



ELEVENTH ISSAT INTERNATIONAL CONFERENCE ON RELIABILITY AND QUALITY IN DESIGN



CONFERENCE CHAIRS

Hoang Pham
Rutgers University

Ming-Wei Lu
DaimlerChrysler Corporation

PROGRAM CHAIR

Shigeru Yamada
Tottori University

ARRANGEMENTS CHAIR

Hanh K. Phan
Energy Northwest

PROGRAM COMMITTEE MEMBERS

Philip L. Y. Chan	Hong Kong
Zhenmin Chen	USA
B. S. Dhillon	Canada
Tadashi Dohi	Japan
E. A. Elsayed	USA
Olivier Gaudoin	France
D. Gary Harlow	USA
Kailash C. Kapur	USA
Taghi M. Khoshgoftaar	USA
Won Kyung Kim	Korea
Mitsuhiro Kimura	Japan
Bengt Klefsjo	Sweden
Huey-Ming Lee	Taiwan
Yi-Kuei Lin	Taiwan
Anatoly Lisnianski	Israel
Ming-Wei Lu	USA
Francesco Muzi	Italy
Stavros G. Papastavridis	Greece
Arrigo Pareschi	Italy
Dong Ho Park	Korea
Kyung S. Park	Korea
Alessandro Persona	Italy
Hoang Pham	USA
Richard J. Rudy	USA
Gordon J. Savage	Canada
Jiajun Shao	China
A. K. Sinha	India
Hurdy Su	South Africa
Robert M. Szabo	USA
Muneo Takahashi	Japan
Koichi Tokuno	Japan
Nikola Vujanovic	Serbia
Hongzhou Wang	USA
Eric T. T. Wong	Hong Kong
W. Eric Wong	USA
Liyang Xie	China
Min Xie	Singapore
Shigeru Yamada	Japan
Guangbin Yang	USA

RELIABILITY AND QUALITY IN DESIGN

AUGUST 4-6, 2005

ST. LOUIS, MISSOURI, USA

CONFERENCE PROGRAM

SPONSOR

**The International Society of Science and Applied Technologies
(ISSAT)**

LOCATION

Hyatt Regency St. Louis Hotel

One St. Louis Union Square, St. Louis, MO 63103 USA

www.issatconferences.org



THURSDAY, AUGUST 4, 2005

8:15 am Registration

9:00 am - 9:15 am Opening Remarks

SESSION 1

Thursday, August 4, 9:15 am - 10:15 am

Design for Six-Sigma

Keynote Speaker: **Dr. Raj Kumar Kawlra**
Dr. Kawlra is Senior Manager in the Manufacturing area at DaimlerChrysler Corporation. He received his Ph.D. in Industrial and Operations Engineering at University of Michigan at Ann Arbor.

10:15 am - 10:45 am Coffee Break

SESSION 2

Thursday, August 4, 10:45 am - 12:00 noon

Software Reliability Assessment

Chair: **Shigeru Yamada** (Tottori University, Japan)

A Software Reliability Assessment Tool Based on AHP and SRGM for an Open Source Software

Yoshinobu Tamura (Tottori University of Environmental Studies, Japan)

Shigeru Yamada (Tottori University, Japan)

Architecture-Based Software Reliability Analysis with Interface Failures

Swapna S. Gokhale (University of Connecticut, USA)

Michael W. Lipton (University of Connecticut, USA)

A Reliability Assessment Method Based on ANP for an Open Source Software

Shuichi Iriguchi (Tottori University, Japan)

Yoshinobu Tamura (Tottori University of Environmental Studies, Japan)

SESSION 3

Thursday, August 4, 10:45 am - 12:00 noon

System Reliability & Performability

Chair: **Guangbin Yang** (Ford Company, USA)

On a Measure of Reliability Based on Point Processes with Random Fuzzy Marks

Panlop Zeephongsekul (RMIT University, Australia)

A DP-Based Optimal Checkpointing Algorithm for a Real-Time System

Kazuki Iwamoto (Hiroshima University, Japan)

Hiroyuki Okamura (Hiroshima University, Japan)

Tadasbi Dobi (Hiroshima University, Japan)

A New Generalized Systemability Model

Hoang Pham (Rutgers University, USA)

SESSION 4

Thursday, August 4, 1:15 pm - 2:45 pm

Reliability Modeling & Analysis

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

Recursive Method to Evaluate the Reliability of Circular Consecutive 2-out-of-(r,r)-from-(n,n) :F Systems

Yoichi Higashiyama (Ebime University, Japan)

Ventsi Rumchev (Curtin University of Technology, Australia)

