RQD 2022
Conference Program

All times listed in the program are U.S. Eastern Daylight Time (UTC-4)

THURSDAY, AUGUST 4, 2022

8:30 - 9:00	**Welcome**
9:00 - 10:30	**SESSION 1: System Reliability in Design & Optimization** **Chair: Prof. Minjae Park (Hongik University, Korea)**
	Speaker: Mr. Hsuan-Wen Lu **Domain Adaptation Technique for Motion-based Prognostic and Health Management on Robot Arm** 　　Hsuan-Wen Lu *(National Cheng Kung University, Taiwan)* 　　Ting-Yuan Song *(National Taiwan University, Taiwan)* 　　Yu-Ling Cheng *(National Taiwan University, Taiwan)* 　　Ling-Chieh Kung *(National Taiwan University, Taiwan)* 　　Chia-Yen Lee *(National Taiwan University, Taiwan)* Speaker: Miss Huiting Xu **Meta-Modeling and Robust Parameter Design of Multi-Response Gaussian Processes with Mixed Variables** 　　Huiting Xu *(Nanjing University of Science and Technology, China)* 　　Jianjun Wang *(Nanjing University of Science and Technology, China)* 　　Zebiao Feng *(Nanjing University of Posts and Telecommunications, China)* 　　Cuihong Zhai *(Nanjing University of Science and Technology, China)* Speaker: Prof. Gordon Savage **Excitation and System Parameter Identification of Dynamic Systems by an Inverse Meta-Model** 　　Gordon J. Savage *(University of Waterloo, Canada)* 　　Young Kap Son *(Andong National University, Korea)* Speaker: Prof. Minjae Park **Modeling the Dependent Competing Risks with Degradation Processes and Random Shock under Warranty** 　　Minjae Park *(Hongik University, Korea)* 　　Hoang Pham *(Rutgers University, USA)*
10:30 - 12:30	**SESSION 2: Software Quality & Reliability Assessment** **Chair: Prof. Florin Popentiu-Vladicescu (University "Politehnica" of Bucharest & Academy of Romanian Scientists, Romania)**
	Speaker: Dr. Ruijin Zhang **Design and Implementation of Software for Torque Monitoring of Rolling Mill Spindle**

	Ruijin Zhang *(Northeastern University, China)*
	Youzhi Pei *(Northeastern University, China)*
	Baoxu Li *(Northeastern University, China)*
	Qingzhe Wei *(Northeastern University, China)*
	
	Speaker: Dr. Shih-Wen Liu
	An Efficient Partial Inspection Method for Lot Sentencing
	    Shih-Wen Liu *(National Chin-Yi University of Technology, Taiwan)*
	    Chien-Wei Wu *(National Tsing Hua University, Taiwan)*
	
	Speaker: Mr. Youn Su Kim
	A Study on the Software Reliability Model Using Deep Neural Network for General Situation
	    Youn Su Kim *(Chosun University, Korea)*
	    Kwang Yoon Song *(Chosun University, Korea)*
	    Da Hye Lee *(Chosun University, Korea)*
	    In Hong Chang *(Chosun University, Korea)*
	
	Speaker: Prof. Florin Popentiu Vladicescu
	Improving Software Quality by Performance Testing in DevOps Environments
	    Grigore Albeanu *("Spiru" Haret University Bucharest, Romania)*
	    Henrik Madsen *(Technical University of Denmark, Denmark)*
	    Florin Popentiu-Vladicescu *(University of Bucharest & Academy of Romanian Scientists Bucharest, Romania)*

19:00 - 20:30	**SESSION 3: Maintenance & Inspection Policies** **Chair: Prof. Satoshi Mizutani (Aichi Institute of Technology, Japan)**

	Speaker: Prof. Shinji Inoue
	Optimal Maintenance Policy for Dangerous Undetected Fault of E/E/PE Safety-Related Systems
	    Shinji Inoue *(Kansai University, Japan)*
	    Kousuke Maki *(Kansai University, Japan)*
	    Takaji Fujiwara *(SRATECH Laboratory Inc., Japan)*
	    Shigeru Yamada *(Tottori University, Japan)*
	
