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AWARDS

Lifetime Achievement Award

Professor Toshio Nakagawa (Aichi Institute of Technology, Japan)

Research Award

Professor Yi-Kuei Lin (National Chiao Tung University, Taiwan)

Dr. Kazuhira Okumoto (Nokia Bell Labs, USA)

Service Award

Dr. Feng-Bin Sun (Tesla Motors, USA)

Reliability Achievement Award

Professor Balbir S. Dhillon (University of Ottawa, Canada)

RQD 2018 Best Paper Award

A Generalized Martingale-Based Software Reliability Model Considering Multiple Environmental Factors

Mengmeng Zhu (Rutgers University, USA) Hoang Pham (Rutgers University, USA)

RQD 2018 Best Student Paper Award

A Survey of Changepoint Software Reliability Growth Models

Vidhyashree Nagaraju (University of Massachusetts Dartmouth, USA) Lance Fiondella (University of Massachusetts Dartmouth, USA) Thierry Wandji (Naval Air Systems Command, USA)

RQD 2018 Best Paper Honorable Mention

Risk Based Bayesian Design for Fatigue Reliability for Implantable Medical Devices

Mingxiao Jiang (Medtronic Plc., USA) Haitao Zhang (Medtronic Plc., USA)

Conference at a Glance

THURSDAY, AUGUST 1	FRIDAY, AUGUST 2	SATURDAY, AUGUST 3
8:00 - 9:00 Registration / Continental Breakfast Las Vegas 1 & 2 & 3 Foyer	8:00 - 8:45 Registration / Continental Breakfast Las Vegas 1 & 2 & 3 Foyer	8:00 - 8:45 Registration / Continental Breakfast Las Vegas 1 & 2 & 3 Foyer
9:00 - 9:45 Welcome - Awards Presentation Las Vegas 1 & 2 & 3	8:45 - 10:00 Technical Sessions Las Vegas 1 & 2	8:45 - 10:00 Technical Sessions Las Vegas 1 & 2
9:45 - 10:30 Keynote Speech Las Vegas 1 & 2 & 3	10:00 - 10:15 Coffee Break Las Vegas 1 & 2 & 3 Foyer	10:00 - 10:15 Coffee Break Las Vegas 1 & 2 & 3 Foyer
10:30 - 11:00 Coffee Break Las Vegas 1 & 2 & 3 Foyer	10:15 - 11:45 Technical Sessions Las Vegas 1 & 2	10:15 - 11:45 Technical Sessions Las Vegas 1 & 2
11:00 - 11:45 Keynote Speech Las Vegas 1 & 2 & 3	12:00 - 1:00 Conference Luncheon Skyview 2 (Resort Tower)	11:45 Adjourn!
Keynote Speech	Conference Luncheon	
Keynote Speech Las Vegas 1 & 2 & 3 1:30 - 2:45 Technical Sessions	Conference Luncheon Skyview 2 (Resort Tower) 1:30 - 2:45 Technical Sessions	
Keynote Speech Las Vegas 1 & 2 & 3 1:30 - 2:45 Technical Sessions Las Vegas 1 & 2 2:45 - 3:00 Coffee Break	Conference Luncheon Skyview 2 (Resort Tower) 1:30 - 2:45 Technical Sessions Las Vegas 1 & 2 2:45 - 3:00 Coffee Break	

Technical Sessions at a Glance

	Las Vegas 1		Las Vegas 2	
Thursday, Aug. 1	Ses No.	ssion Title	Session No. Title	
9:45 - 10:30	1	Keynote: Predicted Reliability - A Key Deliverable for Medical Devices		
11:00 - 11:45	2	Keynote: Automated Machine Learning (AutoML), What It Is and How It Is Democratizing Machine Learning		
1:30 - 2:45	3	Mechanical Reliability Modeling & Prediction	4	Network Reliability Modeling & Optimization
3:00 - 4:30	5	Human Reliability & Safety Analysis	6	Reliability / Maintenance Modeling & Applications
		Las Vegas 1		Las Vegas 2
Friday, Aug. 2	Ses No.	ssion Title	Se: No.	ssion Title
8:45 - 10:00	7	Reliability in Design and Optimization	8	Decision Making Assessment & Failure Analysis
10:15 – 11:45	9	Maintenance Optimization & Applications	10	Reliability / Measurement and Assessment
1:30 - 2:45	11	Reliability, Statistics & Applications	12	Software Reliability & Prediction
3:00 - 4:30	13	Maintenance Policies	14	Reliability Testing and Prediction and Warranty Policies
	Las Vegas 1		Las Vegas 2	
Saturday, Aug. 3	Ses No.	ssion Title	Se: No.	ssion Title
8:45 - 10:00	15	Reliability Modeling and Prediction and Applications	16	Reliability and Data Analytics and Process Optimization
10:15 – 11:45	17	Fatigue Reliability Design & Assessment	18	Statistical Distributions and Reliability Analysis

