

Proceedings

**The 8th International Symposium on
Future Software Technology**

ISFST-2004

October 20-22, 2004

Symposium at Xi'an, China

Sponsored by

Software Engineers Association, Japan



[\(http://www.sea.jp/\)](http://www.sea.jp/)

**United Nations University / International Institute for Software Technology,
Macau**

Northwest University, Xi'an

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Foreword

This is the 8-th symposium dedicated to the future software technology. The previous seven symposia in this series were successfully held in China since 1996. It has been organized by SEA (Software Engineers Association of Japan), UNU/IIST (International Institute of Software Technology of United Nations University), and the local host academic organizations in China.

This year, Northwest University (NWU) in Xi'an was our host.

The purpose of the Symposium is to review the recent advances in software technology, to exchange various technical and business information and to promote the sound industry-academia cooperation in future. It will provide a unique opportunity for practitioners, researchers and educators in software community to gather latest information and discuss the trends in the field.

The Symposium at Xi'an: Oct.20 - 22

At the PC meeting held in Hohhot, Inner Mongolia in August, 46 papers were selected from 113 submissions for technical presentation.

The symposium features keynote speaker: Professor Kyo-chul Kang (Pohang University of Science and Technology (POSTECH), Korea).

The unique feature of the ISFST symposium is that the program includes informal but intensive working-group style discussion sessions besides regular paper presentations. We have provided poster and demo sessions for this purpose this year.

Welcome to ISFST 2004.

Program Co-Chairs:

Zhi Jin

Soo-Yong Park

Kazunori SHIOYA

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<i>Kwanwoo Lee *</i>	<i>ZZ ZHao</i>
<i>Tomoo Matsubara *</i>	<i>Youliang Zhong *</i>
<i>Yoshitaka Matumura *</i>	

** 18 Attended PC meeting at Hohhot in Inner Mongolia in August 10-11*

ISFST-2004

Final Technical Program

Day 1: Oct. 20 (Wednesday)

09:00 - 12:00 Working Group Sessions: 1A1

Session 1A1-T1: Collaborative Support for Open Source

Chair: **Mr. Kouichi Kishida** (SRA-KTL, Tokyo)

Proposals:

- J341: Computer Supported Knowledge Collaboration
Kouichi Kishida 10
- O176: OpenWeb: An All-Featured and Dynamically-Evolved Open Development Environment
Youliang Zhong; Yoshikazu Hayashi; Jesse S. Jin 20

Session 1A1-T2: Issues in Software Process Improvement

Chair: **Prof. Hyuk-Soo Han** (SangMyung Univ., Seoul)

Proposals:

- J356: SPO Manifest (Topic Proposal)
Masao Ito 30

Session 1A1-T3: Filling the Gap between Practices and State of Arts

Chair: **Mr. Akira Kumagai** (TOKYO ELECTRON SOFTWARE TECHNOLOGIES LTD, Sapporo)

- Cpc034: IT Talents Engineering At Shanghai (Industrial Report)
Dehua JU 40
-

12:00 - 13:40 Lunch

13:40 - 14:00 **"Opening Ceremony"**

Chair: **Prof. Kegang Hao** (Northwest Univ., Xian)

- Brief History of ISFST by Prof. Kegang Hao**
Welcome speech by Prof. Zhu KeXiao, Vice President of Northwest University 50

4:00 - 15:30 **Keynote**

Chair: **Prof. Sooyong Park** (Sogang Univ., Seoul)

- "Trends of the Software Reuse Technologies"**
Prof. **Kyo-Chul Kang** (POSTECH, Pohang) 60

15:30 - 16:00 Break

16:00 - 17:30 Technical Sessions: 1P2

Session 1P2-T1: Cryptography

Chair: **Prof. Hideo Nakano** (Osaka City University, Osaka)

C161: A New Efficient Identification Scheme based on the Strong Diffie-Hellman Assumption Jun Shao; Rongxing Lu; Zhenfu Cao	70
C180: *No presentation*	
C235: Design of Digital Multisignature Schemes Based on Schnorr Algorithm Hongwei CHU; Wei GE	80
C271: A Blind Digital Signature Scheme based on Elliptic Curve Cryptography Zhan Xiong-Quan; Hong Jing-Xin	90

Session 1P2-T2: Methodology, Framework, Development

Chair: **Mr. Kouichi Kishida** (SRA-KTL, Tokyo)

C102: Zero-Time Software Development Pattern and the Methodology Tan WenAn	100
C131: Web Services-Based Software Reuse and Composition Rao Yuan; Feng Boqin; Lu Shumin	110
J338: Soft System Bus as a Future Software Technology Jingde Cheng	120

Session 1P2-T3: Tool demonstrations and Poster session

Chair: **Prof. GE Wei** (Northwest Univ., Xian)

