CONFERENCE PROGRAM

28th ISSAT International Conference on

Reliability and Quality in Design

San Francisco, California, U.S.A.

August 3-5, 2023

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ISSAT

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In Cooperation with

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AWARDS

Congratulations to the recipients of the RQD 2022 Best Paper Awards

RQD 2022 Best Paper Award

Professor Shinji Inoue
Kansai University, Japan

"Optimal Maintenance Policy for Dangerous Undetected Fault of E/E/PE Safety-Related Systems"

by

Shinji Inoue, Kousuke Maki, Takaji Fujiwara, Shigeru Yamada

RQD 2022 Best Student Paper Award

Ms. Chi-Ting Hsu
National Yang Ming Chiao Tung University, Taiwan

"System Reliability Analysis for a Stochastic Liner Container Shipping Service with Stochastic Container Terminals"

by

Chi-Ting Hsu, Ya-Ting Liao, Cheng-Hao Huang, Ping-Chen Chang, Yi-Kuei Lin

Justin M. Johnson
Florida Atlantic University, USA

"Evaluating Undersampling and Thresholding with Highly Imbalanced Big Data"

by

Justin M. Johnson, Taghi M. Khoshgoftaar

Keynote I

Driving Product and Reliability Improvements at Scale with Connected Devices, Big Data, and Predictive Health Monitoring

Wes Morrill

Director of Reliability, Test and Analysis

Tesla, Inc.

With so much data available from connected products, how do we do something impactful with it? Everyone's go-to answer, Deep learning? There will be cases where neural nets are the best approach - but if you can identify the problem, better to use deterministic math and physics instead of a black box to identify a failure precursor and take action.

In this talk, we will touch on numerous relevant practices for improving field product quality and reliability:

- Consuming real time telemetry and feeding into an on-board damage model, such as Tire wear indicator.
- Leveraging connected product to self-test as it's being manufactured
- Using large data sets and computer vision to identify quality defects before it gets out of the factory
- Safety beyond the stars - using fleet data to improve regulations and standards

Hope this presentation will be beneficial to both academia researchers as well as industrial professionals as a look at practical engineering application of Connected Devices, Big Data, and Predictive Health Monitoring.

Wes Morrill is currently the Director of Reliability, Test and Analysis at Tesla, Inc.

Since joining in 2011, he has over 12 years of technical and management experience at Tesla covering various aspects of product development including component and system physical testing, design for reliability, and computer-aided engineering analysis. He has worked on every product in the portfolio (in approximate order): Roadster, Mercedes Smart Car, Mercedes B-Class, Toyota Rav4 EV, Model S, Model X, Model 3, Powerwall, Supercharger, Model Y, Megapack, Semi Truck, Solar Roof, and is currently the lead engineer for Cybertruck.

Born and raised in Danbury, Connecticut, Wes graduated in 2008 from Carnegie Mellon University, majoring in Mechanical Engineering, minoring in robotics and industrial design.

Keynote II

Security Analytics and Big Data Challenges

Taghi M. Khoshgoftaar

Motorola Endowed Chair Professor

Florida Atlantic University

Cybercrime now costs trillions of dollars annually. Machine learning can help to detect cyberattacks in big data, but it needs to overcome several challenges to be effective. Like the proverbial "needle in a haystack" analogy, severe class imbalance can cause machine learning classifiers difficulty. To compound this problem further, class rarity is not uncommon where only very few instances are available from the positive class causing classifiers further trouble in being able to discriminate between the classes. We evaluate applying sampling techniques to treat the class imbalance problems for detecting cyberattacks in big data. Properly preprocessing the input data is an important step, and we discuss data quality issues of the input features. Finally, we cover how feature selection can also be helpful for detecting cyberattacks in big data.

Dr. Taghi M. Khoshgoftaar is Motorola Endowed Chair Professor of the Department of Computer and Electrical Engineering and Computer Science, Florida Atlantic University and the Director of NSF Big Data Training and Research Laboratory.

His research interests are in big data analytics, data mining and machine learning, health informatics and bioinformatics, social network mining, security analytics, fraud detection, and software engineering. He has published more than 850 refereed journal and conference papers in these areas. He was the conference chair of the IEEE International Conference on Machine Learning and Applications (ICMLA 2016 and ICMLA 2019). He is the Co-Editor-in Chief of the journal of Big Data. He has served on organizing and technical program committees of various international conferences, symposia, and workshops. Also, he has served as North American Editor of the Software Quality Journal and was on the editorial boards of the journals Multimedia Tools and Applications, Knowledge and Information Systems, and Empirical Software Engineering and is on the editorial boards of the journals Software Quality, Software Engineering and Knowledge Engineering, and Social Network Analysis and Mining.