Technical Sessions

SESSION 1: Keynote Speech

Chair: Dr. Feng-Bin Sun (Tesla Motors, USA)

Predicted Reliability - A Key Deliverable for Medical Devices

Eric Maass Technical Fellow Senior Director for Medtronic Restorative Therapy Group Medtronic, USA

Developing and producing medical devices involves two deliverables - the medical device and trust that the medical device will function reliably and free of harm. Predicted reliability melds engineering and probability stochastic modeling of the functionality over a range of stresses, uses, misuses, and off-label uses. Whether the medical device is for single use or spanning years of medical application, providing this trust is both a duty for the patients and an opportunity for innovative approaches.

SESSION 2: Keynote Speech

Chair: Dr. Suprasad Amari (BAE Systems, USA)

Automated Machine Learning (AutoML), What It Is and How It Is Democratizing Machine Learning

Krishna Anumalasetty Principal Product Manager Microsoft, USA

For a long time, building Machine Learning solutions required an Advance degree such as Ph.D. in Mathematics, Computer Science or Statistics etc. Recent innovations and advent of AutoML is revolutionizing the way Machine Learning solutions are built. AutoML is enabling domain experts with little knowledge of ML build ML-based solutions for their problems getting the most of the vast amounts of data residing in the organizations. In addition, AutoML is powering many applications, such as Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) applications, to offer Artificial Intelligent (AI) based solutions within their systems. Learn what AutoML is, and how Microsoft is leveraging AutoML to infuse AI into all its products.

SESSION 3: Mechanical Reliability Modeling & Prediction

Chair: Prof. D. Gary Harlow (Lehigh University, USA)

Study on Fatigue Property of the Overlap Weldments in the Vehicle Frame

Shuo Weng (University of Shanghai for Science and Technology, China)

Da-Ang Li (University of Shanghai for Science and Technology, China)

Chun-Xiang Ren (China National Accreditation Service for Conformity Assessment, China)

Li-Hui Zhao (University of Shanghai for Science and Technology, China)

Song-Lin Zheng (University of Shanghai for Science and Technology, China)

Optimization of a PM Model for a Hybrid Power System

Chun-Ho Wang (National Defense University, Taiwan) Chao-Hui Huang (R.O.C. Naval Academy, Taiwan)

Fatigue Life Distribution Estimation

D. Gary Harlow (Lehigh University, USA)

SESSION 4: Network Reliability Modeling & Optimization

Chair: Prof. Yi-Kuei Lin (National Chiao Tung University, Taiwan)

A Novel Algorithm with Heuristic Rules to Lower Boundary Points Generation for Network Reliability Evaluation

Ding-Hsiang Huang (National Chiao Tung University, Taiwan)

Cheng-Fu Huang (Feng Chia University, Taiwan)
Yi-Kuei Lin (National Chiao Tung University, Taiwan)

A Way from Adjacency Matrix to Linked Path Structure Shin-Guang Chen (Tungnan University, Taiwan)

Reliability for a Stochastic Flow Computer Network subject to Time Constraint and Correlated Failures

Ping-Chen Chang (National Quemoy University, Taiwan)

Yi-Kuei Lin (National Chiao Tung University, Taiwan)
Ding-Hsiang Huang (National Chiao Tung University,
Taiwan)

SESSION 5: Human Reliability & Safety Analysis

Chair: Prof. B.S. Dhillon (University of Ottawa, Canada)

Workers' Availability Definition through the Energy Expenditure Evaluation

Serena Finco (University of Padova, Italy)
Ilenia Zennaro (University of Padova, Italy)
Daria Battini (University of Padova, Italy)
Alessandro Persona (University of Padova, Italy)

A DD-SHELL HF Model for Bus Accident

Kelvin K.F. Po (The Hong Kong Polytechnic University, China)

Eric T.T. Wong (The Hong Kong Polytechnic University, China)

Estimation of Balance-ability on Healthy Subjects Using Postural Stability Index

Nurul Retno Nurwulan (National Taiwan University of Science and Technology, Taiwan)

