# Conference Program Final Version

# July 1, 2010

# THURSDAY, AUGUST 5, 2010

Time	Event / Presentation
8:00 am	Registration - Continental Breakfast
9:00 am - 9:30 am	Welcome Awards Presentation
9:30 am - 10:45 am	SESSION 1: Human Error & Field Assessments Chair: B.S. Dhillon (University of Ottawa, Canada)  Effects of Preventive Maintenance Parameters on Manufacturing Equipment Operational Performances  Antonio C. Caputo (University of Roma Tre, Italy)  Pacifico M. Pelagagge (University of L'Aquila, Italy)  Paolo Salini (University of L'Aquila, Italy)  Mathematical Systemability Function Approximations  Hoang Pham (Rutgers University, USA)  Human Error in Power Plant Maintenance: An Investigative Study  B.S. Dhillon (University of Ottawa, Canada)  SESSION 2: Quality Engineering & Assurance Chair: Sung-Min Kim (Korea Testing Laboratory, Korea)  Optimization Design of the SPRT Control Chart  Yanjing Ou (Nanyang Technological University, Singapore)  Zhang Wu (Nanyang Technological University, Singapore)  The Effect of Data Correlation to Process Capability Indices in Position Tolerancing  Marko E. Leinonen (Nokia Oyj, Finland)  Study on Network Reliability Based Carrier Selection Problem for Stochastic Logistics Network  Yi-Kuei Lin (National Taiwan University of Science & Technology, Taiwan)  Cheng-Ta Yeh (National Taiwan University of Science & Technology, Taiwan)
10:45 am - 11:00 am	Coffee Break
11:00 am - 12:15 pm	SESSION 3: Accelerate Testing Chair: Guangbin Yang (Ford Motor Company, USA)  Reliability Modeling And Accelerated Life Testing Of Capacitive Humidity Sensors  Sung-Min Kim (Korea Testing Laboratory, Korea)  Kwang-Min Lee (Korea Testing Laboratory, Korea)  Jung-Won Park (Korea Testing Laboratory, Korea)  Woo-Sub Lee (Korea Testing Laboratory, Korea)  Jung-Keol Ham (Korea Testing Laboratory, Korea)  Jeong-Hwan Cho (Kimpo University, Korea)  Transitioning to Physics of Failure Reliability Assessments for Electronics  James G. McLeish (DfR Solutions, USA)  Test Time Reduction for Lognormal Distribution  Guangbin Yang (Ford Motor Company, USA)

# SESSION 4: Software Reliability & Engineering Statistics

Chair: Panlop Zeephongsekul (RMIT University, Australia)

On the Application and Its Problems of Recent Development Processes for Highly Reliable and Safe Software

Takaji Fujiwara (Business Cube & Partners, Inc., Japan)

Mitsuhiro Kimura (Hosei University, Japan)

Shigeru Yamada (Tottori University, Japan)

# The Run Rules $\bar{\mathbf{X}}$ Chart with Estimated Parameters

Ying Zhang (IRCCyN / Ecole Centrale de Nantes, France)

Philippe Castagliola (Universit'e de Nantes & IRCCyN, France)

Maximum Entropy Principle Approach to Discrete Software Reliability Modeling

Panlop Zeephongsekul (RMIT University, Australia)

# 1:15 pm - 3:00 pm

# **SESSION 5: Reliability Modeling and Testing**

Chair: Feng-Bin Sun (Western Digital Corporation, USA)

Bias Correction For The Shape Parameter Of Weibull Distribution In Generalized Linear Model

Huairui Guo (ReliaSoft Corporation, USA)

Adamantios Mettas (ReliaSoft Corporation, USA)

An Application of Causal Inference for Observational Data in Hard Disk Drive Failure Analysis

Shaoang Zhang (Western Digital Corporation, USA)

Eve Ou (Western Digital Corporation, USA)

Alvin Limando (Hotel Gran Puri Manado, Indonesia)

# Methodology of Component Reliability Optimization in Hard-Disk Drives

Alexander Parkhomovsky (Western Digital Corporation, USA)

Robert M. Pelstring (Seagate Technology, USA)

# Test Sample Size Determination Based on Probability of Decisions

Jiliang Zhang (Hewlett-Packard Co., USA)

