoto Imamura[1], Naoya Kaido[1], Makoto Taniguchi[1], Masaru Nishiwaki[1], and Junichiro Kaya[1]; 1. ANA, 2. Tokai University
- **Panel Session I** (18:20) Full Flight Sensor Data sharing within the stakeholders of PHM; Organizer: Masaru (Ken) Nishiwaki (ANA); Panelists: 1. Darren Macer (Boeing), 2. Gavin Chow (Collins Aerospace), 3. Sebastian Lang (Lufthansa Technik), 4. Manabu Tono (ANA)

Room C
- **OS12-09** (17:40) Non-destructive Diagnostics for Riding Bearings by Eddy Current Testing; Daisuke Kobayashi[1], Koichiro Onui[1], Masahide Natori[1], and Hiroki Kumata[1]; 1. NSK

Room D
- **R02-01** (17:40) Energy Saving Structural Health Monitoring Using Semi-Active Identification; Kyohei Hara[1], Sanji Tang[1], Kaisuke Otsuka[1], and Kanjuro Makihara[1]; 1. Tohoku University
- **R02-02** (18:00) Physical reservoir-based health monitoring of a structure with nonlinear attachments; Asato Masuda[1], and Kunosuke Takashima[1]; 1. Kyoto University
- **R02-03** (18:20) Advanced condition-based monitoring of CFRP under multiple impacts using monte carlo based prognostics and real-time self-sensing data; Ji Yong Lee[1], So Young Oh[1], Juhanng Jang[1], and Young-Bin Park[1]; 1. Ulsan National Institute of Science and Technology
- **R02-04** (18:40) Prediction of impact information of composites laminates considering its practicality; Saki Hasebe[1], Ryo Higuchi[1], Tomohiro Yokozeki[1], and Shin-ichi Takeda[1]; 1. University of Tokyo, 2. Japan Aerospace Exploration Agency

Room E
- **OS06-13** (17:40) Localization of partial discharges in oil-filled transformers using acoustic emission signals; Yasutomo Otake[1], and Kuchihiko Tajiri[1]; 1. Mitsubishi Electric
- **OS06-14** (18:00) AI image analysis technologies for efficient water pipe inspection; Ying Piao[1], Hiroshi Sukegawa[1], Kenji Kimigami[1], Keisuke Nakamura[1], Toshiharu Sugino[1], Takaharu Kunizane[1], and Akira Koizumi[1]; 1. Toshiba Infrastructure Systems & Solutions, 2. Tokyo Metropolitan University
- **OS06-15** (18:20) Deep Neural Network Anomaly Detection and Statistical Estimation of High Pressure Liquefied Natural Gas Pipe; Dakin Yang[1], and Jongyue Lee[1]; 1. Yonsei University
- **OS06-16** (18:40) Machine learning model for detecting hydrogen leakage from hydrogen pipeline using physical modeling; Yuki Suzuki[1], Jo Nakayama[1], Tomoya Suzuki[1], Tomoya Somei[1], Yu Ichinose[1], and Atsumi Miyake[1]; 1. Yokohama National University, 2. NEC

Sep. 13 (Wed)

JST (UTC+9)	Hall	Room A	Room B	Room C	Room D	Room E	2F Lobby
9:00 – 9:50							Poster Session 1
10:00 – 10:50	**Keynote 2 (Hall)** — Industrial AI-Augmented Prognostics for Highly Connected and Complex Industrial Systems — Prof. Jay Lee (University of Maryland College Park)						Poster Session 1
11:00 – 11:10	**Sponsor Talk 2 (Hall)**						
11:40 – 11:50	**Keynote 3 (Hall)** — How is Industrial AI Transforming Manufacturing Industry? — Prof. Byeng Dong Youn (Seoul National University, and OnePredict Inc.)						
12:20 – 13:10	**Lunch**						

