ISSAT

RELIABILITY AND QUALITY IN DESIGN

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AUGUST 7-9, 2003
HONOLULU, HAWAII, USA

CONFERENCE PROGRAM

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THURSDAY, AUGUST 7, 2003

8:00 am - 9:00 am   Registration

9:00 am - 9:50 am Keynote Speaker - Dr. Wayne B. Nelson

"Better Accelerated Testing"

9:50 am - 10:00 am Coffee Break

SESSION 1

Software Reliability Engineering

Thursday, August 7, 10:00 am - 11:30 am

Session Chair:
Shigeru Yamada (Tottori University, Japan)

Yoshinobu Tamura (Tottori University of Environmental Studies, Japan)
Shigeru Yamada (Tottori University, Japan)
Mitsuhiro Kimura (Hosei University, Japan)

Comparison of Software Reliability Assessment Methods Based on Neural Network for Distributed Development Environment

Winai Bodhisuwan (King Mongkut's Institute of Technology North Bangkok, Thailand)
Panlop Zeephongsekul (RMIT University, Australia)

Asymptotic Properties of a Statistical Model in Software Reliability with Imperfect Debugging and Introduction of Defects

Masaya Uchida (Tottori University, Japan)
Yoshinobu Tamura (Tottori University, Japan)
Shigeru Yamada (Tottori University, Japan)

Software Reliability Analysis and Optimal Release Problem Based on a Flexible Stochastic Differential Equation Model in Distributed Development Environment

Hoang Pham (Rutgers University, USA)
Chao Deng (Rutgers University, USA)

Predictive-Ratio Risk Criterion for Selecting Software Reliability Models

SESSION 2

Process Control and Management

Thursday, August 7, 10:00 am - 11:30 am

Session Chair:
Yi-Kuei Lin (Van Nung Institute of Technology, Taiwan)

K. S. Chen (National Chin-Yi Institute of Technology, Taiwan)
M. L. Huang (National Chin-Yi Institute of Technology, Taiwan)

Quality-Cost Analysis Model

Jui-Chin Jiang (Chung-Yuan Christian University, Taiwan)
Ming-Li Shiu (Chung-Yuan Christian University, Taiwan)
Feng-Yuan Hsiao (Chung-Yuan Christian University, Taiwan)

The Process Management Model of Quality Planning for the New Product Development in Manufacturing Industry

Feng-Yuan Hsiao (Chung-Yuan Christian University, Taiwan)
Jui-Chin Jiang (Chung-Yuan Christian University, Taiwan)
Chun-An Chen (Chung-Yuan Christian University, Taiwan)
Ming-Li Shiu (Chung-Yuan Christian University, Taiwan)

Integrating Process Management with Knowledge Supply Chain

Gwo-Luh Lee (Van Nung Institute of Technology, Taiwan)
Kuan-Chun Liu (DCS, Taiwan)

Spare Parts Estimation on Incomplete Field Failure Data

11:30 am - 11:40 am Break

SESSION 3

Optimal Maintenance Models

Thursday, August 7, 11:40 am - 1:10 pm

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

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

Optimal Random and Periodic Inspection Policies

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

Optimal Inspection Policies for a Self-Diagnosis System with Two Types of Inspections

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

Maintenance of a Cumulative Damage Model and Its Application to Gas Turbine Engine of Co-generation System

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

Optimal Replacement Policy for a Three-Component System with Age-Dependent Failure Interaction

SESSION 4

Process Quality Engineering

Thursday, August 7, 11:40 am - 1:10 pm

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

P. Ranjan (National University of Singapore, Singapore)
M. Xie (National University of Singapore, Singapore)
T. N. Goh (National University of Singapore, Singapore)

On Some Control Chart Procedures for Monitoring the Inter-Arrival Times

Wee Tat Cheong (National University of Singapore, Singapore)
Loon Ching Tang (National University of Singapore, Singapore)

Screening Scheme for High Performance Products

Wen C. Pai (Soochow University, Taiwan)

Program Recognition and Testing based on Control-Flow Analysis

Ryotaro Matsuda (Tottori University, Japan)
Shigeru Yamada (Tottori University, Japan)

A Human Factor Analysis for Software Reliability Improvement Based on a Quality Engineering Approach in Design-Review Process

SESSION 5

Tutorial

Thursday, August 7, 2:00 pm - 5:00 pm

Wayne B. Nelson (Statistical Consulting, USA)

Recurrent Events Data Analysis for Product Repairs, Disease Recurrences, and Other Applications

This tutorial presents informative graphical analyses of recurrent events data on product repairs and other applications. The plots employ a new nonparametric model, which requires minimal assumptions and applies to event costs, downtimes, and other measures of event "size" – not to just the number of events. Estimates, confidence limits, and comparisons are illustrated with a variety of engineering applications.