Bernard C. Jiang (National Taiwan University of Science and Technology, Taiwan)

Vera Novak (Harvard Medical School, USA)

Human Error in Aviation Maintenance: An Investigative Study

B.S. Dhillon (University of Ottawa, Canada)

SESSION 6: Reliability / Maintenance Modeling & Applications

Chair: Prof. Mitsutaka Kimura (Gifu City Women's College, Japan)

Optimal Monitoring Policy for a Server System Considering Signature Update

Mitsuhiro Imaizumi (Aichi Gakusen University, Japan) Mitsutaka Kimura (Gifu City Women's College, Japan)

Optimal Structure of Computing-Nodes with Limited Number

Kenichiro Naruse (Nagoya Sangyo University, Japan) Kazunori Iwata (Aichi University, Japan) Toshio Nakagawa (Aichi Institute of Technology, Japan)

Optimal Maintenance Models of Social Infrastructures Considering Natural Disasters

Takumi Kishida (Tottori University, Japan) Kodo Ito (Tottori University, Japan) Yoshiyuki Higuchi (Fukushima University, Japan) Toshio Nakagawa (Aichi Institute of Technology, Japan)

Reliability of Window Flow Control based on Packet Transmission Interval with ECN Considering Packet Loss

Mitsutaka Kimura (Gifu City Women's College, Japan) Mitsuhiro Imaizumi (Aichi Gakusen University, Japan) Toshio Nakagawa (Aichi Institute of Technology, Japan)

SESSION 7: Reliability in Design and Optimization
Chair: Prof. Gordon J. Savage (University of Waterloo,
Canada)

The Evaluation and Improvement Methods for Robotic Arms by Using Key Precision Gears of Manufacturing Process

Ching-Te Wang (National Chin-Yi University of Technology, Taiwan, ROC)

Ching-Hsin Wang (National Chin-Yi University of Technology, Taiwan, ROC)

Cheng-Yi Chang (National Chin-Yi University of Technology, Taiwan, ROC)

Jen-Huang Tu (National Chin-Yi University of Technology, Taiwan, ROC)

System Reliability Modeling of Hardware, Software, and Interactions of Hardware and Software

Mengmeng Zhu (North Carolina State University, USA)

Hoang Pham (Rutgers University, USA)

Reliability-Based Design Optimization of Systems with Deterministic Degradation Using a Meta-Model of the System Reliability

Gordon J. Savage (University of Waterloo, Canada) Young Kap Son (Andong National University, South Korea)

SESSION 8: Decision Making Assessment & Failure Analysis

Chair: Prof. Kuen-Suan Chen (National Chin-Yi University of Technology, Taiwan)

A Decision-Making Approach to Selecting Supplier Based on the Quality Evaluation of Process

Kuen-Suan Chen (National Chin-Yi University of Technology, Taiwan)

Chiao-Tzu Huang (National Chin-Yi University of Technology, Taiwan)

Tsang-Chuan Chang (National Taichung University of Science and Technology, Taiwan)

Intuitionistic TYPE II Fuzzy Inference System-Based Approach to Prioritize Failures in Failure Mode and Effect Analysis

Yu-Ming Lu (Lunghwa University of Science and Technology, Taiwan) Kuo-Ping Lin (Asia University, Taiwan) Ching-Hsin Wang (National Chin-Yi University of Technology, Taiwan)

Fuzzy Testing for Lifetime Performance Index of Products with Exponential Distribution

Kuen-Suan Chen (National Chin-Yi University of Technology, Taiwan)

Tsang-Chuan Chang (National Taichung University of Science and Technology, Taiwan)

SESSION 9: Maintenance Optimization & Applications Chair: Prof. Mingchih Chen (Fu Jen Catholic University, Taiwan)

Reliability Properties of Hierarchical Redundant Systems

Kodo Ito (Tottori University, Japan)

Shigeshi Yamashita (Mitsubishi Heavy Industries, Ltd., Japan)

Toshio Nakagawa (Aichi Institute of Technology, Japan)

Independent Damage Models with Failure Level Declined by Heavy Damage

Satoshi Mizutani (Aichi Institute of Technology, Japan) Xufeng Zhao (Nanjing University of Aeronautics and Astronautics, China)

Toshio Nakagawa (Aichi Institute of Technology, Japan)

Replacement Models with Non-replacement Intervals

Xufeng Zhao (Nanjing University of Aeronautics and Astronautics, China)