Afternoon Session 1

Room A — R01-2 PHM for Electric Power Systems, Chair: XX (XX)
- 13:20 R01-05: Detection and Diagnostic with Random Forest Classifier (RFC) to Improve the Maintenance Management System in Steam Boiler of Power Plant. Shiffari Awliya Muhammad Achfiana[1], Faneqi Wanixkusuma[2], Toni Prabowo[1], and Achmad Widodo[1]. 1. Diponegoro University, 2. PT PLN Indonesia Power
- 13:40 R01-06: Deep Learning-Enabled Statistical Model Estimation for Power Transformers under Censoring and Truncation Constraints. Jiaxiang Chong[1], Sunglin Choi[1], Yap Pang Tan[1], and Guoqiang Hu[1]. 1. Nanyang Technological University, 2. Singapore Power
- 14:00 R01-07: Long-Term Preventive Failure Mitigation Strategy For Transformers Based on Markov Method. Jianzhong Wang[1], Guoqiang Hu[1], and Sunglin Choi[2]. 1. Nanyang Technological University, 2. SP Group
- 14:20 R01-08: Explainable multimodal learning for predictive maintenance of steam generators. Duc An Nguyen[1], Sagar Jose[1], Thi Phuong Khanh Nguyen[1], and Kamal Medjaher[1]. 1. Ecole Nationale d'Ingénieurs de Tarbes

Room B — OS02-1 New trends and challenges in aerospace PHM, Chair: Nozomu Kogiso (Osaka Metropolitan University)
- 13:20 OS02-01: Data-driven satellite monitoring method applicable to various telemetry. Norijasu Omata[1], Seiji Tsutsumi[1], Masaharu Abe[1], and Ibu Shinohara[1]. 1. Japan Aerospace Exploration Agency, 2. Ryosu Systems
- 13:40 OS02-02: A Health Index for Satellite System Based on Characteristics of Telemetry Data. Shun Katsuda[1], and Hironori Sahara[1]. 1. Tokyo Metropolitan University
- 14:00 OS02-03: Systems symptom detection in telemetry of ISS with explainability using FRAM and SpecTRM. Shota Iino[1], Hideki Nomoto[1], Takashi Fukui[1], Sayaka Ishizawa[1], Miki Sasaki[1], Yohei Yagizawa[1], Takayuki Hirono[1], Yasutaka Michiura[1], and Hirotaro Shibayama[1]. 1. Japan Manned Space Systems Corporation, 2. Japan . NUS Co., Ltd., 3. Space Engineering Development Co.Ltd.
- 14:20 OS02-04: Deep Metric Learning for Anomaly Detection of Satellites from Irregularly Sampled Light Curve. Jun Yoshida[1], Ryosuke Togawa[1], and Takihiro Seno[1]. 1. NEC

Room C — OS07-1 Autonomous decision making under complex conditions or situations, Chair: Masano Natsumeda (NEC)
- 13:20 OS07-01: A study on self diagnosis/prediction technology for Lidar sensor of autonomous vehicles. Jaewook Lee[1], and Jongsoo Lee[1]. 1. Yonsei University
- 13:40 OS07-02: Deep Learning Approach for Operational Transfer Path Analysis: Case Study of Electric Vehicles. Jeongmin Oh[1], Donghwi Yoo[1], Hyunseok Oh[1], Yong Hyun Ryu[1], Kyung Woo Lee[1], and Dae Un Sung[1]. 1. Gwangju Institute of Science and Technology, 2. Hyundai Motor Company
- 14:00 OS07-03: Algorithmic Study for Power Restoration in Electrical Distribution Networks. Jun Kawahara[1], Chuta Yamaoka[1], Takahiro Ito[1], Akira Suzuki[1], Daisuke Itoku[1], Shuhei Sugimura[1], Seiya Goto[1], and Takayuki Tanabe[1]. 1. Kyoto University, 2. Tohoku University, 3. Chubu University, 4. MEIDENSHA
- 14:20 OS07-04: Automatic Generation of Sewer-Segment Display Image for Machine-Learning-Based Digital Meter Reading. Kota Gushima[1], and Takahiro Koshime[1]. 1. Mitsubishi Electric