For his selected publications, please see his Google Scholar link: https://scholar.google.com/citations?user=-PgNSCAAAAAJ&hl=en

Conference at a Glance

THURSDAY, AUGUST 3 (Hybrid)	FRIDAY, AUGUST 4 (Hybrid)	SATURDAY, AUGUST 5 (Virtual Only)
8:00 - 8:30 Registration Continental Breakfast	7:45 - 8:00 Registration Continental Breakfast	8:00 - 9:45 Technical Session 15
8:30 - 8:45 Welcome Awards Presentation	8:00 - 9:30 Technical Session 7	9:45 – 11:30 Technical Session 16
8:45 - 9:30 Keynote Speech I	9:30 - 10:30 Technical Session 8	11:30 – 13:15 Technical Session 17
9:30 - 9:45 Coffee Break	10:30 - 10:45 Coffee Break	13:15 – 14:45 Technical Session 18
9:45 - 11:15 Technical Session 1	10:45 - 12:15 Technical Session 9	14:45 Adjourn!
11:15 - 12:15 Technical Session 2	12:15 - 13:15 Conference Luncheon	
12:15 - 13:15 Conference Luncheon	13:15 - 14:45 Technical Session 10	
13:15 - 14:00 Keynote Speech II	14:45 - 15:45 Technical Session 11	
14:00 - 15:45 Technical Session 3	15:45 - 16:00 Coffee Break	
15:45 - 16:00 Coffee Break	16:00 - 17:45 Technical Session 12	
16:00 - 18:00 Technical Session 4	19:30 – 21:15 Technical Session 13 (Virtual)	
19:30 – 21:15 Technical Session 5 (Virtual)	21:15 – 23:00 Technical Session 14 (Virtual)	
21:15 – 23:00 Technical Session 6 (Virtual)		

Conference Sessions

Welcoming – Prof. Hoang Pham, Conference Chair
Awards Presentation –
      Dr. Fengbin Sun, Program Co-Chair
      Prof. Yi-Kuei Lin, Program Co-Chair

Thursday, August 3, 8:45 - 9:30
KEYNOTE I
Chair: Dr. Fengbin Sun *(Tesla, Inc., USA)*

Speaker: **Mr. Wes Morrill**

Driving Product and Reliability Improvements at Scale with Connected Devices, Big Data, and Predictive Health Monitoring

Thursday, August 3, 9:45 - 11:15
SESSION 1: Data-Driven Science and Engineering
Chair: Dr. Kazu Okumoto *(Sakura Software Solutions LLC, USA)*

Speakers: **Dr. Andrei Shcheprov, Mr. Mike Sturdevant**

Quality and Reliability of Data-Driven Business Applications: Methodology of Addressing Imbalanced Data Set Biases
  Andrei Shcheprov *(VSP Vision, USA)*
  Brady McMicken *(VSP Vision, USA)*
  Mike Sturdevant *(VSP Vision, USA)*
  Alan Cordell *(VSP Vision, USA)*

Speaker: **Dr. Dmitry Zaytsev**

Data Envelopment Analysis Applications for Effectiveness Assessment of Industry Impact into National Financial System
  Dmitry G. Zaytsev *(University of Notre Dame, USA)*
  Valentina V. Kuskova *(University of Notre Dame, USA)*

Speaker: **Ms. Fateme Salboukh**

Application of Recurrent Neural Networks to Covariate Software Defect Prediction
  Fatemeh Salboukh *(University of Massachusetts Dartmouth, USA)*
  Priscila Silva *(University of Massachusetts Dartmouth, USA)*
  Vidhyashree Nagaraju *(Stonehill College, USA)*

  Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Speaker: **Dr. Kazu Okumoto**

Digital Engineering-driven Software Quality Assurance-as-a-Service
  Kazuhira Okumoto *(Sakura Software Solutions LLC, USA)*

Thursday, August 3, 11:15 - 12:15
SESSION 2: Engineering Reliability: Models, Analysis and Applications
Chair: Prof. Mengmeng Zhu *(North Carolina State University, USA)*