5:30 pm – 7:00 pm   Welcome Reception

FRIDAY, AUGUST 8, 2003

SESSION 6

Network Reliability

Friday, August 8, 8:00 am - 9:30 am

Session Chair:
Yi-Kuei Lin (Van Nung Institute of Technology, Taiwan)

Sheng-Cheng Yeh (Van Nung Institute of Technology, Taiwan)

Performance Evaluation of a Modified PRMA Protocol for Wireless Multimedia Networks

Bor-Jiunn Hwang (Van Nung Institute of Technology, Taiwan)

Call Admission Control with Mobility Management in All-IP Two-Tier Cellular Networks

W.Y. Lin (Van Nung Institute of Technology, Taiwan)

Dynamic Quality of Real-time Video over MPlS DWDM Networks

Yi-Kuei Lin (Van Nung Institute of Technology, Taiwan)

Network Reliability with Failures at Nodes and Arcs in Terms of Minimal Cuts

SESSION 7

Quality in Design

Friday, August 8, 8:00 am - 9:30 am

Session Chair:
Hurdy Su (Sususing Co., Republic of South Africa)

Kin Wai Michael Siu (Massachusetts Institute of Technology, USA)

Quality of Product Design: A Balance between Engineering and Cultural Considerations

K. Xu (National University of Singapore, Singapore)
L. C. Tang (National University of Singapore, Singapore)

An Off-Line Chemical Vapor Deposition Process Design based on the Neural Networks and RSM Approach

T.T. Wong (The Hong Kong Polytechnic University, Hong Kong)
C.W. Leung (The Hong Kong Polytechnic University, Hong Kong)
Y.T. Wong (The Hong Kong Polytechnic University, Hong Kong)
G.Y. Liang (Xi' an Jiaotong University, P.R. China)

Optimization of Heat Exchanger Design

Hsu-Hwa Chang (St. John's & St. Mary's Institute of Technology, Taiwan)

Achieving Robust Design by Using Local Search

9:30 am – 9:40 am   Break

SESSION 8

Reliability Modeling

Friday, August 8, 9:40 am - 11:25 am

Session Chair:
Tadashi Dohi (Hiroshima University, Japan)

Yoichi Higashiyama (Ehime University, Japan)

A Fast Reliability-Algorithm for the Circular m-consecutive-k-out-of-n :F System

Christiane Cocozza-Thivent (Universite de Marne-la-Vallee, France)
Robert Eymard (Universite de marne-la-Vallee, France)

Marginal Distributions of a Semi-Markov Process and Their Computations

Mitsuhiro Kimura (Hosei University, Japan)
Shigeru Yamada (Tottori University, Japan)

Reliability Analysis of 3-Version Programming System with an Intelligent Voter

E. Ferrari (Bologna University, Italy)
M. Gamberi (Bologna University, Italy)
A. Pareschi (Bologna University, Italy)
A. Persona (University of Padova, Italy)
A. Regattieri (Bologna University, Italy)

On Importance of Reliability Data Collection for Failure Rate Modelling: Reliability Active Data Base - RADB

E. A. Elsayed (Rutgers University, USA)
H. T. Liao (Rutgers University, USA)

Reliability Prediction Based on an Accelerated Degradation Rate Model

SESSION 9

Evaluation Methods

Friday, August 8, 9:40 am - 11:25 am

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

Huey-Ming Lee (Chinese Culture University, Taiwan)
Tsung-Yen Lee (National Taiwan University, Taiwan)
Shu-Yen Lee (China Engineering Consultants, Inc., Taiwan)
Jan-Jo Chen (Chicago State University, USA)

A Fuzzy Group Assessment Model for Evaluating the Rate of Aggregative Development Capability of Software Company

M.T. Wang (Chinese Culture University, Taiwan)

An Evaluation of Indexing Methods on Object Database

Jaw-Sin Su (Chinese Culture University, Taiwan)

Two Dimensions Control Chart Design and Application

Jojo Liu (Chinese Culture University, Taiwan)
Jaw-Sin Su (Chinese Culture University, Taiwan)

A Study on IT Service Management and Quality Standard for Enterprise ROI Changing

Ching-San Chiang (Chien Kuo Institute of Technology, Taiwan)
Pei-Ling Wu (Chien Kuo Institute of Technology, Taiwan)
Hurdy Su (Sususing Co., Republic of South Africa)
Shu-Yen Lee (China Engineering Consultants, Inc., Taiwan)