Room D — R02-2 Smart Monitoring/Maintenance/Operation, Chair: XX (XX)
- 13:20 R02-05: Tacholess instantaneous speed estimation considering the characteristics of vibration harmonic. Jinoh Yoo, Jongmin Park[1], Taehyung Kim[1], Jong Moon Ha[1], and Byeng Dong Youn[1]. 1. Seoul National University, 2. Korea Research Institute of Standards and Science
- 13:40 R02-06: Statistical Analysis and Runtime Monitoring for an AI-based Autonomous Centerline Tracking System. Yuning He[1], and Johann Schumann[1]. 1. NASA
- 14:00 R02-07: Quantum Optimization for Location Assignment Problem in AS/RS. Kentaki Satoh[1], and Nobuyuki Yoshikawa[1]. 1. Mitsubishi Electric

Room E — R03-1 Machine Learning/Deep Learning for PHM, Chair: XX (XX)
- 13:20 R03-01: Assessing the Performance of Transformer for Time Series Anomaly Detection. Takuto Nakashima[1], and Takahisa Yairi[1]. 1. University of Tokyo
- 13:40 R03-02: Unsupervised Anomaly Detection in Marine Diesel Engines using Transformer Neural Networks and Residual Analysis. Qin Liang[1,2], Knut Erik Knutsen[1], Erik Vanem[1], Houxiang Zhang[1], and Vilmar Æsøy[1]. 1. DNV, 2. Norwegian University of Science and Technology
- 14:00 R03-03: Prognostics in Highly Accelerated Limit Testing Using Deep Learning Data Analysis. Tadahiro Shibutani[1], Yuki Terauchi[1], and Yosuke Kikuchi[1]. 1. Yokohama National University

14:40 – 14:50 Coffee Break

Afternoon Session 2

Room A — OS08 Technologies and methods for achieving Zero Defect Manufacturing in the era of Industry 4.0 / 5.0, Chair: XX (XX)
- 15:00 OS08-01: Applications of Active Learning in Predictive Maintenance. Navid Zaman[1], You Jung Jun[1], Yao Li[1], and Daniel Chen[1]. 1. PHM Technology
- 15:20 OS08-02: Development of demonstration system for fault diagnosis of rotating equipments using RK4 test rig. Hyun Joon Lee[1], Jae Won Jang[1], Hyung Jun Park[1], Kyoung Rae Noh[1], Sangchul Lee[1], and Joo-Ho Choi[1]. 1. Korea Aerospace University, 2. LG Electronics
- 15:40 OS08-03: A Time Series Anomaly Detection Method Using Image Encoding Techniques. Ryo Sakurai[1], and Takehisa Yairi[1]. 1. University of Tokyo
- 16:00 OS08-04: Early Detection of Lithium-ion Battery Degradation Leveraging Conditional Denoising VAEs for Dynamic Noise Estimation. Min Joo Kim[1], Yun Hwa Kim[1], Sun Gou Chae[1], and Suk Joo Bae[1]. 1. Hanyang University 〔〕

Room B — OS02-2 New trends and challenges in aerospace PHM, Chair: XX (XX)
- 15:00 OS02-05: Study on Fault Diagnosis in a Spacecraft Propulsion System. Kazuyuki Adachi[1], Samir Khan[1], Kohji Tominaga[1], Norijasu Omata[1], Seiji Tsutsumi[1], and Takihi Nagata[1]. 1. University of Tokyo, 2. Japan Aerospace Exploration Agency
- 15:20 OS02-06: Anomaly detection of propulsion system of spacecrafts with Light GBM. Shota Iino[1], Hideki Nomoto[1], Takayuki Hirono[1], Yasutaka Michiura[1], Fuji[1], and Takashi Uchiyama[1]. 1. Japan Manned Space Systems Corporation, 2. Japan Aerospace Exploration Agency
- 15:40 OS02-07: Development of a space exploration rover digital twin for damage detection. Lucio Pinello[1], Marco Giglio[1], Claudio Sbarufatti[1], Francesco Cadini[1], and Giuseppe Francesco De Luca[1]. 1. Politecnico di Milano, 2. Agenzia Spaziale Italiana
- 16:00 OS02-08: Construction and evaluation of an anomaly detection system using System Invariant Analysis Technology(SIAT) for sound data. Tomoya Suma[1], and Akiko Sasaki[1]. 1. NEC