Speaker: **Prof. Songlin Zheng**

Research on Rapid Construction Method of Reliability Target Load for Electric Drive System Based on Vehicle State Parameter Optimization
  Zhen Wang *(University of Shanghai for Science and Technology, China)*
  Sicheng Deng *(United Automotive Electronic Systems Co.,Ltd, China)*
  Songlin Zheng *(University of Shanghai for Science and Technology, China)*
  Lihui Zhao *(University of Shanghai for Science and Technology, China)*
  Dongdong Zhang *(University of Shanghai for Science and Technology, China)*
  Shuo Weng *(University of Shanghai for Science and Technology, China)*

Speaker: **Prof. Alessandro Persona**

Availability in Human Order Picking Systems: An Empirical Study on Worker's Performance Profile
  Nicola Berti *(University of Padua, Italy)*
  Alessandro Persona *(University of Padua, Italy)*
  Ilenia Zennaro *(University of Padua, Italy)*

Speaker: **Prof. Mengmeng Zhu**

Experimental Analysis of Lithium-ion Battery Degradation with Varying Discharge Rates
  Rui Wang *(North Carolina State University, USA)*
  Mengmeng Zhu *(North Carolina State University, USA)*

Speaker: **Prof. Taghi M. Khoshgoftaar**

Security Analytics and Big Data Challenges

Thursday, August 3, 14:00 - 15:45
**SESSION 3: System Reliability Modeling, Analysis
                and Prediction**
Chair: Prof. Gordon J. Savage (University of Waterloo, Canada)

Speaker: **Prof. Dong-Yuh Yang**

Evaluating the Machine Availability of Machine Repair Problem with Two Failure Modes under Working Vacation Policy
 Chia-Huang Wu (National Yang Ming Chiao Tung University, Taiwan)
 Dong-Yuh Yang (National Taipei University of Business, Taiwan)
 Min-Hui Ko (National Yang Ming Chiao Tung University, Taiwan)

Speaker: **Prof. Thi-Phuong Nguyen**

Assess the Reliability of a Multistate Air Travel Network in Response to Group Demand
 Thi-Phuong Nguyen (National Chin-Yi University of Technology, Taiwan)
 Yi-Kuei Lin (National Yang Ming Chiao Tung University, Taiwan)

Speaker: **Dr. Francesca Calabrese**

Condition Monitoring of CNC Machines: Machining Process Classification Through Temporal Convolutional Networks
 Francesca Calabrese (University of Bologna, Italy)
 Alberto Regattieri (University of Bologna, Italy)
 Matteo Gabellini (University of Bologna, Italy)
 Alice Caporale (University of Bologna, Italy)
 Pasquale Epifania (University of Bologna, Italy)

Speaker: **Ms. Yinuo Chen**

Reliability Assessment for Corroded Pipes Based on MFL Inspection
 Yinuo Chen (University of Alberta, Canada)
 Zhigang Tian (University of Alberta, Canada)
 Haotian Wei (China University of Petroleum, China)

 Shaohua Dong (China University of Petroleum, China)

Speaker: **Prof. Gordon Savage**

An Efficient Discrete-Time Method for Time-Variant Reliability of Monotonic and Antimonotonic Series and Parallel Systems
 Gordon J. Savage (University of Waterloo, Canada)
 Young Kap Son (Andong National University, South Korea)

Thursday, August 3, 16:00 - 18:00
**SESSION 4: Network Reliability & Statistical
                Quality Engineering**
Chair: Dr. Cheng-Fu Huang (Feng Chia University, Taiwan)

Speaker: **Prof. Kuen-Suan Chen**

Fuzzy Test for Taguchi Capability Index with Asymmetric Tolerances
 Kuen-Suan Chen (National Chin-Yi University of Technology, Taiwan)
 Chun-Min Yu (National Chin-Yi University of Technology, Taiwan)

Speaker: **Prof. Tzong-Ru Tsai**

Bayesian Inference on the Multicomponent Stress-Strength Model under Type-I Hybrid Censoring
 Tzong-Ru Tsai (Tamkang University, Taiwan)
 Yulong Lio (University of South Dakota, USA)
 Jyun-You Chiang (Southwestern University of Finance and Economics, China)
 Ya-Wen Chang (Tamkang University, Taiwan)

Speaker: **Dr. Shih-Wen Liu**

An Adaptive Mechanism for Improving Sampling Plans in Lot Sentencing
 Shih-Wen Liu (National Chin-Yi University of Technology, Taiwan)
 Chien-Wei Wu (National Tsing Hua University, Taiwan)
 Zih-Huei Wang (Feng Chia University, Taiwan)

Speaker: **Dr. Chun-Min Yu**

Fuzzy Evaluation Model for Operational Performance of Air Cleaning Equipment
 Chun-Min Yu (National Chin-Yi University of Technology, Taiwan)