	Speaker: Dr. Lei Zhou
	Periodic Inspection Policy for a Consecutive-*k*-out-of-*n*:G System
	    Lei Zhou *(Yamaguchi University, Japan)*
	    Hisashi Yamamoto *(Tokyo Metropolitan University, Japan)*
	
	Speaker: Mr. Dong Yunlong
	Optimal Maintenance Policies of Breakwater Armored with Wave- Dissipating Blocks
	    Dong Yunlong *(Tottori University, Japan)*
	    Kodo Ito *(Tottori University, Japan)*
	    Yoshiyuki Higuchi *(Fukushima University, Japan)*
	
	Speaker: Prof. Satoshi Mizutani
	Equilibrium Maintenance Costs between Random and Non-Random Replacements
	    Satoshi Mizutani *(Aichi Institute of Technology, Japan)*

	Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*
	Toshio Nakagawa *(Aichi Institute of Technology, Japan)*
20:30 - 22:00	**SESSION 4: System Reliability & Safety Risk Prediction** **Chair: Dr. Xiao Zhuang (Wenzhou University, China)**
	Speaker: Prof. Baoliang Liu **A Novel Multi-state Repairable System under G-mixed Redundancy Strategy** Baoliang Liu *(Shanxi Datong University, China)* Yanqing Wen *(Shanxi Datong University, China)* Zhiqiang Zhang *(Shanxi Datong University, China)* Haiyan Shi *(Shanxi Datong University, China)* Shugui Kang *(Shanxi Datong University, China)* Speaker: Miss Huizhong Lin **Analysis of Weibull Lifetime Data via Quantile Regression under Progressive Type-II Censoring** Huizhong Lin *(Yunnan Normal University, China)* Liang Wang *(Yunnan Normal University, China)* Yuhlong Lio *(University of South Dakota, USA)* Speaker: Ms. Yan Wang **Reliability Analysis of Linear Consecutive-k-out-of-n: F Retrial Systems with Second Optional Repair and Single Vacation** Yan Wang *(Yanshan University Qinhuangdao, China)* Linmin Hu *(Yanshan University Qinhuangdao, China)* Bing Zhao *(Yanshan University Qinhuangdao, China)* Ruiling Tian *(Yanshan University Qinhuangdao, China)* Speaker: Dr. Xiao Zhuang **Deep Learning Ensemble Model for Aviation Safety Risk Prediction** Di Zhou *(Wenzhou University, China)* Xiao Zhuang *(Wenzhou University, China)* Hongfu Zuo *(Nanjing University of Aeronautics and Astronautics, China)* Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)* Jiawei Xiang *(Wenzhou University, China)*
22:00 - 23:30	**SESSION 5: Performance Modeling and Its Applications** **Chair: Dr. Tzong-Ru Tsai (Tamkang University, Taiwan)**
	Speaker: Prof. Chun-Min Yu **Fuzzy Supplier Selection Model Based on Lifetime Performance Index** Kuen-Suan Chen *(National Chin-Yi University of Technology, Taiwan)* Chun-Min Yu *(National Chin-Yi University of Technology, Taiwan)* Speaker: Prof. Kuen-Suan Chen **Execution Models for Developing DMAIC Process Using Process Capability Indices** Kuen-Suan Chen *(National Chin-Yi University of Technology, Taiwan)* Chin Chia Liu *(National Changhua University of Education, Taiwan)* Chi-Han Chen *(National Changhua University of Education, Taiwan)*

Speaker: Prof. Ching-Hsin Wang
Machine Learning Integrated with Process Capability Model for Quality Testing Model of Semiconductor Wire Bonding Process
    Ching-Hsin Wang *(National Chin-Yi University of Technology, Taiwan)*
    Chun-Liang Tung *(National Chin-Yi University of Technology, Taiwan)*
    Chun-Chieh Huang *(National Chin-Yi University of Technology, Taiwan)*