Application of An Empirical Growth Model in Predicting Hard Disk Drive Field Warranty Returns

Shaoang Zhang (Western Digital Corporation, USA)

Feng-Bin Sun (Western Digital Corporation, USA)

Ross Gough (Western Digital Corporation, USA)

# SESSION 6: Software Reliability Modeling and Its Application

Chair: Shinji Inoue (Tottori University, Japan)

Optimal Release Problem and Reliability Analysis for the OSS Porting Phase of Embedded System Development

Hiroki Kato (Tottori University, Japan)

Yoshinobu Tamura (Yamaguchi University, Japan)

Shigeru Yamada (Tottori University, Japan)

# Software Reliability Measurement with Change-Point by Using Environmental Factor

Shinya Ikuta (Tottori University, Japan)

Shinji Inoue (Tottori University, Japan)

Shigeru Yamada (Tottori University, Japan)

# Two-Dimensional Software Reliability Growth Modeling with Effect of Change-Point

Keisuke Fukuma (Tottori University, Japan)

Shinji Inoue (Tottori University, Japan)

Shigeru Yamada (Tottori University, Japan)

# A Dependent Competing Risk Model with Multiple Degradation Processes and Random Shocks using Constant Copulas

Yaping Wang (Rutgers University, USA)

Hoang Pham (Rutgers University, USA)

# Optimal Software Release and Change-Point Problems of Software Systems

Shinji Inoue (Tottori University, Japan)

Shigeru Yamada (Tottori University, Japan)

# 3:00 pm - 3:15 pm

# Coffee Break

# 3:15 pm - 5:15 pm

# **SESSION 7: Engineering Applications**

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

# Use of Computer Simulation in Measurement Process of Automobile Body

Yinzhong Jiang (Beijing Automotive Technology Center, China)

Kai Yang (Wayne State University, USA)

# Inspection Allocation Cost Model for Serial Assembly Systems

- D. Battini (University of Padova, Italy)
- M. Faccio (University of Padova, Italy)
- A. Persona (University of Padova, Italy)
- F. Sgarbossa (University of Padova, Italy)

# Maximizing the Transmitted Flow and Topology Optimization for Repairable Flow Networks without Cycles Michael T. Todinov (Oxford Brookes University, United Kingdom)

# Load-Roughness' Impact on Reliability Considering Dependent Failure

Ying Wu (Northeastern University, China)

Liyang Xie (Northeastern University, China)

# Statistics of Fatigue Crack Growth in Fastener Holes

D. Gary Harlow (Lehigh University, USA)

# SESSION 8: Quality Planning & Measurements I

Chair: Yi-Kuei Lin (National Taiwan University of Science & Technology, Taiwan)

# A TRIZ-based Systematic Innovation Product Design Process: A Preliminary Study

Chun-Ming Yang (Ming Chi University of Technology, Taiwan)

Ching-Han Kao (Ming Chi University of Technology, Taiwan)

Thu-Hua Liu (Ming Chi University of Technology, Taiwan)

# Evaluating Performance Efficiencies between National Medical Resource Inputs and Population Health Care Quality in Taiwan

Chieh-Yu Liu (National Taipei College of Nursing, Taiwan)

Han-Ru Tan (National Taiwan University of Science & Technology, Taiwan)

# The Determination of Optimal Reliability Improvement Level and Warranty Length for Reused Products

Rouh-Yun Yu (MingChuan University, Taiwan)

Huei-Chiung Lo (Tamkung University, Taiwan)

# Constructing a 3D Database for the Design of a Better Fitted Quarter Mask

Hsiang-Yi Lee (Nanhua University, Taiwan)

Yi-Hsueh Yang (Logistic Technology Co., Ltd, Taiwan)

# Optimum Profit Model for Determining Purchaser's Order Quantity and Producer's Process Mean

Chung-Ho Chen (Southern Taiwan University, Taiwan)

# Network Reliability Based Component Assignment Problem by Using Genetic Algorithm and Minimal Cuts

Yi-Kuei Lin (National Taiwan University of Science & Technology, Taiwan)

Cheng-Ta Yeh (National Taiwan University of Science & Technology, Taiwan)