Kuen-Suan Chen *(National Chin-Yi University of Technology, Taiwan)*
Chi-Han Chen *(National Changhua University of Education, Taiwan)*
Yi-Xuan Chen *(National Chin-Yi University of Technology, Taiwan)*

Speaker: **Prof. Yi-Kuei Lin**

Reliability Assessment of Multistate Sustainable Logistics Networks Using Two-Stage Model
Kuan-Yu Lin *(National Yang Ming Chiao Tung University, Taiwan)*
Yi-Kuei Lin *(National Yang Ming Chiao Tung University, Taiwan)*

Speaker: **Dr. Cheng-Fu Huang**

Network Reliability for Stochastic-Flow Computing Network with Overall Edges Transmission Mechanisms
Ding-Hsiang Huang *(Tunghai University, Taiwan)*
Cheng-Fu Huang *(Feng Chia University, Taiwan)*
Yi-Kuei Lin *(National Yang Ming Chiao Tung University, Taiwan)*

Thursday, August 3, 19:30 - 21:15 (Virtual)
SESSION 5: Reliability & Maintenance Modeling and Optimization
Chair: Prof. Mitsutaka Kimura *(Aichi University, Japan)*

Speaker: **Prof. Kodo Ito**

Optimal Maintenance Policies of Wave-Dissipating Blocks using Cumulative Damage Model
Yunlong Dong *(Tottori University, Japan)*
Takahiro Nakamura *(Tottori University, Japan)*
Kodo Ito *(Tottori University, Japan)*
Yoshiyuki Higuchi *(Fukushima University, Japan)*

Speaker: **Dr. Mitsuhiro Imaizumi**

Reliability Analysis of a Server System with WAF
Mitsuhiro Imaizumi *(Aichi Gakusen University, Japan)*
Mitsutaka Kimura *(Aichi University, Japan)*

Speaker: **Dr. Kenichiro Naruse**

Optimal Scheme Models with Two Kinds of Errors
Kenichiro Naruse *(Josai International University, Japan)*

Toshio Nakagawa *(Aichi Institute of Technology, Japan)*

Speaker: **Ms. Lei Zhou**

Reliability Evaluation of Multi-State Consecutive-k Systems under the Inspection Strategy
Lei Zhou *(Yamaguchi University, Japan)*
Hisashi Yamamoto *(Tokyo Metropolitan University, Japan)*

Speaker: **Prof. Mitsutaka Kimura**

Modified Reliability Modelling with High-performance and Flexible Protocol
Mitsutaka Kimura *(Aichi University, Japan)*
Mitsuhiro Imaizumi *(Aichi Gakusen University, Japan)*
Toshio Nakagawa *(Aichi Institute of Technology, Japan)*

Thursday, August 3, 21:15 - 23:00 (Virtual)
SESSION 6: System Reliability and Safety Modeling & Prediction
Chair: Prof. Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*

Speaker: **Dr. Xujie Jia**

Reliability and Safety Analysis of Safety Critical Systems with Cascading Failures
Meiyu Tian *(Minzu University of China, China)*
Xujie Jia *(Minzu University of China, China)*
Xueying Song *(Beihang University, China)*

Speaker: **Miss Yarong Yu**

Estimation of Stress-Strength Reliability from Unit-Burr III Distribution under Records Data
Yarong Yu *(Yunnan Normal University, China)*
Liang Wang *(Yunnan Normal University, China)*
Sanku Dey *(St. Anthony's College, India)*
Jia Liu *(Yunnan Normal University, China)*

Speaker: **Dr. Yu Zhou**

Shared Bike Availability Ranking Approach without Failure Data
Yu Zhou *(Inner Mongolia University, China)*
Ran Zheng *(Inner Mongolia University, China)*
Gang Kou *(Chengdu University, China)*

Speaker: **Dr. Qingqing Zhai**

A Degradation Model Indexed by Two Scales
 Qingqing Zhai *(Shanghai University, China)*
 Yijing Zhou *(Shanghai University, China)*
 Jun Yang *(Beihang University, China)*

Speaker: **Prof. Xufeng Zhao**

A Hybrid Physical-Data-Driven Approach for Residual Stress Prediction in Peening Scenario
 Butong Li *(Nanjing University of Aeronautics and Astronautics, China)*
 Junjie Zhu *(Nanjing University of Aeronautics and Astronautics, China)*
 Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*

SESSION 7: Software and System Reliability Assessment and Prediction
Chair: Dr. Vidhyashree Nagaraju *(Stonehill College, USA)*