Speaker: Prof. Chun-Min Yu
Using PEM to Establish the Performance Evaluation Model of Bus APP
    Chun-Min Yu *(National Chin-Yi University of Technology, Taiwan)*
    Shao-Yu Li *(Language Center of Chaoyang University of Technology, Taiwan)*
    Yen Po Chen *(National Chung Hsing University, Taiwan)*
    Yu-Ling Chen *(Taichung Municipal Chang Yi High School, Taiwan)*
    Jyun Ze Lin *(Taichung Municipal Chang Yi High School, Taiwan)*

Speaker: Dr. Tzong-Ru Tsai
Bias-Corrected Maximum Likelihood Estimation for the Process Performance Index using Inverse Gaussian Distribution
    Tzong-Ru Tsai *(Tamkang University, Taiwan)*
    Hua Xin *(Northeast Petroleum University, China)*
    Ya-Yen Fan *(Tamkang University, Taiwan)*
    Yulong Lio *(University of South Dakota, USA)*

FRIDAY, AUGUST 5, 2022

8:00 - 9:30	**SESSION 6: Imperfect Maintenance & Optimization** **Chair: Prof. Yoshinobu Tamura (Yamaguchi University, Japan)**

Speaker: Prof. Yoshinobu Tamura
A Maintenance Effort Dependent Two Dimensional Wiener Process Model Considering OSS Network for Edge Computing
    Yoshinobu Tamura *(Yamaguchi University, Japan)*
    Hironobu Sone *(IBM Japan, Ltd., Japan)*
    Shigeru Yamada *(Tottori University, Japan)*

Speaker: Dr. Kenichiro Naruse
Optimal Scheme Models with Imperfect Checkpoint
    Kenichiro Naruse *(Josai International University, Japan)*
    Toshio Nakagawa *(Aichi Institute of Technology, Japan)*

Speaker: Prof. Xufeng Zhao
Optimal Replacement Policies with Deviation Times for Cumulative Damage Processes
    Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*
    Lubing Wang *(Nanjing University of Aeronautics and Astronautics, China)*
    Satoshi Mizutani *(Aichi Institute of Technology, Japan)*
    Toshio Nakagawa *(Aichi Institute of Technology, Japan)*

	Speaker: Dr. Nobuyuki Tamura **Analysis of a Markovian Deteriorating System with Imperfect Repair under Incomplete Information on Operating Environment** Nobuyuki Tamura *(Hosei University, Japan)*
9:30 - 11:00	**SESSION 7: Big Data & Network Security and Prediction** **Chair: Prof. Taghi M. Khoshgoftaar (Florida Atlantic University, USA)**
	Speaker: Mr. John Hancock **Exploring Area Under the Precision Recall Curve and Random Undersampling to Classify Imbalanced Big Data** John Hancock *(Florida Atlantic University, USA)* Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)* Justin M. Johnson *(Florida Atlantic University, USA)* Speaker: Mr. Justin Johnson **Evaluating Undersampling and Thresholding with Highly Imbalanced Big Data** Justin M. Johnson *(Florida Atlantic University, USA)* Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)* Speaker: Mr. Joffrey Leevy **Predicting DoS and DDoS Attacks in IoT Networks** Joffrey L. Leevy *(Florida Atlantic University, USA)* Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)* John Hancock *(Florida Atlantic University, USA)* Speaker: Mr. Joffrey Leevy **A Survey on the Choice Between Binary Classification and One-Class Classification** Azadeh A. Zadeh *(Florida Atlantic University, USA)* Joffrey L. Leevy *(Florida Atlantic University, USA)* Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*
11:00 - 12:30	**SESSION 8: Optimal Maintenance Policies & Applications** **Chair: Prof. Li Yang (Beihang University, China)**
	Speaker: Prof. Mingchih Chen **Optimal Age Replacement Policies with Deviation Times** Mingchih Chen *(Fu Jen Catholic University, Taiwan)* Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)* Hongshuang Feng *(Nanjing University of Aeronautics and Astronautics, China)* Toshio Nakagawa *(Aichi Institute of Technology, Japan)* Speaker: Dr. Ji Zhang **Preventive Maintenance Policy Considering Product Quality Improvement and Random Working Time** Ji Zhang *(Chongqing University, China)* Xiaohui Chen *(Chongqing University, China)* Haohao Shi *(Chongqing University, China)* Xia Liu *(Chongqing University, China)* Weigang Xu *(Chengdu SIWI High-Tech Industry Company Limited, China)*