An Algorithm to Predict Reliability of a Grid Node

Panu Phinjaroenphan (RMIT University, Australia)

Savitri Bevinakoppa (RMIT University, Australia)

Panlop Zeephongsekul (RMIT University, Australia)

Userfitness in Design: A Case Study of Public Toilet Facilities

Kin Wai Michael Siu (The Hong Kong Polytechnic University, Hong Kong)

Engineering Usability: A Study of User Errors

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

SESSION 5

Thursday, August 4, 1:15 pm - 2:45 pm

Effect of Consolidation Learning on Courses Classification and Combination

Chair: **Hurdy Su** (Sususing Co., Ltd., RSA)

The Effect of Automatic Classifying Learning on a Course of Computer Concept - A Case of Chinese Culture University in Taiwan

Chen Hengsbeng (Chinese Culture University, Taiwan)

Susan Su (Sususing Co., Ltd., RSA)

The Consolation Courses of Accounting Principles and Data Processing in Senior High School

Chin-Ho Liu (National Taiwan Normal University, Taiwan)
Shiu-Yun Chang (National Lin-Kuo Senior High School, Taiwan)

The Learning Achievement on Course of Math and Tennis Training Combination

Juei-Yang Su (National Chung San University, Taiwan)
Ching-Hui Shib (Chinese Culture University, Taiwan)
Ching-San Chiang (Chienkuo Technology University, Taiwan)

The Blended Learning Model Apply to Course of Hand Cutting System

Pe-Ling Wu (Chienko Technology University, Taiwan)
Hurdy Su (Sususing Co., Ltd., RSA)

2:45 pm - 3:00 pm Coffee Break

SESSION 6

Thursday, August 4, 3:00 pm - 4:30 pm

Quality Planning & Measurements

Chair: **Yi-Kuei Lin** (Vanung University, Taiwan)

Intellectual Capital Management in Small Business

Mei-Chun Chen (Vanung University, Taiwan)

To Develop Reliability Life Plans on Low Temperature Operation Testing for Organic Light Emitting Diodes

Wen-Kuei Chen (I-Shou University, Taiwan)
Hong-Yi Kuo (I-Shou University, Taiwan)

Reliability of a Stochastic-flow Network with Unreliable Nodes and Cost Constraints

Yi-Kuei Lin (Vanung University, Taiwan)

SESSION 7

Thursday, August 4, 3:00 pm - 4:30 pm

Software Quality & Maintenance

Chair: **Taghi Khoshgoftaar** (Florida Atlantic University, USA)

Discrete Software Reliability Models Based on Software-Failure Occurrence Times Distribution

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

Software Quality Modeling with Multiple Datasets Using Genetic Programming

Yi Liu (Georgia College and State University, USA)
Taghi Khoshgoftaar (Florida Atlantic University, USA)

Three Challenges in Performing Reliable Software Maintenance on Automotive Control Systems

Shibong Huang (Florida Atlantic University, USA)
Scott Tilley (Florida Institute of Technology, USA)

5:00 pm - 7:00 pm Welcome Reception

FRIDAY, AUGUST 5, 2005

8:15 am Registration

SESSION 8

Friday, August 5, 8:30 am - 10:00 am

Software Quality & Analysis

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

Software Quality Analysis in the Absence of Fault-Proneness Data
Naeem Seliya (Florida Atlantic University, USA)

Taghi M Khoshgoftaar (Florida Atlantic University, USA)

Software Quality Classification Using Bayesian Belief Networks

Taghi M. Khoshgoftaar (Florida Atlantic University, USA)
Robert M. Szabo (IBM Corporation, USA)

An Empirical Study of a Hybrid Approach in Software Quality Classification

Taghi M. Khoshgoftaar (Florida Atlantic University, USA)
Keban Gao (Eastern Connecticut State University, USA)

Wavelet-Based Attribute Noise Detection

Andres Folleco (Florida Atlantic University, USA)
Taghi Khoshgoftaar (Florida Atlantic University, USA)

SESSION 9

Friday, August 5, 8:30 am - 10:00 am

Human Resource Measurement and Improvement

Chair: **Huey-Ming Lee** (Chinese Culture University, Taiwan)

Apply RFID to Visitors' Management of Exhibition

David Cheng (Chinese Culture University, Taiwan)
Tun-Chieb Yang (Tan Kang University, Taiwan)
Hurdy Su (Sususing Co., Ltd.,)

Outsourcing E-Learning to Improve Service Quality by Public Organization

Shue-Huei Tsai (Chinese Culture University, Taiwan)
Ching-Hui Shib (Chinese Culture University, Taiwan)
Jaw-Sin Su (Chinese Culture University, Taiwan)