Satoshi Mizutani (Aichi Institute of Technology, Japan)
Toshio Nakagawa (Aichi Institute of Technology,
Japan)

Age Replacement Models with First, Last and Middle Policies

Mingchih Chen (Fu Jen Catholic University, Taiwan)
Xufeng Zhao (Nanjing University of Aeronautics and
Astronautics, China)

Toshio Nakagawa (Aichi Institute of Technology, Japan)

SESSION 10: Reliability / Measurement and Assessment Chair: Prof. Shinji Inoue (Kansai University, Japan)

Reliability for Systems with Simultaneous Failure on Consecutive Components

Tetsushi Yuge (National Defense Academy, Japan)

Improvement Ideas of GA-Based Algorithm for Obtaining Quasi-Pareto Solution of Bi-Objective Networks

Natsumi Takahashi (Aoyama Gakuin University, Japan)

Tomoaki Akiba (Chiba Institute of Technology, Japan) Hisashi Yamamoto (Tokyo Metropolitan University, Japan)

Flexible Jump Diffusion Process Modeling for Open Source Project Assessment

Shigeru Yamada (Tottori University, Japan) Yoshinobu Tamura (Tokyo City University, Japan)

Software Reliability Assessment with Multiple Change-Point Occurrence and Imperfect Debugging Environment

Shinji Inoue (Kansai University, Japan) Shigeru Yamada (Tottori University, Japan)

SESSION 11: Reliability, Statistics & Applications Chair: Dr. Mingxiao Jiang (Medtronic, Plc., USA)

Universal Form of Bivariate Reliability Functions

Jerzy K. Filus (Oakton College, USA) Lidia Z. Filus (Northeastern Illinois University, USA)

Clustering Based on Data Envelopment Analysis: Application to Management Research and Practice

Valentina Kuskova (National Research University Higher School of Economics, Russia) Dmitry Zaytsev (National Research University Higher School of Economics, Russia)

Reliability Improvement Analysis using Fractional Failure

Mingxiao Jiang (Medtronic, Plc., USA) Feng-Bin Sun (Tesla, Inc., USA)

SESSION 12: Software Reliability & Prediction Chair: Dr. Kazuhira Okumoto (Bell Labs, USA)

Improving Software Quality by New Computational Intelligence Approaches

Florin Popentiu-Vladicescu (Politehnica University of Bucharest & Academy of Romanian Scientists, Romania)

Grigore Albeanu ("Spiru Haret" University, Romania)
Henrik Madsen (Danish Technical University,
Denmark)

A Study on the NHPP Software Reliability Model with the Weibull Fault Detection Rate in the Operating Environments using the Exponential Distribution

Kwang Yoon Song (Rutgers University, USA) In Hong Chang (Chosun University, Korea) Hoang Pham (Rutgers University, USA)

Towards Automated, End-to-End Software Defect Prediction

Rashid Mijumbi (Bell Labs, Ireland) Kazuhira Okumoto (Bell Labs, USA) Abhaya Asthana (Bell Labs, USA)

SESSION 13: Maintenance Policies

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

Implementation of Imperfect Inspection by Considering System Structure

Takashi Satow (Kobe Gakuin University, Japan)

An Optimal Road Maintenance by Markov Process with Increase of Road Data

Yuta Kikuchi (Tottori University, Japan)
Junji Koyanagi (Tottori University, Japan)

Several Properties of an Optimal Maintenance Policy for a Semi-Markovian Deteriorating System with Major Minor Failures

Nobuyuki Tamura (Hosei University, Japan)

Optimum Backup Policies with Duplicated Data

Syouji Nakamura (Kinjo Gakuin University, Japan) Xufeng Zhao (Nanjing University of Aeronautics and Astronautics, China)

Miwako Arafuka (Kinjo Gakuin University, Japan)

SESSION 14: Reliability Testing and Prediction and Warranty Policies

Chair: Prof. Tzong-Ru Tsai (Tamkang University, Taiwan)

Accelerated Life Testing Models for an Acrylic-Based Pressure Sensitive Adhesives in Consumer Electronics Applications

Victoria C. Robles (Google LLC, USA)

Swanand Vaidya (Google LLC, USA)

Forecasting Demand of Aircraft Oxygen Cylinder

Chun Yuen Cheung (The Hong Kong Polytechnic University, China)

Ho Yin Alvin Chow (The Hong Kong Polytechnic University, China)