Room C — OS07-2 Autonomous decision making under complex conditions or situations, Chair: Masano Natsumeda (NEC)
- 15:00 OS07-05: Nonlinear Model Predictive Control using Neural ODE Replicas of Dynamic Simulators. Shumpei Kubosawa[1], Takashi Onishi[1], and Yoshimasa Tsuruoka[1]. 1. National Institute of Advanced Industrial Science and Technology, 2. NEC, 3. The University of Tokyo
- 15:20 OS07-06: A two-step detection method for actuator and sensor failures based on self-repairing PID control. Masayoshi Hara[1], and Masanori Takahashi[1]. 1. Oita University
- 15:40 OS07-07: An Experimental Study of the Effect of Petrol Inspection Strategy for Improving Detection Rate of Abnormality of Industrial Plants. Akio Gofuku[1], and Riku Kishimoto[1]. 1. Okayama University

Room D — R02-3 Smart Monitoring/Maintenance/Operation, Chair: XX (XX)
- 15:00 R02-09: Online fault detection for industrial processes through Kalman filter. Wenyi Liu[1], and Takehisa Yairi[1]. 1. University of Tokyo
- 15:20 R02-10: Abnormal Detection Using Two-Stage Method in Combined Power Plant. Yun Hee Kim[1], and Suk Joo Bae[1]. 1. Hanyang University
- 15:40 R02-11: Event detection in a noisy time series data using static smoothening gradient variation analytics. Saravanavan T[1], Unnat Mankad[1], Simi Madhavan Karathra[1], Carmine Allegorico[1], and Asali Hasee[1]. 1. Baker Hughes, 2. Wesson Infortech
- 16:00 R02-12: Improving Anomalous Sound Detection by Distance Matrix-Based Visualization of Measurement Flaws. Nobuaki Tanaka[1], Takeru Shiraga[1], and Yosuke Itani[1]. 1. Mitsubishi Electric

Room E — OS09 AI based PHM for Power Electronics components and systems, Chair: Madhav Mishra (RISE Research Institutes of Sweden)
- 15:00 OS09-01: RUL Estimation for Package Failure of Power Electronic Devices Using Integral Mean of Precursor Signal. Zhonghui Lu[1], and Chao Guo[1], Pol Ghesquiere[1], Kai Kriegel[1], and Gerhard Mitic[1]. 1. KTH Royal Institute of Technology, 2. Siemens
- 15:20 OS09-02: Federated Learning for PHM in Power Electronics Systems: Challenges and Opportunities. Madhav Mishra[1], Andreas Lindberg[1], and Klas Brinkfeldt[1]. 1. RISE Research Institutes of Sweden
- 15:40 OS09-03: A Simple Hybrid Model for Estimating Remaining Useful Life of DC MOSFETs in Power Cycling Experiments. Mattias P. Eng[1], Andreas Lindberg[1], Maciej Misiorny[1], Wilhelm Söderkvist Vermelin[1], and Klas Brinkfeldt[1]. 1. RISE Research Institute of Sweden, 2. QRTECH AB
- 16:00 OS09-04: Damage-Based Lifetime Modeling for Power Electronic Devices. Chao Guo[1], and Zhonghui Lu[1]. 1. KTH Royal Institute of Technology

16:10 – 16:30 Coffee Break

Afternoon Session 3

Room A — R04 PHM for Power Electronics/Battery, Chair: XX (XX)
- 16:40 R04-01: An Enhanced Model-Based Algorithm for Early Internal Short Circuit Detection in Lithium-Ion Batteries. Yiqi Jia[1], Lorenzo Brancato[1], Marco Giglio[1], and Francesco Cadini[1]. 1. Politecnico di Milano
- 17:00 R04-02: Multiphysics-informed DeepONet of a lithium-ion battery to predict thermal runaway. Jinho Jeong[1], Eunji Kwak[1], Jun-Hyeong Kim[1], and Ki Yong Oh[1]. 1. Hanyang University
- 17:20 R04-03: A Concept of Condition Monitoring for AC-DC Converter Output Capacitors via Discriminative Features. Narae Baye Kareem[1], and Jang Wook Hur[1]. 1. Kumoh National Institute of Technology

