

Advance Program (V3) for
ISORC '98
The 1st IEEE International Symposium on
Object-oriented Real-time distributed Computing

April 20 - 22, 1998
Kyoto International Conference
Hall
Kyoto, Japan

Sponsored by:
IEEE Computer Society TC on
Distributed Processing

In cooperation with:
Information Processing Society of
Japan, SIGSE
IFIP WG 10.4
OMG

(URL of ISORC '98 Web: <http://dream.eng.uci.edu/isorc/>)

** The hotel selection / reservation form is available from the Web.

** ICSE '98 (The IEEE CS Int'l Conf. on Software Engineering) will be held immediately after ISORC '98, during April 22 - 24, 1998, in the same location.

Timetable

<p><u>April 20 (Mon)</u> 8:00 - 8:40 Registration 8:40 - 9:00 Opening 9:00 - 10:15 Session 1 10:35 - 11:50 Session 2 11:50 - 13:20 Lunch 13:20 - 15:00 Sessions 3A & 3B 15:20 - 16:20 Sessions 4A & 4B 16:30 - 17:20 Keynote speech 19:00 - 21:30 Banquet</p> <p><u>April 21 (Tue)</u> 8:30 - 10:10 Sessions 5A & 5B</p>	<p>10:30 - 12:10 Sessions 6A & 6B 12:10 - 13:40 Lunch 13:40 - 14:55 Sessions 7A & 7B 15:15 - 16:30 Sessions 8A & 8B 16:40 - 18:00 Panel 1 18:30 - 20:00 Reception (ICSE + ISORC)</p> <p><u>April 22 (Wed)</u> 13:15 - 14:30 Sessions 9A & 9B 14:50 - 15:40 Sessions 10A & 10B 15:50 - 17:10 Panel 2 17:10 - 17:20 Closing</p>
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Objective: The ISORC is a new IEEE Computer Society symposium series dealing with the emerging object-oriented real-time distributed computing (ORC) technology. The main technical theme of the ISORC is how to extend the well established object-oriented computing technology, i.e., the technology that has prevailed the non-real-time business data processing field in the past decade, into the technologies that are effectively applicable to various classes of real-time applications. The ISORC was created with the goal of becoming an exemplary symposium series with respect to the maintenance of an open symposium spirit. Papers in subareas ranging from those of new ORC paradigms and formalized object models to those of engineering techniques and tools and innovative application concepts will be presented.

Keynote speaker: Richard Soley, Chairman and CEO of OMG
For the abstract, see the Web site.

Banquet speaker: Brian Randell, Prof., Univ. of Newcastle upon Tyne, UK

Detailed Schedule

April 20, 1998 Monday

8:00 – 8:40 Registration

8:40 – 9:00

Opening session

9:00 – 10:15

Session 1 Real-time object structures

Huw Oliver, Hewlett-Packard, UK,
Christopher Edwards, Lancaster U., UK,
Frederic Dang Tran and Jean-Bernard Stefan, France Telecom CNET, France, and
David Hutchison, Lancaster U
Supporting Real-Time Multimedia Applications with Distributed Object Controlled Networks

Eltefaat Shokri and Patrick Crane, SoHaR Inc., USA, and
Kane Kim, UCI, USA
An Implementation Model for Time-Triggered Message-Triggered Object Support Mechanisms in CORBA-Compliant COTS Platforms

Hermann Kopetz, Tech. U. of Vienna, Austria
The Time-Triggered Architecture

10:35 – 11:50

Session 2 Quality-of-service assurance

Alexander Romanovsky, J. Xu, and Brian Randell, U. of Newcastle upon Tyne, UK
Exception Handling in Object-Oriented Real-Time Distributed Systems

Joseph P. Loyall, Richard D. Schantz, John A. Zinky, and David E. Bakken, BBN Technologies, USA
Specifying and Measuring QOS in Distributed Object Systems

Jaroslav Sydir, Saurav Chatterjee,

and Bikash Sabata, SRI International, USA
Providing End-to-end QoS Assurances in CORBA-Based Systems