Game Theory to Detect Risk of Staffs' Hire

Shiu-Yun Chang (National Lin-Kou Senior High School, Taiwan)
Chin-Ho Liu (National Taiwan Normal University, Taiwan)

Attention Technology for Subjective Data-Mining

Chen-Hsi Lien (China Institute of Technology, Taiwan)
Juei-Yang Su (Sususing Co., Ltd., RSA)

10:00 am - 10:15 am Coffee Break

SESSION 10

Friday, August 5, 10:15 am - 11:45 am

Quality Engineering and Applications

Chair: **Gordon J. Savage** (University of Waterloo, Canada)

On-Line Monitoring of Unequal Length Batch Processes Based on the Hausdorff Distance

Ariane Ferreira Porto Rosa (Ecole des Mines de Nantes, France)
Philippe Castagliola (Institut Universitaire de Technologie de Nantes, France)

Variation Transmission Analysis

Ming-Wei Lu (DaimlerChrysler Corporation, USA)
Raj Kawlra (DaimlerChrysler Corporation, USA)

Fewer Outcome Information Finding and Application

Kuo-Hsiang Hua (Chinese Culture University, Taiwan)
Hurdy Su (Sususing Co., Ltd., RSA)

Simultaneous Design for Quality and Performance Reliability of Multiple Response Engineering Systems

Young Kap Son (University of Waterloo, Canada)
Gordon J. Savage (University of Waterloo, Canada)

SESSION 11

Friday, August 5, 10:15 am - 11:45 am

Maintenance and Optimization

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

Optimal Monitoring Policy for a Server System with Illegal Access

Mitsubiro Imaizumi (Aichi Gakusen University, Japan)
Mitsutaka Kimura (Gifu City Women's College, Japan)
Kazumi Yasui (Aichi Institute of Technology, Japan)

Optimal Liquidation Policies for Security Holdings in the Stock Market

Syouji Nakamura (Kinjo Gakuin University, Japan)
Miwako Arafuka (Kinjo Gakuin University, Japan)
Toshio Nakagawa (Aichi Institute of Technology, Japan)

A Sequential Inspection Policy for Incomplete Information with an Incomplete and Bayesian Selected Monitor

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

Optimal Maintenance Policies for a System with Multiechelon Risks

Toshio Nakagawa (Aichi Institute of Technology, Japan)
Kodo Ito (Mitsubishi Heavy Industries, LTD., Japan)

12:00 noon - 1:15 pm Lunch

SESSION 12

Friday, August 5, 1:30 pm - 3:00 pm

Quality of Education

Chair: **Shyi-Huey Wu** (Vanung University, Taiwan)

Research upon Behavior Model Construction of College Students' Participation in Sports and Recreation on Campus

Che-Jen Chuang (Vanung University, Taiwan)
Lee-Hua Chou (Ching Yun University, Taiwan)
Pou-Lin Chen (Vanung University, Taiwan)

Taiwan's X and Y Generations: an Exploratory Investigation toward Money Attitude and Compulsive Buying

Chun-Hua Hsiao (Vanung University, Taiwan)

Using Data Envelopment Analysis to Measure Technical Universities Managerial Performance in Taiwan

Mang Chuang (Vanung University, Taiwan)

Improvement of Teaching and Learning Quality: Implementing Learning Organization in Selected Technical Universities, Technical Colleges, and Colleges for Professional Training in Taiwan

Shyi-Huey Wu (Vanung University, Taiwan)

SESSION 13

Friday, August 5, 1:30 pm - 3:00 pm

Design and Analysis of Life Testing

Chair: **Elsayed A. Elsayed** (Rutgers University, USA)

Reliability Evaluation for the Mechanical Switch Using an Accelerated Life Test

Sang Jun Park (Samsung Electronics Co. LTD., Korea)
Se-Hyun Lee (Samsung Electronics, Korea)
Kil-Sung Han (Samsung Electronics, Korea)

Toward Global Optimization Design of Electrical Machines

Xian Liu (University of Arkansas at Little Rock, USA)
Guoliang Wang (Xi'an Jiaotong University, China)

Markovian Operational Software Reliability Measurement Based on Accelerated Life Testing Model