Speaker: **Prof. Masahide Yamamoto**

Changes in People's Movement in Tourist Areas after COVID-19
 Masahide Yamamoto *(Nagoya Gakuin University, Japan)*

Speaker: **Ms. Priscila Silva**

Trade-off Assessment between Model Adequacy and Complexity in Nonhomogeneous Poisson Process Software Reliability Growth Models Incorporating a Changepoint
 Vidhyashree Nagaraju *(Stonehill College, USA)*
 Shadow Pritchard *(Boeing, USA)*
 Priscila Silva *(University of Massachusetts Dartmouth, USA)*
 Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Speakers: **Prof. Kwang Yoon Song, Prof. In Hong Chang**

NHPP Software Reliability Model with the Generalized Exponential Fault Detection Rate in the Operating Environments using the Gamma Distribution
 Kwang Yoon Song *(Chosun University, Korea)*
 In Hong Chang *(Chosun University, Korea)*
 Hoang Pham *(Rutgers University, USA)*

Speaker: **Dr. Vidhyashree Nagaraju**

Application of Recurrent Neural Network to Software Reliability and Defect Prediction
 Shadow Pritchard *(Stonehill College, USA)*
 Timothy Flavin *(University of Tulsa, USA)*
 Vidhyashree Nagaraju *(Bastion Technologies, USA)*
 Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

SESSION 8: Reliability and Maintenance Modeling & Optimization
Chair: Prof. Satoshi Mizutani *(Aichi Institute of Technology, Japan)*

Speaker: **Prof. Tetsushi Yuge**

Operational Resilience for Networks with Common-Cause Failures and Priority Repair
 Tetsushi Yuge *(National Defense Academy, Japan)*
 Natsumi Takahashi *(National Defense Academy, Japan)*

Speaker: **Dr. Natsumi Takahashi**

Reducing Search Space in the Topological Network Design Problem with a Reliability Constraint
 Natsumi Takahashi *(National Defense Academy, Japan)*
 Tetsushi Yuge *(National Defense Academy, Japan)*

Speaker: **Prof. Satoshi Mizutani**

Balancing Maintenance Costs of Replacement Models
 Satoshi Mizutani *(Aichi Institute of Technology, Japan)*
 Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*
 Toshio Nakagawa *(Aichi Institute of Technology, Japan)*

SESSION 9: System Reliability and Safety & Machine Learning
Chair: Prof. Shinji Inoue *(Kansai University, Japan)*

Speakers: **Prof. Minjae Park, Prof. Ki Mun Jung**

Optimal Warranty Length for a Multi-Component System with Failure Interaction
 Minjae Park *(Hongik University, Korea)*

Bermawi K. Iskandar (*Bandung Institute of Technology, Indonesia*)
Ki Mun Jung (*Kyungsung University, Korea*)
Dong Ho Park (*Hallym University, Korea*)

Speakers: **Dr. Brady McMicken, Mr. Alan Cordell**

Quality Control and Consistency of AI Frameworks: Addressing Data Science Practice Misalignment Biases
Brady McMicken (*VSP Vision, USA*)
Mike Sturdevant (*VSP Vision, USA*)
Andrei Shcheprov (*VSP Vision, USA*)
Alan Cordell (*VSP Vision, USA*)

Speaker: **Prof. Siil Sung**

Case Study : Reliability Analysis for Inventory Management for Repair Parts Based on Purchase Record
Hyun-Jong Park (*Kyonggi University, South Korea*)
Si-Il Sung (*Kyonggi University, South Korea*)

Speaker: **Prof. Shinji Inoue**

Markov Analysis on Optimal Proof-Testing Interval for Safety-Related Systems
Shinji Inoue (*Kansai University, Japan*)
Takaji Fujiwara (*SRATECH Laboratory Inc., Japan*)
Shigeru Yamada (*Tottori University, Japan*)

Friday, August 4, 13:15 - 14:45
SESSION 10: Machine Learning and Its Applications
Chair: Prof. Ping-Chen Chang (*National Taipei University of Technology, Taiwan*)

Speaker: **Prof. Hung-Kai Wang**

Real-time Vibration Signals Anomaly Detection of Load Motor Based on Deep Learning and One-Class Classification
Chia-Chien Tang (*National Cheng Kung University, Taiwan*)
Hung-Kai Wang (*National Cheng Kung University, Taiwan*)

Speaker: **Prof. Kuen-Suan Chen**

Quality Evaluation and Smart Decision-Making Improvement Model for Mobile Assistive Devices
Kuen-Suan Chen (*National Chin-Yi University of Technology, Taiwan*)