Room B — R05 PHM for Motors, Chair: XX (XX)
- 16:40 R05-01: Analysis of Diagnostic Capabilities for Degradation of Brushless Direct Current Motors Depending on Varying Simulation Data. Max Weigert[1]. 1. Technical University of Darmstadt
- 17:00 R05-02: A multi periodicity and multi-scale network for motor fault diagnosis. Pengcheng Xia[1], Kaiwen Zhang[1], Yixiang Huang[1], and Chengliang Liu[1]. 1. Shanghai Jiao Tong University
- 17:20 R05-03: Anomaly data synthesis and detection via domain randomization. Joonho Jun[1], and Jongsoo Lee[1]. 1. Yonsei University
- 17:40 R05-04: System-Level Simulation of 120 kW Interior Permanent Magnet Synchronous Motor Drive for Electric Vehicle Usage Under Various Types of Faults for Fault Diagnosis. Wuyeong Kwon[1], Jaewook Oh[1], Ichyeok Hwang[1], and Namsu Kim[1]. 1. Konkuk University

Room C — R03-2 Machine Learning/Deep Learning for PHM, Chair: XX (XX)
- 16:40 R03-05: Novel Ensemble Domain Adaptation Methodology for Enhanced Multi-class Fault Diagnosis of Highly-Connected Fleet of Assets. Takamitsu Minami[1], Alexander Suer[1], Pradeep Kundu[1], Shahin Siahpour[1] and Jay Lee[1]. 1. University of Maryland, 2. University of Cincinnati, 3. KU Leuven
- 17:00 R03-06: To Trust or Not: Towards Efficient Uncertainty Quantification for Stochastic Shapley Explanations. Joseph Cohen[1], Eunshin Byon[1], and Xun Huan[1]. 1. University of Michigan
- 17:20 R03-07: Analysis of the Effect of the Data Heterogeneity in Federated Fault Identification. Zahra Taghiyarrenani[1], Slawomir Nowaczyk[1], and Sepideh Pashami[1]. 1. Halmstad university

Room D — R02-4 Smart Monitoring/Maintenance/Operation, Chair: XX (XX)
- 16:40 R02-13: A Reliability-Centered Maintenance Framework for Distribution Grids Based on Fault-Tree Analysis. Ting Wang[1], Guoqiang Hu[1], and Sunglin Choi[1]. 1. Nanyang Technological University, 2. SP Group
- 17:00 R02-14: A Comparative Study of K-Means Clustering and a Novel Ranking Algorithm for Risk Priority Number Analysis in FMECA. Jiaxiang Chong[1], Sunglin Choi[1], Yap Pang Tan, and Guoqiang Hu[1]. 1. Nanyang Technological University, 2. Singapore Power
- 17:20 R02-15: Optimal warranty policy for a system considering a failure interaction. Seng Kyung Lee[1], Jiwon Lee[1], Seungjoon Lee[1], Bongmo Kim[1], Yong Chae Kim[1], Jinwook Lee[1], and Byeng D. Youn[1,2]. 1. Seoul National University, 2. OnePredict Inc.
- 17:40 R02-16: Sound On: Reliable Sound Dataset and Baseline Artificial Intelligence System for Respiratory Diseases. Van Truong Hoang[1], Quang Nguyen[1], Quoc Cuong Nguyen[1], Xuan Phong Nguyen[1], and Hoang Nguyen[1]. 1. FPT Software, 2. Vietnam National University, 3. University College Cork