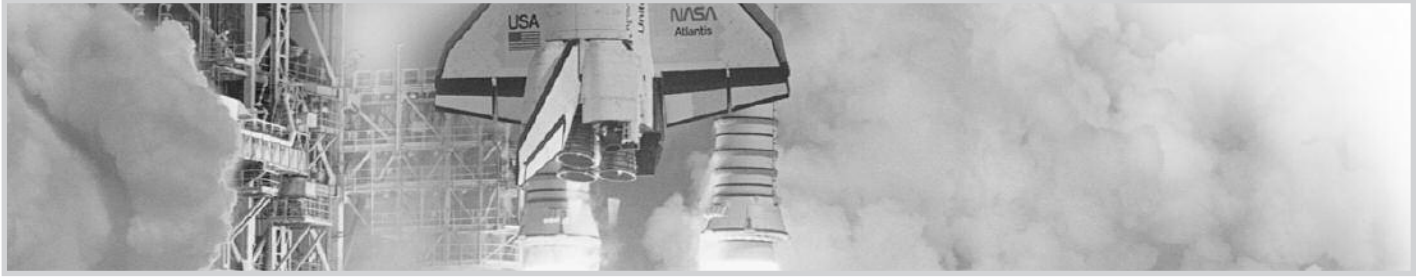
Hajime Morita (Tottori University, Japan)
Koichi Tokuno (Tottori University, Japan)
Shigeru Yamada (Tottori University, Japan)

Nonparametric Accelerated Life Testing Based on Proportional Odds Model

Hao Zhang (Rutgers University, USA)
Elsayed A. Elsayed (Rutgers University, USA)

3:00 pm - 3:15 pm Coffee Break





SESSION 14

Friday, August 5, 3:15 pm - 4:45 pm

Applied Reliability Modeling

Chair: **Dimitri B. Kececioglu** (The University of Arizona, USA)

Application of RCM to a Refinery, an Approach Using PCA

M. Bevilacqua (Universita di Bologna, Italy)

Filippo Emanuele Ciarapica (Universita Politecnica della Marche, Italy)

G. Giaccchetta (Universita Politecnica della Marche, Italy)

C. Paciarotti (Universita Politecnica della Marche, Italy)

Note on the Backward Time of Reliability Models

Toshio Nakagawa (Aichi Institute of Technology, Japan)

Satoshi Mizutani (Aichi Institute of Technology, Japan)

Toshitsugu Sugiura (Aichi Institute of Technology, Japan)

Robust Engineering Design-by-Reliability Using ANSYS and Weibull++

Sri Ganesh Buddhavarapu (USA)

Dimitri B. Kececioglu (The University of Arizona, USA)

SESSION 15

Friday, August 5, 3:15 pm - 4:45 pm

Reliability in Design and Applications

Chair: **Liyang Xie** (Northeastern University, China)

The Research of Tractor Reliability based on Nonhomogeneous Poisson Process

Changlin Ao (Northeast Agricultural University, China)

Hongmin Xiao (Lanzhou University, China)

Integrated Reliability Development for the Front Suspension System in Light Duty Dodge Ram Truck

Jing Ling (DaimlerChrysler Corporation, USA)

Simulation Analysis on Common Cause Failure Uncertainties

Yongyan Wang (Qingdao University of Science and Technology, China)

Liyang Xie (Northeastern University, China)

Yunhui Yan (Northeastern University, China)

Multiple-failure Probability Prediction of Emergency Diesel Generator Groups

Liyang Xie (Northeastern University, China)

Xiaofang Yang (Northeastern University, China)

Jinyu Zhou (Northeastern University, China)

Mingchuan Zhang (Northeastern University, China)

SATURDAY, AUGUST 6, 2005

8:15 am Registration

SESSION 16

Saturday, August 6, 8:30 am - 9:45 noon

Software Reliability and Testing

Chair: **Hoang Pham** (Rutgers University, USA)

A Generalized Test Activity Flow

Greg Twaites (General Dynamics Advanced Information Systems, USA)

Jim Collofello (Arizona State University, USA)

Early-Stage Product Quality Prediction by Using Software Process Data

Toshibiko Fukushima (Nissin Systems Co., Ltd., Japan)

Atsushi Fukuta (Tottori University, Japan)

Shigeru Yamada (Tottori University, Japan)

A Software Reliability Growth Model with Module Composition

Takaji Fujiwara (Fujitsu Peripherals Limited, Japan)

Shinji Inoue (Tottori University, Japan)

Shigeru Yamada (Tottori University, Japan)

SESSION 17

Saturday, August 6, 8:30 am - 9:45 noon

Failure and Fuzzy Analysis

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

Failure Frequency Evaluation of Noncoherent Systems

Suprasad V. Amari (Relex Software Corporation, USA)

Hoang Pham (Rutgers University, USA)

Economic Production Quantity for Fuzzy Demand Quality and Fuzzy Production Quantity based on Signed Distance Method

Huey-Ming Lee (Chinese Culture University, Taiwan)