11:50 – 13:20 Lunch

13:20 – 15:00

Session 3A Software Architecture

Manfred Dalmeijer and Eric Rietjens, Baan Research Laboratories, Netherlands,
Dieter K. Hammer and Ad T.M. Aerts, Eindhoven U. of Tech., Netherlands, and
Michiel Soede, Baan Research
A Reliable Mobile Agents Architecture

Andreas Polze and Miroslaw Malek, Humboldt U. of Berlin, Germany
Responsive Computing with CORBA

Kane Kim and Chittur Subbaraman, UCI, USA
Principles of Constructing a Timeliness-Guaranteed Kernel and Support Mechanisms for Time-Triggered Message-Triggered Objects

Jun'ichi Miyao, Hiroshima U., Japan
A Reliable Software Architecture for Complex Embedded Systems

13:20 – 15:00

Session 3B Scheduling & Resource Allocation

Michael Squadrito, Levon Esibov, Lisa Cingiser DiPippo, Gregory Cooper, and Victor Fay Wolfe, U. of Rhode Island, USA,
Bhavani Thuraisingham, Peter Krupp, and M. Milligan, MITRE Corp., USA, and
Russell Johnston, U.S. Navy NRaD, USA
Concurrency Control in Real-time Object-Oriented Systems: The

Affected Set Priority Ceiling Protocols

Wilson C. H. Cheng, Fujitsu Australia Software Technology Ltd., Australia
Using Ordered and Atomic Multicast for Distributed Deadlock Prevention

Hong-Jin Park, Kyung-Ah Chun, and Young-Chan Kim, Chung-Ang U., Korea,
Associative Prioritized Worker Model with Priority Inheritance Protocol

Seung-Min Yang, Sheen Lee, Hyung-Taek Lim, and Sung-Heun Oh, Soongsil U., Korea
RT-HashQ for RTO scheduling

15:20 – 16:20

Session 4A Work in Progress (I)
(Communication related)

Laurent George, CSTI, France and Pascale Minet, INRIA, France
An admission control for videobroadcast systems

Tong-Ming Lim and Sai-Peck Lee, U. of Malaya, Malaysia
Objects Collection Management in Multidimensional DBMS Data Model

Masashi Yasuda, Takayuki Tachikawa, and Makoto Takizawa, Tokyo Denki U., Japan
A Purpose-oriented Access Control Model for Object-Based Systems

15:20 – 16:20

Session 4B Work in Progress (II)
(Design related)

Eui-Hyun Paik, Y.J. Byun, Y.S. Chung, and Byung-Sun Lee, ETRI, Korea
An Object-Oriented CHILL Debugger

Franklin Reynolds, Hewlett-Packard, USA,

Ray Clark and Franco Travostino,
The Open Group Research Inst.,
USA
Evolution of a Distributed, Real-time, Object-Based Operating System

F. Xiaocong, X. Dianxiang, H. Jianmin, and Z. Guoliang,
Nanjing U., P. R. China
SPLAW: A Computable Agent-oriented Programming Language

16:30 – 17:20
Keynote Speech

Richard Soley, Chairman & CEO
of OMG
"Are Real-Time Objects
Ready for Prime Time?"

19:00 – 21:30 Banquet
Banquet speaker:
Prof. Brian Randell, U. of
Newcastle upon Tyne, UK

April 21, 1998 Tuesday

8:30 – 10:10
Session 5A Fault-tolerance (I)

Rogério de Lemos and Alexander Romanovsky, U. of Newcastle upon Tyne, UK
Coordinated Atomic Actions in Modelling Objects Cooperation

Franco Travostino, Laura Feeny, Philippe Bernadat, and Franklin Reynolds, The Open Group Research Inst., USA
Building Middleware for Real-Time Dependable Distributed Services

Andrea Bondavalli, CNUCE Istituto del CNR, Italy,
F. Di Giandomenico and F. Grandoni, IEI Istituto del CNR, Italy,
D. Powell, LAAS-CNRS, France, and
C. Rabejac, Matra Marconi Space France, France
State Restoration in a COTS-based

N-Modular Architecture

Tsunetake Ishida and Makoto Takizawa, Tokyo Denki U., Japan
Pseudo-Active Replication of Objects in Heterogeneous Clusters