Room E — DC01 Data Challenge, Chair: XX (XX)
- 16:40 DC01-01: Dataset generation based on 1D-CAE modeling for fault diagnostics in a spacecraft propulsion system. Zhenghong Lu[1], Yu Daimon[1], Masao Toyama[1], Kazuichi Adachi[1], Seiji Tsutsumi[1], Norijasu Omata[1], and Takihi Nagata[1]. 1. Japan Aerospace Exploration Agency, 2. University of Tokyo
- 17:00 DC01-02: PHM for Spacecraft Propulsion Systems: Similarity-Based models and Physics-Inspired Features. Takamitsu Minami[1,2], and Jay Lee[1]. 1. University of Maryland College Park, 2. Komatsu Ltd.
- 17:20 DC01-03: Hybrid Approach of Agboost and Rule-based Model for Fault Detection and Severity Estimation in Spacecraft Propulsion System. Seng Kyung Lee[1], Jiwon Lee[1], Seungjoon Lee[1], Bongmo Kim[1], Yong Chae Kim[1], Jinwook Lee[1], and Byeng D. Youn[1,2]. 1. Seoul National University, 2. OnePredict Inc.
- 17:40 DC01-04: Anomaly Detection in Spacecraft Propulsion System using Time Series Classification based on K-NN. Yoshiki Kato[1], Taku Kato[1], and Tsubasa Tanaka[1]. 1. Mitsubishi Electric

Sep. 14 (Thu)

JST (UTC+9)	Hall	Room A	Room B	Room C	Room D	Room E	2F Lobby
9:00 – 9:50							Poster Session 2
10:00 – 10:50	**Keynote 4 (Hall)** — Prediction of the Movement of a Landslide for the Early Warning System Against Disaster in Japan — Prof. Katsuo Sasahara (Kochi University)						Poster Session 2
11:00 – 11:10	Coffee Break						

Session block (11:20 – 12:30)

	Hall	Room A	Room B	Room C	Room D	Room E
Session	**Panel Session 2** Organizer: Ken Ueno (Toshiba), Seiji Tsutsumi (Japan Aerospace Exploration Agency)	**R06** PHM for Device Monitoring Chair: XX (XX)	**OS02-3** New trends and challenges in aerospace PHM Chair: Samir Khan (University of Tokyo)	**R07-1** RUL Prediction Chair: XX (XX)	**R08** PHM for Rotary Machines Chair: XX (XX)	**R03-3** Machine Learning/Deep Learning for PHM Chair: XX (XX)