Jershan Cbiang (Chinese Culture University, Taiwan)

Tsung-Yen Lee (Bank of Overseas Chinese, Taiwan)

Shu-Yen Lee (China Engineering Consultants, Inc., Taiwan)

Jan-Jo Chen (Chicago State University, USA)

Statistical Analysis of Constituent Particles in 7075-T6 Aluminum Alloy

D. Gary Harlow (Lehigh University, USA)

9:45 am - 10:00 am Coffee Break

SESSION 18

Saturday, August 6, 10:00 am - 11:15 am

Engineering Statistics

Chair: **Suprasad V. Amari** (Relex Software Corporation, USA)

A Mining Methodology for Composed and Dependent Database

Wen C. Pai (Soochow University, Taiwan)

Bayesian Approach for Adaptive Sequential Preventive
Maintenance Policy

Hee Soo Kim (Chosun University, Korea)

Young Sub Kwon (Chosun University, Korea)

Dong Ho Park (Hallym University, Korea)

Estimating the Shape Parameter of the Log-Logistic Distribution

Zhenmin Chen (Florida International University, USA)

SESSION 19

Saturday, August 6, 10:00 am - 11:15 am

Probabilistic Design and Risk Assessment

Chair: **Ming-Wei Lu** (DaimlerChrysler Corporation, USA)

TPM Approach and New Buffer Design Paradigm in Plant Layout

D. Battini (University of Padova, Italy)

R. Manzini (University of Bologna, Italy)

A. Persona (University of Padova, Italy)

Alberto Regattieri (Bologna University, Italy)

Seismic Probabilistic Risk Assessment for columbia GS Nuclear Power Plant

Hanh Phan (Energy Northwest, USA)

A Performance Model with Reliability Analysis for Mobile Ad Hoc
Networks

Xian Liu (University of Arkansas at Little Rock, USA)

Yupo Chan (University of Arkansas at Little Rock, USA)

11:30 am Adjourn



PRESENTATION

The allotted time for presentation is about 22 minutes. Please prepare your presentation using Power Point since only computer projectors will be used for presentations at the conference. Computer laptop and projectors will be provided.

REGISTRATION

All attendants are required to register. Pre-registration is strongly recommended. The registration fee is US\$ 490.00, which includes: a copy of the Conference Proceedings, gift, refreshments, luncheon, and dinner reception. Payment can be made by check or money order payable to ISSAT (no credit cards will be accepted).

ACCOMMODATION

Accommodation is available for the attendant of the Eleventh ISSAT International Conference on Reliability and Quality in Design at the Hyatt Regency St. Louis Hotel, St. Louis, MO, USA for the conference rate of \$120.00 per night for single or double occupancy plus room tax. Reservation must be made directly with Hyatt Regency St. Louis Hotel. To obtain the conference rate, reservations must be made with the hotel on or before Wednesday, July 20, 2005 and ISSAT Conference rate must be requested at time of booking.



Hyatt Regency St. Louis Hotel

One St. Louis Union Square
St. Louis, MO 63103 USA

Reservation: 800-233-1234
314-231-1234 (hotel direct line)
Fax: 314-923-3971
Website: www.stlouis.hyatt.com

REGISTRATION FORM

ELEVENTH ISSAT INTERNATIONAL CONFERENCE ON RELIABILITY AND QUALITY IN DESIGN

AUGUST 4-6, 2005, ST. LOUIS, MISSOURI, USA

Please complete this **Registration Form** (type or block letters) and return it with your **full payment**:

ISSAT

P.O. Box 11431

New Brunswick, NJ 08906, USA

Title: Dr. Mr. Mrs. Miss Ms.

Name: _____
LAST NAME FIRST NAME MIDDLE INITIAL

Mailing Address: _____

Telephone: _____ Fax: _____ Email: _____

CONFERENCE REGISTRATION:

Registration fee is US\$490.00.

The registration fee includes a copy of the proceedings, gift, luncheon, dinner reception, and refreshments during the conference.

Please make checks payable to **ISSAT** (Sorry, no credit card is accepted).

Amount enclosed: \$ _____ Check #: _____

Signature: _____ Date: _____



Upcoming Conference



TWELFTH ISSAT INTERNATIONAL CONFERENCE ON RELIABILITY AND QUALITY IN DESIGN

August 3-5, 2006 • Chicago, Illinois, U.S.A.

See our website at www.issatconferences.org for more information



International Society of
Science and Applied Technologies
P.O. Box 11431 • New Brunswick, NJ 08906

**RELIABILITY AND QUALITY
IN DESIGN CONFERENCE
AUGUST 4-6, 2005**