# 5:30 pm - 7:00 pm

FRIDAY, AUGUST 6, 2010	
Time	Event / Presentation
8:00 am	Registration - Continental Breakfast
8:30 am - 10:00 am	SESSION 9: System Integration & Modeling Chair: Xuemei Zhang (AT&T Labs, USA)
	Integrated Use of Reliability-relevant Information and Knowledge in Product Development of Mechatronics  D. Hofmann (University of Stuttgart, Germany)  M. Kopp (University of Stuttgart, Germany)  B. Bertsche (University of Stuttgart, Germany)
	Reliability Analysis of Systems with Negatively Correlated Components  Lance Fiondella (University of Connecticut, USA)
	On Designing Highly Secure Embedded Systems Grigore Albeanu (Spiru Haret University, Romania) Gheorghe Duda (Spiru Haret University, Romania) Niculae Stancu-Mara (SMD Ltd., Romania)
	Integrated Models for System Reliability and Security Evaluation  Xuemei Zhang (AT&T Labs, USA)  Hoang Pham (Rutgers University, USA)  Carolyn R. Johnson (AT&T Labs, USA)
	SESSION 10: Maintenance & Reliability in Design Chair: N V R Naidu (M S Ramaiah Institute of Technology, India)
	Tools Design of the Experimental Design Training for Learning and Comprehension of Experimental Design Towards Automotive Industry  Fauzia Dianawati (University of Indonesia, Indonesia)  Isti Surjandari (University of Indonesia, Indonesia)  Arian Dhini (University of Indonesia, Indonesia)  Artado Parulian (University of Indonesia, Indonesia)
	Operational Reliability of Tractor Engines Based on Non-homogeneous Poisson Process  Changlin Ao (Northeast Agricultural University, China)  Yijun Li (Harbin Institute of Technology, China)
	Determining Minimum Survey Sample Size for Multi-Cell Case  Zhenmin Chen (Florida International University, USA)  Fang Zhao (Florida International University, USA)
	A Six Sigma Approach for Enhancing the Productivity and Determination of the Optimal Policy for Preventive Maintenance through Mathematical Models  N V R Naidu (M S Ramaiah Institute of Technology, India)
10:00 am - 10:15 am	Coffee Break
10:15 am - 11:45 am	SESSION 11: <b>Software Reliability and Testing</b> Chair: Taghi M. Khoshgoftaar (Florida Atlantic University, USA)
	A Feature Selection Strategy for Software Quality Modeling  Kehan Gao (Eastern Connecticut State University, USA)  Taghi M. Khoshgoftaar (Florida Atlantic University, USA)  Amri Napolitano (Florida Atlantic University, USA)

# A Hybrid Approach for Software Fault Prediction

Taghi M. Khoshgoftaar (Florida Atlantic University, USA) Lofton A. Bullard (Florida Atlantic University, USA) Kehan Gao (Eastern Connecticut State University, USA) Huanjing Wang (Western Kentucky University, USA)

# A Novel Strategy for Enhancing Software Quality Models

Huanjing Wang (Western Kentucky University, USA) Taghi M. Khoshgoftaar (Florida Atlantic University, USA) Amri Napolitano (Florida Atlantic University, USA)

# SESSION 12: Stochastic Reliability Modeling

Chair: Takashi Satow (Tottori University, Japan)

Monotone Properties of an Optimal Maintenance Policy for a Two-state POMDP Model with Multiple Observations

Nobuyuki Tamura (National Defense Academy, Japan) Ken-ichi Hayashi (National Defense Academy, Japan) Tetsushi Yuge (National Defense Academy, Japan) Shigeru Yanagi (National Defense Academy, Japan)

# A Summary of Backup Models for Database Systems

Syouji Nakamura (Kinjo Gakuin University, Japan) Keiko Nakayama (Chukyo University, Japan) Toshio Nakagawa (Aichi Institute of Technology, Japan)

# An Inspection Threshold of Bivariate Failure Distribution

Takashi Satow (Tottori University, Japan) Hajime Kawai Hajime Kawai (Tottori University, Japan)

## Note on MTTF of a Parallel System

Toshio Nakagawa (Aichi Institute of Technology, Japan) Won Young Yun (Pusan National University, Korea)

# 12:00 pm - 1:00 pm

# Conference Luncheon

# 1:30 pm - 3:00 pm

# SESSION 13: Service Engineering and Quality Management

Chair: Koichi Tokuno (Tottori University, Japan)