Time	Hall	Room A	Room B	Room C	Room D	Room E
11:20 – 11:30	Quantum Computing meets PHM — 1. Noriaki Shimada (IBM Quantum/IBM Research) 2. Nobuyuki Yoshikawa (Mitsubishi Electric) 3. Takao Tomono (Toppan Inc.)	R06-01: Failure prediction of hard disk drives in redundant arrays using disk-level performance metrics. Masanao Natsumeda[1]. 1. NEC	OS02-09: Resilient Operation Planning for CubeSat Using Reinforcement Learning. Shuntaro Kuroiwa[1], and Nozomu Kogiso[1]. 1. Osaka Metropolitan University	R07-01: Estimation of Remaining Useful Life of Complex Systems Based on Autoencoder-Based Latent Variable Extraction. Sungeu Chae[1], and Sukjoo Bae[1]. 1. Hanyang University	R08-01: Multi-Label Fault Diagnosis of Rotary Machine via Domain Adversarial Neural Network-Based Domain Generalization Targeting High Range Rotating Speed. Sukeun Hong[1], and Jongsoo Lee[1]. 1. Yonsei University	R03-08: Fusion with Joint Distribution and Adversarial Networks: A New Transfer Learning Approach for Intelligent Fault Diagnosis. Xueyi Li[1], Tianyu Yu[1], David He[1], Zhijie Xie[1], and Xiangwei[1]. 1. Northeast Forestry University, 2. University of Illinois at Chicago, 3. Northeast University
11:40 – 11:50		R06-02: Automatic detection of hardware failures in an air quality measuring station with low cost sensors. Sylvain Poupry[1], Kamal Medjaher[1], and Cédrick Béler[1]. 1. ENIT-LGP	OS02-10: Improvement in Identification Accuracy of a Failure Diagnostic System for a Reusable Rocket Engine. Fumihisa Nagashima[1], Hatsuo Mori[1], Yasuhiro Ishikawa[1], Masaki Saito[1] and Tomoyuki Hashimoto[1]. 1. IHI, 2. Japan Aerospace Exploration Agency	R07-02: Ensemble Probabilistic Neural Networks for RUL Prediction. Abhishek Srinivasan[1,2], Juan Carlos Andresen[1], and Anders Holst[1]. 1. KTH, 2. Scania, 3. RISE	R08-02: Sequential Domain Adaptation for Fault Diagnosis in Rotating Machinery. Yong Chae Kim[1], Jin Uk Ko[1], Jinwook Lee[1], Taehun Kim[1], Joon Ha Jung[1], and Byeng D. Youn[1]. 1. Seoul National University, 2. Ajou University	R03-09: Elastic wave field neural networks for structural health monitoring: an analytical and numerical study of multiple neurons. Arata Masuda[1], and Konosuke Takashima[1]. 1. Kyoto Institute of Technology
12:00 – 12:10		R06-03: Study on the intermittent fault mechanism of electromagnetic relay under complex environmental stress. Jinghong Ye[1], Jing Qiu[1], Guanjun Liu[1], and Kehong Lyu[1] 1. National University of Defense Technology	OS02-11: Data-Driven Prognostics and Diagnostics of Industrial Machinery- A Turbofan Engine Case Study. Russell Graves[1], Peeyush Pankaj[1], Vineet J Kuruvilla[1], Rachel Johnson[1], and Michio Inoue[1]. 1. MathWorks	R07-03: A Simple Remaining Useful Life Algorithm Using the Quadratic. Eric Bechhoefer[1], Nobuhiro Fujiki[1], Yusuke Kitsutaka[2], Sotaro Tsukemoto[2], and Akio Usui[2]. 1. GPMS International, 2. Toho Technology	R08-03: An improved OAKR approach to condition monitoring of rotating machinery. Kevin Zhang[1], and Xiaomo Jiang[1]. 1. Dalian University of Technology	R03-10: Fuzzy-membership-based labeling – a new labeling method for both classification task and regression task. Diwang Ruan[1], Zhaorong Li[1], Yuheng Wu[1], Jianping Yan[1], and Clemens Gühmann[1]. 1. Technische Universität Berlin, 2. Zhejiang University
12:20 – 12:30		R06-04: A Simplified Framework for Fault Prediction in Radar Transmitter based on Vector Autoregression Model. Sheriff Murtala[1], Soojung Hur[1], and Yongwan Park[1]. 1. Yeungnam University	OS02-12: Demonstration of model-based real-time anomaly detection in a JAXA 6.5m×5.5m low-speed wind tunnel. Shotaro Hamato[1], Seiji Tsutsumi[1], Hirotaka Yamashita[1], Tatsuro Shiohara[1], Tomonari Hirotani[1], and Hiroyuki Kato[1]. 1. Japan Aerospace Exploration Agency	R07-04: Prognosis using Bayesian Method by Incorporating Physical Constraints. Hyung Jun Park[1], Nam Ho Kim[2], and Joo-Ho Choi[1]. 1. Korea Aerospace University, 2. University of Florida, 3. Korea Aerospace University	R08-04: Observation and Prediction of Instability due to RD Fluid Force in Rotating Machinery by Operational Modal Analysis. Daiki Goto[1], Tsuyoshi Inoue[1], Akira Heya[1], Shogo Kimura[1], Shimraku Nakamura[2], and Yusuke Watanabe[2]. 1. Nagoya University, 2. Ebara	

Time		
12:40 – 13:30	Lunch	

Session block (13:40 – 14:30)

	Hall	Room A	Room C	Room D	Room E
Session	**Panel Session 3** Organizer: Michio Inoue (MathWorks)	**R09** PHM for Turbines Chair: XX (XX)	**R07-2** RUL Prediction Chair: XX (XX)	**R02-5** Smart Monitoring/Maintenance/Operation Chair: XX (XX)	**R10** Digital Twin for PHM Chair: XX (XX)