	Speaker: Prof. Xufeng Zhao
	Optimal Post-Warranty Maintenance Policies with the Mission Duration
	    Jiajia Cai *(Nanjing University of Aeronautics and Astronautics, China)*
	    Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*
	
	Speaker: Prof. Li Yang
	Availability Modeling and Maintenance Optimization of Storage System Based on Two-Stage Sampling Scheme
	    Tao Peng *(Beihang University, China)*
	    Li Yang *(Beihang University, China)*
	    Yi Chen *(Beihang University, China)*
	    Miaomaio Wang *(Beijing Power Machinery Institute, China)*
	    Xiaobing Ma *(Beihang University, China)*

19:00 - 20:30	**SESSION 9: Predictive Analytics & Model Uncertainty** **Chair: Prof. Junji Koyanagi (Tottori University, Japan)**

	Speaker: Dr. Hiroyuki Okamura
	A Note on Epistemic Uncertainty Propagation for Software Reliability Metrics
	    Hiroyuki Okamura *(Hiroshima University, Japan)*
	    Jiahao Zhang *(Hiroshima University, Japan)*
	    Junjun Zheng *(Ritsumeikan University, Japan)*
	    Tadashi Dohi *(Hiroshima University, Japan)*
	
	Speaker: Mr. Sota Hamaya
	Extraction of Sales Relevance from POS Data Based on Non negative Matrix Factorization with Regularization
	    Sota Hamaya *(Tottori University, Japan)*
	    Yuka Minamino *(Tottori University, Japan)*
	    Taku Moriyama *(Tottori University, Japan)*
	    Mio Hosoe *(Tottori University, Japan)*
	    Masashi Kuwano *(Tottori University, Japan)*
	
	Speaker: Dr. Mitsuhiro Imaizumi
	Optimal Monitoring Policy for a Server System with Multiple Cyber Attacks
	    Mitsuhiro Imaizumi *(Aichi Gakusen University, Japan)*
	    Mitsutaka Kimura *(Aichi University, Japan)*
	
	Speaker: Mr. Takahiro Nakamura
	An Approximation Analysis of the Optimal Sales Support Policy
	    Takahiro Nakamura *(Tottori University, Japan)*
	    Junji Koyanagi *(Tottori University, Japan)*
	    Kodo Ito *(Tottori University, Japan)*

20:30 - 22:00	**SESSION 10: Network Reliability & Optimization** **Chair: Dr. Ding-Hsiang Huang (Tunghai University, Taiwan)**
	Speaker: Ms. Chi-Ting Hsu **System Reliability Analysis for a Stochastic Liner Container Shipping Service with Stochastic Container Terminals** Chi-Ting Hsu *(National Yang Ming Chiao Tung University, Taiwan)*