Chun-Min Yu (*National Chin-Yi University of Technology, Taiwan*)
Shui-Chuan Chen (*National Chin-Yi University of Technology, Taiwan*)

Speaker: **Prof. Hung-Kai Wang**

Mechanical Fault Classification And Root Cause Analysis Based on Machine Learning and Explainable AI
Ya-Ting Lee (*National Cheng Kung University, Taiwan*)
Hung-Kai Wang (*National Cheng Kung University, Taiwan*)

Speakers: **Prof. Ding-Hsiang Huang, Prof. Ping-Chen Chang**

Creation of a Deep Learning-Based Model to Predict Reliability of a Distributed Network Owning Stochastic Capabilities
Ding-Hsiang Huang (*Tunghai University, Taiwan*)
Ping-Chen Chang (*National Quemoy University, Taiwan*)

Friday, August 4, 14:45 - 15:45
SESSION 11: Reliability Modeling & Optimization and Applications
Chair: Dr. Tongdan Jin (*Texas State University, USA*)

Speaker: **Prof. Tobias Leopold**

Estimation of Uncertainties in Sample Results and Their Impact on Reliability Demonstration Tests
Tobias Leopold (*University of Applied Sciences, Germany*)

Speaker: **Dr. Frank Sun**

Optimum Switch Self-Check Interval for Safety-Critical Device Mission Reliability
Fengbin Sun (*Tesla Inc., USA*)
Matt Glassman (*Tesla Inc., USA*)

Speaker: **Dr. Tongdan Jin**

Cost-Availability Analysis for Redundant Systems with Spares Inventory and Emergency Repair
Tongdan Jin (*Texas State University, USA*)
Emily Zhu Fainman (*Texas State University, USA*)
Bin Xiao (*Texas State University, USA*)

SESSION 12: Statistical Machine Learning: Models, Algorithms and Applications in Reliability

Chair: Prof. Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Speaker: **Ms. Karen Alves da Mata**

Predicting Resilience with Neural Networks
  Karen da Mata *(University of Massachusetts Dartmouth, USA)*
  Priscila Silva *(University of Massachusetts Dartmouth, USA)*
  Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Speaker: **Prof. Huifen Chen**

Monitoring the COVID-19 Spread via Regression Models with ARIMA Errors
  Huifen Chen *(Chung-Yuan University, Taiwan)*

Speaker: **Mr. Chun Fai Lui**

Deep Residual Network for Remaining Useful Life Prediction
  Chun Fai Lui *(City University of Hong Kong, Hong Kong SAR)*
  Min Xie *(City University of Hong Kong, China)*

Speaker: **Mrs. Wei-Shan Chang**

Recommendation System Based on LLM and Collaborative Filtering
  Wei-Shan Chang *(Fu Jen Catholic University, Taiwan)*
  Mingchih Chen *(Fu Jen Catholic University, Taiwan)*
  Ben-Chang Shia *(Fu Jen Catholic University, Taiwan)*

Speaker: **Prof. Lance Fiondella**

A Neural Network for Covariate Software Reliability Model Selection
  Brendan Thibault *(University of Massachusetts Dartmouth, USA)*
  Caroline D'Amato *(University of Massachusetts Dartmouth, USA)*
  Vidhyashree Nagaraju *(Stonehill College, USA)*
  Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Friday, August 4, 19:30 - 21:15 (Virtual)

SESSION 13: Software Reliability Modeling and Prediction

Chair: Dr. Yuka Minamino *(Tottori University, Japan)*

Speaker: **Prof. Yoshinobu Tamura**

Deep Learning Approach for OSS Reliability Assessment Considering Fault Modification
  Yoshinobu Tamura *(Yamaguchi University, Japan)*
  Shigeru Yamada *(Tottori University, Japan)*

Speaker: **Dr. Taishin Nakamura**

A Weighting Local Search for the Network Topology Design Problem
  Taishin Nakamura *(Tokai University, Japan)*
  Koji Shingyochi *(Jumonji University, Japan)*

Speaker: **Mr. Hironobu Sone**

Open Source Project Evaluation Methodology Considering OSS- Oriented EVM and Number of Potential Faults
  Hironobu Sone *(Yamaguchi University, Japan)*
  Yoshinobu Tamura *(Yamaguchi University, Japan)*
  Shigeru Yamada *(Tottori University, Japan)*