8:30 – 10:10
Session 5B Specification & Design

Reino Kurki-Suonio and Mika Katara, Tampere U. of Tech., Finland
Real Time TLA-Based Theory of Reactive Systems

Jean-Pierre Talpin, Albert Benveniste, and Benoit Caillaud, INRIA, France,
Claude Jard, CNRS, France,
Zacharia Bouziane, INRIA, and Hubert Canon, DGA, France
BDL, a language of Distributed Reactive objects

Brian Nielsen, Aalborg U., Denmark,
Shangping Ren and Gul Aga, U. of Illinois, Urbana-Champaign, USA
Specification of Real-Time Interaction Constraints

Jean-Marc Zeippen, Eric Dubois, and Philippe Du Bois, U. of Namur, Belgium
Supporting the Analyst when Reasoning on Requirements Specifications for Real-Time and Distributed Systems

10:30 – 12:10
Session 6A Fault-tolerance (II)

S. J. Caughey, M.C. Little and Santosh K. Shrivastava, U. of Newcastle upon Tyne, UK
Checked Transactions in an Asynchronous Message Passing Environment

I-Ling Yen, U. of Texas, Dallas, USA,
Iftikhar Ahmed, Telxon Corp., USA,
Ramanujam Jagannath, Dialog

Corp., USA, and
Sreeparna Kundu, U. of Houston, USA
Implementation of a Customizable Fault Tolerance Framework

Isao Kaji, IBM Japan Ltd., Japan, and
Kinji Mori, Tokyo Inst. of Tech., Japan
Integration of Autonomous decentralized Systems with Different Fault Tolerance Requirement Levels

Ian Ho and Jin-Cherng Lin, Tatung Inst. of Tech., Taiwan
A Method of Test Cases Generation for Real-Time Systems

10:30 – 12:10
Session 6B Development Environment & Tools

Jung Guk Kim, Hankuk U. of Foreign Studies, Korea,
Moon-Hae Kim, Konkuk U., Korea,
Byung-Joon Min, Incheon U., Korea, and
D. B. Im, Sangji Junior College, Korea
A Soft Real-Time TMO Platform - WTMOS - and its Implementation Techniques

Alceu Heinke Frigeri, Fern U. Hagen, Germany,
Carlos Eduardo Pereira, Federal U. of Rio Grande do Sul, Brazil, and
Wolfgang Halang, Fern U.
An Object-Oriented Extension to PEARL90

Stephen S. Yau and Bing Xia, Arizona State U., USA
An Approach to Distributed Component-based Real-time Application Software Development

Chang Sup Keum, Joon Kyung Lee, DongGill Lee, and Byung Sun Lee, ETRI, Korea
Integrated Environment based on Object-Oriented Methodology for Real-time Systems

12:10 – 13:40 Lunch

13:40 – 14:55

Session 7A Communications

Michel Hurfin and Michel Raynal, IRISA, France
Asynchronous Protocols to Meet Real-Time Constraints: Is It Really Sensible? How to Proceed?

Joerg Kaiser and Mohammad Ali Livani, U. of Ulm, Germany
Invocation of Real-Time Objects in a CAN Bus-System

Shahab Baqai, Purdue U., West Lafayette, USA,
Ray Paul, Dept. of Defense, USA,
Husni Fahmi, Ahmed Bashandy, and Arif Ghafoor, Purdue U.
Real Time Resource Allocation for Multimedia Object Communication

13:40 – 14:55

Session 7B Verification & Testing (I)

Sven Lutz, Tech. U. Berlin, Germany, and
Matthias Weber, Daimler-Benz AG, Germany
Simulation and Analysis of Real-Time Concurrent Object Models

T. Naks and L. Motus, Tallinn Tech. U., Estonia, and
J.D. Holt, Brass Bullets Ltd., UK
Timing Analysis in OO System Life-cycle

Peter Herrmann, Guenther Graw, and Heiko Krumm, U. Dortmund, Germany
Compositional Specification and Structured Verification of Hybrid Systems in cTLA