	Ya-Ting Liao *(National Yang Ming Chiao Tung University, Taiwan)* Cheng-Hao Huang *(National Yang Ming Chiao Tung University, Taiwan)* Ping-Chen Chang *(National Quemoy University, Taiwan)* Yi-Kuei Lin *(National Yang Ming Chiao Tung University, Taiwan)* Speaker: Dr. Thi-Phuong Nguyen **Evaluate the Reliability of a Stochastic Flight Network with Budget-Dependent Demands** Thi-Phuong Nguyen *(National Chin-Yi University of Technology, Taiwan)* Speaker: Prof. Shey-Huei Sheu **Optimal Replacement Policies with One Cycle Criterion** Shey-Huei Sheu *(Asia University, Taiwan)* Tzu-Hsin Liu *(Chaoyang University of Technology, Taiwan)* Wei-Teng Sheu *(National Taiwan University of Science and Technology, Taiwan)* Jau-Chuan Ke *(National Taichung University of Science and Technology, Taiwan)* Speaker: Dr. Ding-Hsiang Huang **Flow Generation for Stochastic-flow Networks with Demands as Real Number** Chin-Lung Huang *(National Yang Ming Chiao Tung University, Taiwan)* Cheng-Fu Huang *(Feng Chia University, Taiwan)* Ding-Hsiang Huang *(Tunghai University, Taiwan)* Yi-Kuei Lin *(National Yang Ming Chiao Tung University, Taiwan)*
22:00 - 23:30	**SESSION 11: Maintenance Optimization and Policies** **Chair: Prof. Xufeng Zhao (Nanjing University of Aeronautics and Astronautics, China)**
	Speaker: Dr. Junyuan Wang **Optimal Replacement Policies for k-Out-Of-n Systems with Shortage and Excess Costs** Junyuan Wang *(China Jiliang University, China)* Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)* Speaker: Mr. Jingming Qiao **Repairmen Number-Based Component Maintenance Policy Optimization** Jingming Qiao *(Zhengzhou University, China)* Chao Zhang *(Beihang University, China)* Hongyan Dui *(Zhengzhou University, China)* Speaker: Mr. Peng Liu **A Calendar-Time-Based Preventive Maintenance Policy** Peng Liu *(Southeast University, China)* Guanjun Wang *(Southeast University, China)* Speaker: Prof. Xufeng Zhao **Optimal Time-Based Maintenance and Full-Refund Warranty Policies** Xinyan Li *(Nanjing University of Aeronautics and Astronautics, China)* Hongshuang Feng *(Nanjing University of Aeronautics and Astronautics, China)* Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*

SATURDAY, AUGUST 6, 2022

8:00 - 9:30	**SESSION 12: Reliability in Design and Its Applications** **Chair: Prof. Zhihua Wang (Beihang University, China)**

Speaker: Prof. Kaiye Gao
Cost and Signal Loss Design of Two-way Linear Multistate Continuous Connection System
> Kaiye Gao *(Beijing Information Science & Technology University, China)*
> Yue Ren *(Beijing Information Science & Technology University, China)*
> Rui Peng *(Beijing University of Technology, China)*

Speaker: Dr. Xiao Zhuang
DBSCAN and SVDD Based Method for Civil Aircraft Flight Anomaly Identification
> Di Zhou *(Wenzhou University, China)*
> Xiao Zhuang *(Wenzhou University, China)*
> Hongfu Zuo *(Nanjing University of Aeronautics and Astronautics, China)*
> Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*
> Jiawei Xiang *(Wenzhou University, China)*

Speaker: Prof. Jihong Pang
Dual-Objective Optimization of Performance of High-Speed Shift Electromagnet Based on Response Surface and NSGA-II
> Jihong Pang *(Shaoxing University, China)*
> Kaiyu Yuan *(Wenzhou University, China)*
> Yong Li *(Wenzhou University, China)*

Speaker: Dr. Qingan Qiu
Optimal Random Maintenance Policy of the Warranted Product Subject to Random Working Cycle
> Lijun Shang *(Foshan University, China)*
> Guojun Shang *(North Union Electric Power Limited Liability Company, China)*
> Cang Wu *(Lanzhou University of Technology, China)*
> Qingan Qiu *(Beijing Institute of Technology, China)*

Speaker: Mr. Gen Liu
Sensitivity Analysis of Accelerated Degradation Test Design Considering Impact Degree of Multiple Factors
> Zhihua Wang *(Beihang University, China)*
> Gen Liu *(Beihang University, China)*
> Qiong Wu *(China Academy of Space Technology, China)*
> Lu Li *(Beihang University, China)*

9:30 - 11:00	**SESSION 13: Reliability of Complex Systems and Failure Analysis** **Chair: Dr. Wenxue Qian (Northeastern University, China)**

Speaker: Miss Ning Xu
Robust Parameter Design of Functional Response for Additive Manufacturing Process
> Ning Xu *(Nanjing University of Science & Technology, China)*

Jianjun Wang *(Nanjing University of Science & Technology, China)*
Chunfeng Ding *(Nanjing University of Science & Technology, China)*
Xiaolei Ren *(Nanjing University of Science & Technology, China)*