Generalized Framework for Markovian Software Availability Modeling and Its Approximation

Shinya Ikegami (Tottori University, Japan) Koichi Tokuno (Tottori University, Japan) Shigeru Yamada (Tottori University, Japan)

Markovian Performability Evaluation for Software System with Random Performance Degradation and Imperfect Debugging

Satoshi Murakami (Tottori University, Japan) Koichi Tokuno (Tottori University, Japan) Shigeru Yamada (Tottori University, Japan)

A Study on Improvement in Quality and Operator Productivity for the Production Process of Automotive Rubber Products

Naofumi Wada (Tottori University, Japan) Shigeru Yamada (Tottori University, Japan)

Reliability Analysis Based on Hazard Rates Considering Several Components for the Embedded OSS

Yoshinobu Tamura (Yamaguchi University, Japan) Shigeru Yamada (Tottori University, Japan)

# SESSION 14: System Reliability in Design

Chair: Liyang Xie (Northeastern University, China)

# Reliability Analysis of Unstiffined Aluminum Panels with Multiple Site Damage

Ningxiang Wu (Northeastern University, China)

Liyang Xie (Northeastern University, China)

Bo Chen (Beijing Institute of Aeronautical Materials, China)

Jianzhong Liu (Beijing Institute of Aeronautical Materials, China)

## Reliability Assessment of Escalator based on Bayesian Networks

Wenxue Qian (Northeastern University, China)

Liyang Xie (Northeastern University, China)

Xiaowei Yin (Shenyang Institute of Engineering, China)

# A Three-Stage-Model for Fatigue Damage Considering Load Sequences Effect

Xuehong He (Northeastern University, China)

Tao Chen (Northeastern University, China)

Jia Li (Northeastern University, China)

# An Approach to Evaluate Probabilistic Fatigue Life of Complex Structures

Liyang Xie (Northeastern University, China)

Ningxiang Wu (Northeastern University, China)

Wenxue Qian (Northeastern University, China)

### Coffee Break 3:00 pm - 3:15 pm

3:15 pm - 5:15 pm

# **SESSION 15: Maintenance & Reliability Applications**

# Chair: R. Basso (University of Padova, Italy)

# Strength And Modal Ity Analysis On Structure Of Rear Sub-Frame Of A Fuel Cell Vehicle

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

You-tao Wang (University of Shanghai for Science and Technology, China)

Yin-yi Wang (University of Shanghai for Science and Technology, China)

Jin-zhi Feng (University of Shanghai for Science and Technology, China)

Feng Yuan (University of Shanghai for Science and Technology, China)

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

# Serial Correlation in Perfilagem Variables

Suzana Leitão Russo (Federal University of Sergipe, Brazil)

Maria Emilia Camargo (University of Caxias of South, Brazil)

Evelyn Souza Chagas (Federal University of Sergipe, Brazil)

Vitor Hugo Simon (Petrobras, Brazil)

# Fault-Tree Based Reliability Approach for Distribution System Analysis

Fariz Abdul Rahman (University of Michigan, USA)

Athi Varuttamaseni (University of Michigan, USA)

Thomas Briley (University of Michigan, USA)

Hauku Asgeirsson (DTE Energy Company, USA)

Nicholas Carlson (DTE Energy Company, USA)

Teresa Tran (DTE Energy Company, USA)

Michael Kintner-Meyer (Pacific Northwest National Laboratory, USA)

John C. Lee (University of Michigan, USA)

# Workforce-constrained Maintenance Scheduling for Aircraft Fleet: A Case Study

Nima Safaei (University of Toronto, Canada)

Dragan Banjevic (University of Toronto, Canada)

Andrew K.S. Jardine (University of Toronto, Canada)

# Vibration Analysis of Rotogravure Printing Press to Improve Print Quality

- R. Basso (University of Padova, Italy)
- G. Fanti (University of Padova, Italy)
- P. Gottardelli (Mondadori Printing S.p.A., Italy)

# SESSION 16: Reliability and Analysis of Ocean Systems

Chair: Taghi M. Khoshgoftaar (Florida Atlantic University, USA)

Combining Wavelet and Fourier Transforms in Reliability Analysis of Ocean Systems

Randall Wald (Florida Atlantic University, USA)