T. T. Eric Wong (The Hong Kong Polytechnic University, China)

Warranty Policy for Repairable Items with Repair Service and Refund Based on Lemon Law

Minjae Park (Hongik University, Korea) Ki Mun Jung (Kyungsung University, Korea) Dong Ho Park (Hallym University, Korea)

Model Selection Methods for Reliability Assessment Based on Interval-Censored Field Failure Samples

Tzong-Ru Tsai (Tamkang University, Taiwan) Sih-Hua Wu (Tamkang University, Taiwan) Yan Shen (Xiamen University, China)

SESSION 15: Reliability Modeling and Prediction and Applications

Chair: Prof. Suk Joo Bae (Hanyang University, Korea)

SIF calculation of Car Body Based on Sub-model Method

Ruijin Zhang (Northeastern University, China) Shaodong Wei (Northeastern University, China) Shuo Zhao (Northeastern University, China) Haichao Tang (Northeastern University, China)

Developing Alert Level for Aircraft Components

Wai Yeung Man (The Hong Kong Polytechnic University, China)

T.T. Eric Wong (The Hong Kong Polytechnic University, China)

Step-down Approach for Wavelet Thresholding

Munwon Lim (Hanyang University, Korea) Byeong Min Mun (Hanyang University, Korea) Suk Joo Bae (Hanyang University, Korea)

SESSION 16: Reliability and Data Analytics and Process Optimization

Chair: Prof. Tongdan Jin (Texas State University, USA)

Reliability Assessment for Stress Relaxation Considering Heteroscedasticity among Accelerating Levels

Xinlei Wen (Beihang University, China)
Huimin Fu (Beihang University, China)
Zhihua Wang (Beihang University, China)

Efficient Marketing Strategy: Application of Data Envelopment Analysis as an Optimization Tool

Dmitry Zaytsev (National Research University Higher School of Economics, Russia) Valentina Kuskova (National Research University Higher School of Economics, Russia)

Semiconductor Process Variation Analysis using Implicit Differentiation Chain Rule

Tongdan Jin (Texas State University, USA)
Qiyu Huang (Shanghai Jiao Tong University, China)
Xiulan Cheng (Shanghai Jiao Tong University, China)
Yisha Xiang (Texas Tech University, USA)

SESSION 17: Fatique Reliability Design & Assessment

Chair: Prof. Mengmeng Zhu (North Carolina State University, USA)

Automatic Squid Fishing Machine

Ho Yin Alvin Chow (The Hong Kong Polytechnic University, China) Eric T. T. Wong (The Hong Kong Polytechnic University, China)

Fatigue Fixture Design and Structure Simulation Analysis for Side Beams of High-speed Train

Wenxue Qian (Northeastern University, China)
Shuai Song (Northeastern University, China)
Ying Zhang (Northeastern University, China)
Xiaowei Yin (Shenyang Institute of Engineering, China)
Liyang Xie (Northeastern University, China)

Fatigue Reliability Analysis on TC4 Blade Based on Stress Strength Interference Model

Changlu Wang (Sanming University, China) Long Wu (Sanming University, China) Fei Li (Beihang University, China) Yaping Zhang (Beihang University, China) Hao Gao (Sanming University, China) Yanzhong Wan (Beihang University, China)

Fatigue Reliability Analysis of Drive Axle Housing under the Bench Test Loading

Lei Wang (Northeastern University, China)
Jia Li (Northeastern University, China)
Lian Duan (Northeastern University, China)
Jian Gu (Northeastern University, China)
Liyang Xie (Northeastern University, China)

SESSION 18: Statistical Distributions and Reliability Analysis

Chair: Prof. Minjae Park (Hongik University, Korea)

An Approach to Estimate the Location Parameter of Weibull Distributed Product Life Based on Simulated Big Data

Liyang Xie (Northeastern University, China) Chenggang Li (Northeastern University, China) Ningxiang Wu (Northeastern University, China)

Pyramidal Distribution and Up-Side-Down Pyramidal Distribution

Zhenmin Chen (Florida International University, USA)

A New Fitting Method for Probabilistic Stress-Life (P-S-N) Curve with Three Parameter Weibull Distribution

Ningxiang Wu (Northeastern University, China) Liyang Xie (Northeastern University, China)

The Compound Class of Weibull Power Series for Reliability Application

Minjae Park (Hongik University, Korea) Hoang Pham (Rutgers University, USA)

Thank you for contributing and participating in the 25^{th} ISSAT RQD conference

We hope you enjoy the entire program!