Speaker: Dr. Xiaowei Yin
Fatigue Life Evaluation of Wind Turbine Spindle Bearing Based on Finite Element Method
Xiaowei Yin *(Shenyang Institute of Engineering, China)*
Xuefeng Jiang *(CSIC (Chongqing) Haizhuang Wind Power Co. Ltd, China)*
Longfu Wang *(Shenyang Institute of Engineering, China)*
Wenxue Qian *(Northeastern University, China)*

Speaker: Mr. Tao Jiang
Reliability Modeling of Modular k-out-of-n Systems with Functional Dependence
Yi-Xuan Zheng *(University of Electronic Science and Technology of China, China)*
Yu Liu *(University of Electronic Science and Technology of China, China)*
Tao Jiang *(University of Electronic Science and Technology of China, China)*

Speaker: Dr. Xiaowei Yin
Research Progress on Bearing Fault Modes and Diagnosis Methods of Wind Turbin
Xiaowei Yin *(Shenyang Institute of Engineering, China)*
Longfu Wang *(Shenyang Institute of Engineering, China)*
Xuefeng Jiang *(Shenyang Institute of Engineering, China)*
Wenxue Qian *(Northeastern University, China)*

11:00 - 12:30	**SESSION 14: System Reliability Assessment and Applications** **Chair: Dr. Fengbin Sun (Tesla Inc., USA)**
	Speaker: Prof. Zih-Huei Wang **A Modified Skip-Lot Sampling Plan Considering Re-Sampling Mechanism Based on Advanced Capability Index** Zih-Huei Wang *(Feng Chia University, Taiwan)* Chien-Wei Wu *(National Tsing Hua University, Taiwan)* Speaker: Mr. Xianhai Zeng **Finite Element Analysis of Turbine Under Multiple Loads** Xianhai Zeng *(Northeastern University, China)* Shuanghui Huang *(Northeastern University, China)* Xiaowei Yin *(Shenyang Institute of Engineering, China)* Wenxue Qian *(Northeastern University, China)* Speaker: Mr. Hao-hao Liu **Aircraft Routing Recovery with Cruise Speed Control and Airport Capacity Constraints** Hao-hao Liu *(Nanjing University of Aeronautics and Astronautics, China)* Zhou-chun Huang *(Nanjing University of Aeronautics and Astronautics, China)* Yan-xiao Hu *(Nanjing University of Aeronautics and Astronautics, China)* Speaker: Mr. Tao Jiang **Two Approximation Algorithms for Reliability Assessment of Multi-State Systems under A Markovian Environment**

	Tao Jiang *(University of Electronic Science and Technology of China, China)* Yu Liu *(University of Electronic Science and Technology of China, China)*
12:30 - 14:30	**SESSION 15: System Reliability Modeling and Prediction** **Chair: Prof. Mengmeng Zhu (North Carolina State University, USA)**
	Speaker: Dr. Fengbin Sun **Conversion between Repair Rate and Mission Reliability for Weibullian Product with Known Shape Parameter $\beta > 1$** Fengbin Sun *(Tesla Inc., USA)* Speaker: Prof. Murulidhar N. N. **Novel Software Reliability Estimate for Exponential Class Models** Murulidhar N. N. *(NITK, Surathkal, India)* B. Roopashri Tantri *(Aghanasha Consulting LLP, India)* Speaker: Mr. Antonio Javier Nakhal Akel **Socio-Technical Systems-Theoretic Analysis of Industrial Processes** Antonio Javier Nakhal Akel *(Sapienza University of Rome, Italy)* Alessandro Ledda *(Products and Anthropic Settlements Italian National Institute for Insurance against Accidents at Work, Italy)* Riccardo Patriarca *(Sapienza University of Rome, Italy)* Massimo Tronci *(Sapienza University of Rome, Italy)* Speaker: Ms. Yuhan Hu **Reliability Modeling for Shock-Degradation-Dependent Process Considering Damage Resistance** Yuhan Hu *(North Carolina State University, USA)* Mengmeng Zhu *(North Carolina State University, USA)*
14:30	**Adjourn!**