Taghi M. Khoshqoftaar (Florida Atlantic University, USA)

Pierre-Philippe Beaujean (Florida Atlantic University, USA)

John C. Sloan (Florida Atlantic University, USA)

# A Review of Prognostics and Health Monitoring Techniques for Autonomous Ocean Systems

Randall Wald (Florida Atlantic University, USA)

Taghi M. Khoshqoftaar (Florida Atlantic University, USA)

Pierre-Philippe Beaujean (Florida Atlantic University, USA)

John C. Sloan (Florida Atlantic University, USA)

# Mining and Storing Data Streams for Reliability Analysis

Janell Duhaney (Florida Atlantic University, USA)

Taghi M. Khoshqoftaar (Florida Atlantic University, USA)

Ankur Agarwal (Florida Atlantic University, USA)

John C. Sloan (Florida Atlantic University, USA)

# Applications of Data Fusion in Monitoring Inaccessible Ocean Machinery

Janell Duhaney (Florida Atlantic University, USA)

Taghi M. Khoshqoftaar (Florida Atlantic University, USA)

Ionut Cardei (Florida Atlantic University, USA)

Bassem Alhalabi (Florida Atlantic University, USA)

John C. Sloan (Florida Atlantic University, USA)

# Formalizing Fault Trees for Remote Ocean Systems

John C. Sloan (Florida Atlantic University, USA)

Taghi M. Khoshgoftaar (Florida Atlantic University, USA)

Howard Hanson (Florida Atlantic University, USA)

SATURDAY, AUGUST 7, 2010		
Time	Event / Presentation	
8:00 am	Registration - Continental Breakfast	
8:30 am - 10:30 am	SESSION 17: <b>Reliability Modeling</b> Chair: Yoichi Higashiyama (Ehime University, Japan)	
	Similar Modal Analysis of Model and Prototype of the Vibrating Screener  Yongyan Wang (Qingdao University of Science and Technology, China)  Zerong Zhang (Qingdao University of Science and Technology, China)	
	An Equilibrium of Threshold Policies of Two Types of Customers in a System with Observable and Unobservable Queues on Arrivals  Junji Koyanagi (Tottori University, Japan)  Hajime Kawai (Tottori University, Japan)	
	Bandwidth Selection for Estimating the Mean Residual Life Function  Chathuri Lakshika Jayasinghe (RMIT University, Australia)  Panlop Zeephongsekul (RMIT University, Australia)	

# Reliability Analysis of Systems with Competing Propagated Failures and Failure Isolation Effect

Liudong Xing (University of Massachusetts Dartmouth, USA)

Gregory Levitin (University of Electronic Science and Technology of China, China)

Prashanthi Boddu (University of Massachusetts Dartmouth, USA)

Tailiang Song (University of Massachusetts Dartmouth, USA)

# Fast Method to Compute the Reliability of Consecutive k-out-of- r-from-n: F System under the Condition of $r \le 2k$

Yoichi Higashiyama (Ehime University, Japan)

Jian Zhuo Chang (Ehime University, Japan)

Ventsi Rumchev (Curtin University of Technology, Australia)

# **SESSION 18: Quality Engineering**

# Chair: Radoslav Raković (Energoprojekt-Entel Co.Ltd, Serbia)

# The Comparative Study of The Flow of Trucks in The Ports of Uruguaiana and Foz of Iguaçu

Suzana Leitão Russo (Federal University of Sergipe, Brazil)

Maria Camargo (University of Caxias do Sul, Brazil)

Jonas Pedro Fabris (Fabris Industry, Brazil)

Pelayo Olea Munhoz (University of Caxias do Sul, Brazil)

Rejane Klidzio (URI, Santo Angelo, Brazil)

# Quality Improvement in Water Drinking Process: A Response Surface Method

Isti Surjandari (University of Indonesia, Indonesia)

Fauzia Dianawati (University of Indonesia, Indonesia)

# A Rough-Set-Based Approach to Selecting Elements Critical to Overall Customer Satisfaction

Ali Ahmady (Wichita State University, USA)

Don Malzahn (Wichita State University, USA)

S. Hossein Cheraghi (Western New England College, USA)

# Construction Xbar and Coefficients of Variation Charts: A Case Study of an Textile Industry

Maria Camargo (University of Caxias do Sul, Brazil)