The Relationship Between the Job and Learning of Continuing Educational Students

11:40 am – 12:40 pm   Lunch

SESSION 10

Software Quality

Friday, August 8, 12:50 pm - 2:20 pm

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

Taghi M. Khoshgoftaar (Florida Atlantic University, USA)
Kehan Gao (Florida Atlantic University, USA)

An Empirical Study of a Three-Group Software Quality Classification Model

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

A Poisson Regression Model of Software Quality: A Comparative Study

Taghi M. Khoshgoftaar (Florida Atlantic University, USA)
Kehan Gao (Florida Atlantic University, USA)
Yongbin Liu (Florida Atlantic University, USA)

Three-Group Software Quality Classification Modeling with the TREEDISC Algorithm

Yi Liu (Florida Atlantic University, USA)
Taghi Khoshgoftaar (Florida Atlantic University, USA)

Tree-Based Software Quality Classification Using Genetic Programming

SESSION 11

Reliability Enhancement Through Stress Testing

Friday, August 8, 12:50 pm - 2:20 pm

Session Chair:
Guangbin Yang (Ford Company, USA)

Wayne B. Nelson (Statistical Consulting, USA)

A Bibliography of Accelerated Test Plans

Loon-Ching Tang (National University of Singapore, Singapore)

Multiple-Steps Step-Stress Accelerated Life Tests: A Model and Its Spreadsheet Analysis

Adamantios Mettas (ReliaSoft Corporation, USA)

Application of Quantitative Accelerated Life Data and Models for Reliability Predictions based on Usage Stress Profiles

Fabrice Guérin (Institut des Sciences et Techniques de l'Ingenieur d'Angers, France)
Pascal Lantieri (ISTIA, France)
Bernard Dumon (ISTIA, France)

Applying Accelerated Life Model to HALT Testing

2:20 pm – 2:30 pm Break

SESSION 12

Quality and Management Evaluations

Friday, August 8, 2:30 pm - 4:00 pm

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

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

Reliability Analysis for an Applet Execution Process

Sayori Nakagawa (Kinjo Gakuin Univ. Inst. of Consumer Sciences and Human Life, Japan)
Yoshihiro Okuda (Aichi Institute of Technology, Japan)
Shigeru Yamada (Tottori University, Japan)

Optimal Checkpointing Interval for Task Duplication with Spare Processing

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

Optimal Interval of CRL in PKI Architecture

Takashi Usami (Aichi Institute of Technology, Japan)
Kazuyuki Teramoto (Aichi Institute of Technology, Japan)
Toshio Nakagawa (Aichi Institute of Technology, Japan)

Optimal Product-Planning for New Soft Drink Using Conjoint Analysis

SESSION 13

Software Engineering and Process

Friday, August 8, 2:30 pm - 4:00 pm

Session Chair:
Robert M. Szabo (IBM Corporation, USA)

K.K. Aggarwal (GGS Indraprastha University, India)
Yogesh Singh (GGS Indraprastha University, India)
Jitender Kumar Chhabra (National Institute of Technology, India)

Measurement of Object-Oriented Software Understandability Using Spatial Complexity

Takaji Fujiwara (Fujitsu Peripherals Limited, Japan)
Shigeru Yamada (Tottori University, Japan)

Software Process Improvement Activities Based on CMM and Their Application

Fran Zenzen (General Dynamics Decision Systems, USA)
Greg Twaites (General Dynamics Advanced Information Systems, USA)
J. Bert Keats (Arizona State University, USA)
John W. Fowler (Arizona State University, USA)

Applying Software FMEA

Muneo Takahashi (Toin University of Yokohama, Japan)
Takanori Aoki (Toin University of Yokohama, Japan)
Takao Shimomura (Tokushima University, Japan)

An Experiment on the Derivation of Effort Estimation Model Based on Object Points

SATURDAY, AUGUST 9, 2003

SESSION 14

Quality of Education

Saturday, August 9, 8:00 am - 9:30 am

Session Chair:
Hung-Yi Wu (Kai Nan University, Taiwan)

Hsiao-Chen Yu (Chung Cheng Institute of Technology, Taiwan)

Evaluation of the General English Testing Program – A Case Study of Chung Cheng Institute of Technology