Speaker: **Mr. Shoichiro Miyamoto**

A Method of Reliability Assessment Based on Stochastic Model for Open Source Software
  Shoichiro Miyamoto *(Yamaguchi University, Japan)*
  Yoshinobu Tamura *(Yamaguchi University, Japan)*
  Shigeru Yamada *(Tottori University, Japan)*

Speaker: **Dr. Yuka Minamino**

Change-point Detection for Accuracy Improvement of Software Reliability Assessment
  Yuka Minamino *(Tottori University, Japan)*
  Shin Danjo *(Tottori University, Japan)*
  Masashi Kuwano *(Tottori University, Japan)*
  Taku Moriyama *(Yokohama City University, Japan)*
  Shinji Inoue *(Kansai University, Japan)*

Friday, August 4, 21:15 - 23:00 (Virtual)

SESSION 14: Maintenance Modeling and Optimization and Applications

Chair: Prof. Xufeng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*

Speaker: **Dr. Junyuan Wang**

Optimization Problems for a Parallel System under Random Replacement Theory
 Junyuan Wang (China Jiliang University, China)
 Xufeng Zhao (Nanjing University of Aeronautics and Astronautics, China)
 Hongshuang Feng (Nanjing University of Aeronautics and Astronautics, China)

Speaker: **Miss Ruoran Han**

Bayesian-Driven Predictive Replacement Planning in Consideration of Spare Parts Ordering
 Ruoran Han (Beihang University, China)
 Xiaobing Ma (Beihang University, China)
 Li Yang (Beihang University, China)

Speaker: **Mr. Yi Chen**

An Age-Based Dynamic Opportunistic Maintenance Framework under Iteratively Updated Group Information
 Yi Chen (Beihang University, China)
 Shihan Zhou (Beihang University, China)
 Xiaobing Ma (Beihang University, China)
 Li Yang (Beihang University, China)

Speaker: **Miss Shihan Zhou**

Dynamic Scheduling of Intelligent Group Maintenance under Adaptive Information Updating
 Shihan Zhou (Beihang University, China)
 Yi Chen (Beihang University, China)
 Fanping Wei (Beihang University, China)
 Xiaobing Ma (Beihang University, China)
 Li Yang (Beihang University, China)

Speaker: **Dr. Wenjie Dong**

Optimum Order-replacement Policies for a Repairable System with the General α-series Process under Constrained Quality Demand
 Wenjie Dong (Nanjing University of Aeronautics and Astronautics, China)
 Yingjie Yang (De Montfort University, United Kingdom)
 Sifeng Liu (Nanjing University of Aeronautics and Astronautics, China)

Speaker: **Prof. Kaiye Gao**

Aero-engine Life Prediction Based on ARIMA and LSTM with Multi-Head Attention Mechanism
 Ning Shen (Beijing Information Science and Technology University, China)
 Tiantian Niu (Beijing Information Science and Technology University, China)
 Rui Peng (BeijingUniversity of Technology, China)
 Kaiye Gao (Beijing Information Science and Technology University, China)

Speaker: **Dr. Murulidhar N. N.**

Improved Estimator of Software Reliability for Weibull Class Models
 Murulidhar N. N. (NITK, Surathkal, India)
 B. Roopashri Tantri (Sindhi Institute of Management, India)

Speaker: **Mr. Jianchun Guo**

Ensemble Difference Mode Decomposition Based on Transmission Path Elimination Technology for Rotating Machinery Fault Diagnosis
 Jianchun Guo (Guangxi University, China)
 Jiawei Xiang (Wenzhou University, China)

Speaker: **Mr. Xiaojian Zhang**

Maintenance Optimization for Multi-Indenture Systems Based on Reinforcement Learning
 Qian Qian Zhao (Zhengzhou University, China)
 Xiaojian Zhang (Zhengzhou University, China)

Speaker: **Prof. Xufeng Zhao**

Backward Replacement Policies with Random Working Cycles
 Hong S. Feng (Nanjing University of Aeronautics and Astronautics, China)
 Mingchih Chen (Fu Jen Catholic University, Taiwan)
 Xufeng Zhao (Nanjing University of Aeronautics and Astronautics, China)

Speaker: **Dr. Wenxue Qian**

Research on Compilation Method of Test Load Spectrum for Stator Blade Regulation Mechanism
 Jinqiang Hou *(Northeastern University, China)*
 Yi Wang *(AECC Shenyang Engine Research Institute, China)*
 Shuanghui Huang *(Northeastern University, China)*
 Xuehong He *(Northeastern University, China)*
 Wenxue Qian *(Northeastern University, China)*