Walter Priesnitz Filho (Instituto Federal Farroufilha, Brazil)

José Mauricio Carré Maciel (University of Caxias do Sul, Brazil)

Fernanda da Rosa Nagib Murr (University of Caxias do Sul, Brazil)

Suzana Leitão Russo (Federal University of Sergipe, Brazil)

Angela Isabel dos Santos Dullius (Federal University of Santa Maria, Brazil)

Eric Dorion (University of Caxias do Sul, Brazil)

# Quality Assurance in Project Management - Practical Experience

Radoslav Raković (Energoprojekt-Entel Co.Ltd, Serbia)

# 10:30 am - 10:45 am Coffee Break

# 10:45 am - 1:00 pm

# SESSION 19: Reliability Analysis & Applications

Chair: Zhenmin Chen (Florida International University, USA)

# Calculating RPN Index in FMEA Table by Fuzzy Expert Systems

M. Taherkhani (Iran Khodro Corporation, Iran)

R. Ghodsi (University of Tehran, Iran)

S.F. Quarashi (University of Tehran, Iran)

M. Piltan (University of Tehran, Iran)

A. Amirkhani (Iran Khodro Corporation, Iran)

G. Salemi (Iran Khodro Corporation, Iran)

# Complete Sequence Generation Algorithm for Reliability Analysis of Dynamic Systems with Sequence-Dependent Failures

Monika Shrestha (University of Massachusetts Dartmouth, USA)

Liudong Xing (University of Massachusetts Dartmouth, USA)

Haiping Xu (University of Massachusetts Dartmouth, USA)

# Common Coefficient of Variation and Reliability Estimators in Two Parameter Exponential Distribution

Nurten Biyikli (Rider University, USA)

Mohammad Ahsanullah (Rider University, USA)

# Semi-Markov Process Model for the Availability Analysis of Practical Ssytems

Arun Veeramany (University of Waterloo, Canada)

Mahesh D. Pandey (University of Waterloo, Canada)

# Quality Improvement of Printing Output Standard by Setting Combination

Arian Dhini (University of Indonesia, Indonesia)

Isti Surjandari (University of Indonesia, Indonesia)

Fauzia Dianawati (University of Indonesia, Indonesia)

Madema Lasro Siregar (University of Indonesia, Indonesia)

# Software Defect Prediction with Skewed Data

Naeem Seliya (University of Michigan - Dearborn, USA)

Taghi M. Khoshgoftaar (Florida Atlantic University, USA)

# SESSION 20: Quality Planning & Measurements II

Chair: Yi-Kuei Lin (National Taiwan University of Science & Technology, Taiwan)

# Comparison of the Radial Basis Function and Ordinary Kriging Model in the Design of Dynamic Systems

Turuna S. Seecharan (University of Waterloo, Canada)

Gordon J. Savage (University of Waterloo, Canada)

# The Performance of Multivariate GWMA Control Charts for Autocorrelation Data

Shin-Li Lu (Aletheia University, Taiwan)

Wen-Chih Chiu (Aletheia University, Taiwan)

# Economic-Statistical Design of EWMA x2 Control Charts for Monitoring Process Variability

Wen-Chih Chiu (Aletheia University, Taiwan)

Shin-Li Lu (Aletheia University, Taiwan)

# A Study on the Reliability Test Model

Jyh-Wen Ho (Aletheia University, Taiwan)

# Search for All Minimal Paths with Backtracking

Shin-Guang Chen (Tungnan University, Taiwan)

Yu-Cheng Guo (Tungnan University, Taiwan)

Wei-Zhi Zhou (Tungnan University, Taiwan)

# A Balance Scorecard Approach for the Quality Evaluation of Taiwan's Higher Education

Cheng-Kang Yuan (Lunghwa University of Science & Technology, Taiwan)

Chuan-Yin Lee (Lunghwa University of Science & Technology, Taiwan)

Hui-Rong Qiu (Lunghwa University of Science & Technology, Taiwan)

# An Application of Service-Learning in the "Enterprise Ethics and Business Etiquette" Course — A Case Study in a Technological University

Tzuu-yuh Chen (Vanung University, Taiwan)

Mei-chun Chen (Vanung University, Taiwan)

1:00 pm Adjourn!