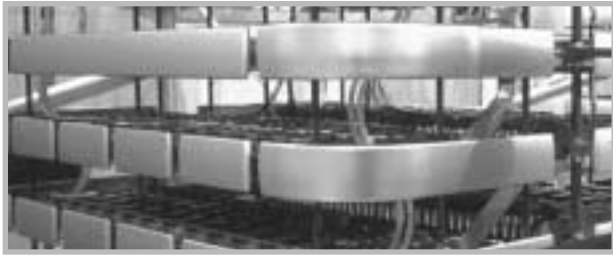Sun-Chin Yang (Van Nung Institute of Technology, Taiwan)
Jui-Chuan Yang (Van Nung Institute of Technology, Taiwan)

Studies of Club Experience Impacts on Stress Coping Strategy and Sports Performance-An Example of Van-Nung Institute of Technology Male Basketball Team

Jui-Chuan Yang (Van Nung Institute of Technology, Taiwan)
Sun-Chin Yang (Van Nung Institute of Technology, Taiwan)

The Relationship between the Sports Performance and Study Performance of Students Accepted for Excellent Sports Performance

Hung-Yi Wu (Kai Nan University, Taiwan)
Ming-Fang Liao (Kai-Nan University, Taiwan)

*Performance Analysis Knowledge Management Quality
in Higher Education - Using Balanced Scorecard*

SESSION 15

Engineering Reliability

Saturday, August 9, 8:00 am - 9:30 am

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

T.T. Wong (The Hong Kong Polytechnic University, Hong Kong)
J.M.K. MacAlpine (The Hong Kong Polytechnic University, Hong Kong)
G.Y. Liang (Xi' an Jiaotong University, China)

Effect of Corrosion and Torque on Laser Alloyed Busbars

M. Catena (University of Padova, Italy)
R. Manzini (Bologna University, Italy)
A. Pareschi (Bologna University, Italy)
A. Persona (University of Padova, Italy)
A. Regattieri (Bologna University, Italy)

Low Turnaround Spare Parts Level Optimization

Yaowu Zhao (Vextec Corporation, USA)
Robert Tryon (Vextec Corporation, USA)

*Micro Stress Analysis of Multi-Phases Polycrystalline
Metallic Materials*

D. Gary Harlow (Lehigh University, USA)

The Effect of Randomness in Complex Models

9:30 am – 9:40 am   Break

SESSION 16

Software Reliability and Modeling

Saturday, August 9, 9:40 am - 11:30 am

Session Chair:
Hoang Pham (Rutgers University, USA)

Yen-Chang Chang (Van Nung Institute of Technology, Taiwan)
Wei-Lung Chang (Van Nung Institute of Technology, Taiwan)

Software Release Time Based on a State Space Model

Greg Twaites (General Dynamics Advanced Information Systems, USA)
Constance Hoffman (General Dynamics Decision Systems, USA)

An Approach to Quantifying Process Quality and Cost

Kazuki Iwamoto (Hiroshima University, Japan)
Tadashi Dohi (Hiroshima University, Japan)
Naoto Kaio (Hiroshima Shudo University, Japan)

*Estimating Discrete-Time Periodic Software Rejuvenation
Schedules Under Cost Effectiveness Criterion*

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

*A Software Reliability Growth Modeling Based
on Infinite Server Queueing Theory*

SESSION 17

Maintenance and Availability

Saturday, August 9, 9:40 am - 11:30 am

Session Chair:
Balbir S. Dhillon (University of Ottawa, Canada)

Bibhas C. Giri (Hiroshima University, Japan)
Tadashi Dohi (Hiroshima University, Japan)

*Discrete-time Economic Manufacturing Quantity Model
with Stochastic Machine Breakdown and Repair*

Yutaka Saitoh (Tottori University, Japan)
Koichi Tokuno (Tottori University, Japan)
Shigeru Yamada (Tottori University, Japan)

*On Relationship between the Number of Debuggings and
Software Availability Measurement under Intermittent Use*

Francesco Muzi (University of L'Aquila, Italy)

*Preventive Maintenance Optimization to Improve Quality
in Electrical Power Systems*

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

Human Factors in Safety

Won Kyung Kim (Kyungnam University, Korea)
Chee Woo Lee (Kyungnam University, Korea)

*An Application of Variance Reduction Technique for
Large Scale Stochastic Network Reliability Evaluation*

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$ 480.00, 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 Ninth ISSAT International Conference on Reliability and Quality in Design at the Waikiki Beach Marriott Resort, Honolulu, Hawaii, U.S.A. for the special rate of US $159.00 per night for single or double occupancy plus room tax. Registration must be made directly with the Waikiki Beach Marriott Resort. When making reservations, please be sure to indicate that you are going to be attending the ISSAT International Conference.

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