Speaker: **Dr. Ruijin Zhang**

Research on Safety Assessment Method for High Speed Train Body Structure with Damage
 Ruijin Zhang *(Northeastern University, China)*
 Lei Wang *(Northeastern University, China)*
 Youzhi Pei *(Northeastern University, China)*
 Shaodong Wei *(Northeastern University, China)*

Speaker: **Prof. Lidia Filus**

Stochastic "Three-Dependence" In Application to System Reliability Modeling
 Jerzy K. Filus *(Oakton College, USA)*
 Lidia Z. Filus *(Northeastern Illinois University, USA)*

Speaker: **Dr. Zhou Di**

Analyzing Risk of Civil Aircraft via the Ensemble Model Using Temporal Convolution and Dual Attention Gated Recurrent Unit
 Di Zhou *(Wenzhou University, China)*
 Xiao Zhuang *(Wenzhou University, China)*
 Hong Fu Zuo *(Nanjing University of Aeronautics and Astronautics, China)*
 Xun Feng Zhao *(Nanjing University of Aeronautics and Astronautics, China)*
 Jiang Wei Xiang *(Wenzhou University, China)*

Speaker: **Prof. Florin Popentiu-Vladicescu**

Dependability Analysis in TwinOps Environments
 Grigore Albeanu *("Spiru Haret" University, Romania)*
 Florin Popenţiu-Vlădicescu *(University "Politehnica" of Bucharest, Romania)*
 Henrik Madsen *(Danish Technical University, Denmark)*

Chair: **Prof. Anatoly Lisnianski** *(Sami Shamoon College of Engineering, Israel)*

Speaker: **Dr. Silvia Carpitella**

ELECTRE Analysis of Sparkling Wine Bottling Risks
 Silvia Carpitella *(California State University, Northridge, USA)*
 Fortunato Carpitella *(Studio di Ingegneria Carpitella, Italy)*
 Joaquín Izquierdo *(Universitat Politècnica de València, Spain)*

Speaker: **Mr. Sirui Zhou**

Identification of Critical Components for Complex System and Related Software Development
 Sirui Zhou *(Nanjing University of Aeronautics and Astronautics, China)*
 Yinxiao Hu *(Nanjing University of Aeronautics and Astronautics, China)*
 Xinran Chen *(Nanjing University of Aeronautics and Astronautics, China)*
 Hongjuan Ge *(Nanjing University of Aeronautics and Astronautics, China)*

Speaker: **Mr. Mohamed Yoosha Tungekar**

Strategic Decision-Making for Inventory Optimization of Perishable Pharmaceutical Products
 Mohamed Yoosha Tungekar *(California State University, Northridge, USA)*
 Miguel Rivas Pellicer *(California State University, Northridge, USA)*
 Silvia Carpitella *(California State University, Northridge, USA)*

Speaker: **Dr. Hongwei Wang**

A Precision Reliability Evaluation Model for Multi-Units Chained System Based on Correlation Analysis of Units
 Hongwei Wang *(Wenzhou University, China)*
 Jiawei Xiang *(Wenzhou University, China)*

Speaker: **Dr. Anatoly Lisnianski**

Polynomial Representation of Markov Process and its Application for Dynamic Availability Analysis of Artillery Rocket Systems
 A. Lisnianski *(Sami Shamoon College of Engineering, Israel)*

E. Levit (*Reliability Engineer, Israel*)

Speaker: **Dr. Naeem Seliya**

Overview of One-Class versus Binary-Class Classification in the Context of Big Data Analytics
 Naeem Seliya *(University of Wisconsin, USA)*
 Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*

Speaker: **Dr. Huanjing Wang**

Review of Feature Selection Techniques for Credit Card Fraud Detection
 Huanjing Wang *(Western Kentucky University, USA)*
 Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*

Speaker: **Dr. Joffrey L. Leevy**

Using Credit Card Fraud Data to Evaluate Binary and One-Class Classification
 Joffrey L. Leevy *(Florida Atlantic University, USA)*
 John Hancock *(Florida Atlantic University, USA)*
 Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*
 Azadeh Abdollah Zadeh *(Florida Atlantic University, USA)*

Speaker: **Dr. Huanjing Wang**

Determining Optimal Feature Subset Size for Credit Card Fraud Detection
 Huanjing Wang *(Western Kentucky University, USA)*
 John Hancock *(Florida Atlantic University, USA)*
 Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*

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We hope this conference would serve as a platform for establishing valuable connections and fruitful collaborations for all participants that will extend beyond this event.

Conference Organizer

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We hope to see you again next year at the RQD 2024