Time	Hall	Room A	Room C	Room D	Room E
13:40 – 13:50	Predictive Maintenance Challenges and Solutions: Vendor Insights — 1. Bharat Vats (OnePredict Inc.) 2. Chris Stocki (PHM Technology) 3. Eric Bechhoefer (GPMS Inc.) 4. Rachel Johnson (MathWorks)	R09-01: A Physics Informed Machine Learning Approach for Performance Degradation Monitoring of Gas Turbine. Yiyang Liu[1], Xiaomo Jiang[1], Xin Ge[1], and Manman Wei[1]. 1. Dalian University of Technology	R07-05: Bayesian-based Component Lifetime Prediction Model Using Workshop and Telematics Data. Seungyoung Park[1], and Jihyun Lee[1]. 1. HL Mando	R02-17: Comprehensive Failure Diagnosis Model with Degradation Indicators of Multiple Sensors. Jun Tominaga[1], Shoya Kamioka[1], and Kohei Kuroda[1]. 1. Daikin Industries	R10-01: Development of an Operational Digital Twin of a Locomotive Braking System Solenoid Valve for Fault Classification. Gabriel Davidyan[1], Jacob Bortman[1], and Ron.S Kenett[3]. 1. Israel Railway, 2. Ben-Gurion University of the Negev, 3. Samuel Neaman Institute for National Policy Research
14:00 – 14:10		R09-02: Discovering Premature Replacements in Predictive Maintenance Time-to-Event Data. Abdallah Alabdallah[1], Thorsteinn Rögnvaldsson[1], Yuantao Fan[1], Sepideh Pashami[1], and Mattias Ohlsson[1]. 1. Halmstad University	R07-06: Bridging the Gap: A Comparative Analysis of Regressive Remaining Useful Life Prediction and Survival Analysis Methods for Predictive Maintenance. Mahmoud Rahat[1], Zahra Kharazian[2], Peyman Sheikholharam Mashhadi[1], Thorsteinn Rögnvaldsson[1], and Shamik Choudhury[3]. 1. Halmstad University, 2. Stockholm University, 3. Volvo	R02-18: Prescriptive Maintenance-Decision Analysis Through Energy Efficiency-Based Hybrid Prognostic and Diagnostic Model. Tarwaji Warsokusumo[1], Ghiffari Awliya Muhammad Ashfania[1], Toni Prahasto[1], and Achmad Widodo[1]. 1. PT PLN Indonesia Power, 2. Diponegoro University	R10-02: Architecting a Digital Twin-Based Predictive Maintenance System for Modelling Cable Joint Degradation. Raymon van Dinter[1,2], Görkem Ekmekci[3], Sander Rieken[3], Bedir Tekinerdogan[4], and Cagatay Catal[5]. 1. Wageningen University, 2. Sioux Technologies, 3. Alliander, 4. Wageningen University, 5. Qatar University
14:20 – 14:30		R09-03: Trip Reduction in Turbo Machinery. Pranay Mathur[1], Carlo Michelassi[1], Simi Karatha[1], Gilda Pedoto[1], and Miguel Gomez Alguacil[1]. 1. Baker Hughes	R07-07: Explainable Condition Monitoring Identification for Degradation-Trend Analysis and Fault Prognosis. Amine Atoui (University of Halmstad)	R02-19: Differential Diagnosis with Active Testing. Emile van Gerwen[1], Leonardo Barbini[1], and Michael Borth[2]. 1. TNO-ESI, 2. TNO	R10-03: Configuration and Comparative Study of Prediction Models for Indoor Air Quality. Geonhee Lee[1], Hea-Ryeon Seo[1], and Hae-Jin Choi[1]. 1. Chung Ang University

Time		
14:40 – 14:50	Coffee Break	
15:00 – 15:50	**Keynote 5 (Hall)** — From Physics to Machine Learning and Back: Applications to Prognostics and Health Management — Prof. Olga Fink (EPFL, Lausanne)	
16:00 – 16:10	Closing/Award Ceremony (Hall)	