Demo1: OpenWeb Kuiyang WANG (HYPERSOFT Shanghai)	130
Demo2: OpenWebSADAL/OBJ Mi-Young AHN (POSTECH, Korea)	132
Demo3: Developing with Open Source Software Fang XueFen (SRA-KTL, Japan)	134
Demo4: RAISE tool Chris George (UNU/IIST Macau)	136
Demo5: Requi-e'xito Minseong Kim (Sogang Univ., Korea)	138

17:30 - 18:00 Break

18:00 - 20:00 Welcome Reception with Posters and Demonstrations,
Hosted by **Prof. Zhi Jin** (Chinese Academy of Science, Beijing)

Day 2: Oct. 21 (Thursday)

09:00 - 10:30 Technical Sessions: 2A1

Session 2A1-T1: **Web services and GRID**

Chair: **Prof. Sooyong Park** (Sogang Univ., Seoul)

C208: *no presentation*

C229: GIS Grid Services Load Balancing Based on Dynamic Resource Discovery
LI Wen-jun; CHEN Dan; LI Yong-ji; LIANG Zhi-wei; JI Gao-feng 140

C260: Optimizing Grid Services on Byte Code Specification
Hongyan Mao; Linpeng Huang; Yongqiang Sun 150

Session 2A1-T2: **Requirements Engineering**

Chair: **Prof. Zhi Jin** (Chinese Academy of Science, Beijing)

C189: *no presentation*

K221: Value-Based Requirements Analysis for Product Families: A Goal and Scenario Oriented
Approach
Minseong Kim; Sooyong Park 160

K352: DREAM: Domain REquirement Asset Manager in Product Lines
Jihyeon Park; Mikyeong Moon; Keunhyuk Yeom 170

Session 2A1-T3: **Formal Modeling and Analysis**

Chair: **Prof. Keijiro Araki** (Kyushu Univ., Fukuoka)

J181: Formal Modeling for INformation Appliance Using MVC Architecture
Yuji Arichika and Keijiro Araki 180

C200: Verification of Workflow Model Based on Temporal Logic
LIU Feng; HAO Ke-Gang; GE Wei 190

J353: Multi-Aspect System Analysis Using State Machines Extracted from Specifications in VDM-SL
Kengo Miyoshi; Satoru Hirachi; Shigeru Kusakabe and Keijiro Araki 200

10:30 - 11:00 Break

11:00 - 12:30 Technical Sessions: 2A2

Session 2A2-T1: **UML, XML and Web**

Chair: **Mr. Masao Ito** (Nil Software, Tokyo)

C212: An XML-based System to Improve Web Application Level Security
Teng Lv; Qiongxiang Huang; Ping Yan; Zhenxing Wang 210

J215: Dynamic Semantic Checking for UML Models in the IIOSS System
Motoyuki Sano; Teruo Hikita 220

J333: Generating Dependency Relationships among UML Model Elements for Impact Analysis of UML
Documents
Masayuki Kotani; Koichiro Ochimizu 230

Session 2A2-T2: **Programming**

Chair: **Prof. Keunhyuk Yeom** (Pusan National Univ., Pusan)

C240: Generic Programming in C++; Delphi and Java	
Xu Wen-Sheng; Xue Jin-Yun	240
J249: Dependence-Based Representation for Concurrent Java Programs and Its Application to Slicing	
Jianjun Zhao; Bixin Li	250
Cpc043-2: Research on Visual Language Specification and Visual Language Editor Automatic Generator	
Lu Yang; Zhang Li; Duan Fang	260

Session 2A2-T3: **Discussion on Product Line Developments**

Chair: **Mr. Kazunori SHIOYA** (SRA-KTL, Tokyo)

Guest Speaker: **Prof. Kyo-Chul Kang**

***Canceled session* Mobile Computing**

C071: *CANCELED*, C154&C183: *no presentation*

12:30 - 14:00 Lunch

14:00 - 15:30 Technical Paper Sessions: 2P1

Session 2P1-T1: **Security and Internet**

Chair: **Prof. Zhi Jin** (Chinese Academy of Science, Beijing)

C119: A Multi-Fingerprints Based AntiSpam Peer-to-Peer Network	
Wenqiang Wang and Zhenhua Duan	270
C173: *no presentation*	
C292: *CANCELED*	
J355: Dynamic Software Birthmarks to Detect the Theft of Windows Application	280
Haruaki Tamada; Keiji Okamoto; Masahide Nakamura; Akito Monden; Ken'ichi Matsumoto	

Session 2P1-T2: **Testing**

Chair: **Prof. Kwanwoo Lee** (Hansung Univ., Hansung)

C004: A Novel Approach to Unit Testing: The Aspect-Oriented Way	
Guoqing Xu; Zongyuan Yang	290
C230: Software Defect Measure	
Rui Zhang; Kegang Hao	300
O346: Metamorphic Testing and Its Applications	
Zhi Quan Zhou; D.H.Huang; T.H.Tse; Zongyuan Yang; Haitao Huang; T.Y.Chen	310

Session 2P1-T3: **New Application, Agent, AI**

Chair: **Prof. Kyo-Chul Kang** (POSTECH, Pohang)

C159: *no presentation*	
O177: Sonar-based Visual Information Architecture for Handwriting Information Processing	
Youliang Zhong; *Jianliang Shen; Jesse S. Jin; Guoyin Zhang	320
C191: The Application of Multi-agent Cooperation Model in Multi-area Synchronous Cooperative Work Based on a Dynamic Group	
Zhang Xiaobo; Liu Wei; Zhong Runlu; Qiu Kening; Ju Hongwei	330
O261: *no presentation*	

15:30 - 16:00 Break

16:00 - 17:30 Technical Paper Sessions: 2P2

Session 2P2-T1: Communication and Protocols

Chair: **Mr. Akira Kumagai** (TOKYO ELECTRON SOFTWARE TECHNOLOGIES LTD, Sapporo)

- C220: A Novel Network Transmission Architecture for Internet-Based Process Control Systems
Hong-Yan Li; Yu-Hui Ke 340
- C234: *CANCELED*
- C243: A fast algorithm of Non-prefix Rule in Packet Classification
FU Ge; GONG Zheng-liang 350

Session 2P2-T2: Software Processes and Workflow

Chair: **Prof. Hyuk-Soo Han** (SangMyung Univ., Seoul)

- C129: *CANCELED*
- C190: Goal Driven Measurement of Agility in Software Process
SHEN Bei-jun; JU De-hua 360
- Cpc043-1: The Enterprise Application Integration Approach in Enterprise Process Monitoring and
Controlling System
Wen Bilong; Zhang Li; Zhou Bosheng 370
- Cpc043-4: THE RESEARCH OF ENTERPRISE PROCESS ANALYSIS AND ITS SUPPORT
ENVIRONMENT
Sun Yi; Zhang Li; Xu Hongxia 390

Session 2P2-T3: Database and Data mining

Chair: **Prof. Kei Kurakawa** (NAIST, Nara)

- C088: Web Fuzzy Clustering and Its Applications in Web Usage Mining
MaoFu Liu; Yanxiang He; Huijun Hu 400
- C133: An Interval-value Clustering Approach to Data Mining
Yunfei Yin; Faliang Huang 410
- C168: Location Database Clustering to Achieve Location Management Time Cost Reduction in A Mobile
Computing System
Chen Jixiong; Li Guohui 420
-

Evening **Banquet** (Hosted by **Prof. Kegang Hao** and **Mr. Akira Kumagai**)

Day 3: Oct. 22 (Friday)

09:00 - 10:30 Session Reporting 3A1

Session 3A1-T0: Working Group Session Reporting

Chair: **Mr. Kazunori SHIOYA** (SRA-KTL, Tokyo)

- Collaborative Support for Open Source by Mr. Kouichi Kishida
- Issues in Software Process Improvement by Prof. Hyuk-Soo Han 430
- Filling the Gap between Practices and State of Arts by Mr. Akira Kumagai
-

10:30 - 12:00 **"Closing Panel on Future"**

What is ISFST; Yesterday, today and tomorrow

Chair: **Mr. Chris George** (UNU/IIST, Macau)

440

Panelists: Prof. **Kei Kurakawa**,

450

Prof. **Beijun Shen**,

460

Prof. **Kwanwoo Lee**.

470

NOTE: Finally, 34 papers were presented (out of 46 papers were accepted), and not presented papers are omitted from the program and this proceedings.

End of the ISFST 2004 Program

Session Reports from the Session Chairs

500

Summary from a Program Co-Chair

This year, 113 technical papers and 3 workshop proposals were submitted to the isfst2004-paper mailing list, there were 92 from China, 11 from Japan, 4 from Korea, 4 from Australia, 1 from Malaysia and 1 from Iran. The 113 technical papers, assigned two reviewers for each, were reviewed and rated by 35 reviewers (see referee list) before the PC meeting. At the PC meeting, 46 technical papers (34 from China, 7 from Japan, 2 from Korea, 2 from Australia and 1 from Iran) were accepted from 113 papers according to the referee reports. Finally, 42 final papers were submitted by the final due (4 canceled). Eventually 34 technical papers were presented at the symposium in Xi'an and 7 Chinese and 1 Iranian were not presented at their sessions (see session reports).

As we have learned from the experiences from the former ISFST2002, formally we have provided demo and poster session in this year. There were 5 demo and poster proposals presented in a demo/poster session. Also, session report form were handed to the session chairs and reported by the chairs immediately after the session closed (see attached session reports). Also, we have provided 3 workshops on the first day morning. The purpose of these sessions is to revive unique characteristics of ISFST through informal and intensive discussion among participants about given topics.

We have been trying to prevent “no shows” and to gather many audiences from wider regions over the Asia-Pacific, however we both failed in this year too. So, it might be the time to change the scheme again as we did before ISFST which changed scheme from “International CASE Symposium” to current “International Symposium on Future Software Technology”. We hope to see all the symposium attendee again in new scheme soon.

Kazunori SHIOYA

A Program Co-Chair of ISFST-2004

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