15:15 – 16:30

Session 8A Design Approaches

Edgar Nett, Martin Gergeleit, and Michael Mock, GMD, Germany
An Adaptive Approach to Object-Oriented Real-Time Computing

Tetsuo Kanezuka and Makoto Takizawa, Tokyo Denki U., Japan
Quality-based Flexibility in Distributed Objects

Vikram Gundaju and Toshimi Minoura, Oregon State U., USA
Distributed Observable/Observer: A Distributed Real-Time Object-Communication Mechanism

15:15 – 16:30

Session 8B Verification & Testing (II)

Cinzia Bernardeschi and Luca Simoncini, U. Pisa, Italy, and
Alessandro Fantechi, U. Firenze, Italy
Validating the Design of Dependable Systems

Feng Zhu, Sanjai Rayadurgam, and Wei-Tek Tsai, U. of Minnesota, Minneapolis, USA
Automating Regression Testing for Real-time Software in a Distributed Environment

Shin'ichi Nagano, Yoshiaki Kakuda, and Tohru Kikuno, Osaka U., Japan
Experience of Responsiveness Verification for Connection Establishment Protocols

16:40 – 18:00

Panel I ORC in Industrial Automation

Moderator: Hermann Kopetz, TU of Vienna, Austria

Panelists:

Hiroshi Ishii, NTT, Japan
Scott Moody, Boeing, USA
Daniel Plakosh, CMU SEI, USA
Fujino Terunobu, Inarcadia Co., Japan
Bhavani Thuraisingham, Mitre Corp. USA

18:30 – 20:00

Reception -- ICSE + ISORC Joint Reception (with a guest from the Japan's Royal Family)

April 22, 1998 Wednesday

Morning Break (to allow those who registered for ICSE '98 to attend the opening session of ICSE)

13:15 – 14:10

Session 9A CORBA-related (I)

Kazuhiro Kusunoki, Mitsubishi Electric Corp. and Kyushu U., Japan,
Isao Imai, Haruyuki Ohtani, Tetsuo Nakakawaji, and Michitaka Ohshima, Mitsubishi Electric Corp., Japan, and
Kazuo Ushijima, Kyushu U.
A CORBA-based Remote Monitoring System for Factory Automation

Andreas Polze, Humboldt U. of Berlin, Germany,
Dan Plakosh and Kurt Wallnau, Carnegie Mellon U., USA
CORBA in Real-Time Settings -- A Problem from the Manufacturing Domain

13:15 – 14:30

Session 9B Database & Applications (I)

John A. Stankovic and Sang H. Son, U. of Virginia, USA
Architecture and Object Model for Distributed Object-Oriented Real-Time Databases

E.J. Chang and T.S. Dillon, La Trobe U., Australia
The Navigational Aspects of the Logical Design of User Interfaces

T. Wang, Phillip C-Y Sheu, and Carl Cotman, U. of California, Irvine, USA
Active Rule Processing in the BioCompose Database

14:50 – 15:40

Session 10A CORBA-related (II)

Scott Moody, Boeing Information

Space & Defense Systems, USA
Distributed Object-Oriented Real-Time Systems using a Hybrid Model of Ada 95's Built-in Distributed Capability and Emerging Real-Time CORBA Capabilities

Sungjune Hong, Youngjea Kim, and Sungyoung Han, Konkuk U., Korea
Real-time Inter-ORB protocol on Distributed Environment

14:50 – 15:40
Session 10B Applications (II)

Jean-Marc Jezequel,
IRISA/CNRS, France

Object-Oriented Design of Real-Time Telecom Systems

Luiz F. Bacellar and Bhargav P. Upender, United Technologies Research Center, USA
A Dependable Distribution-Transparent Remote Method Invocation Model for Object-Oriented Distributed Embedded Computer Systems

15:50 – 17:10
Panel II Promises of ORC Technology

Moderator: Edgar Nett, Germany

Panelists:

Michel Gien, Sun Micro / Chorus, France
Peter Hruschka, Atlantic Systems Guild, Germany
Tom Lawrence, USAF Lab., USA
Victor Malyshkin, Russian Acad. Sci., Russia
Bran Selic, Object Time, Canada
Barry Morris, Iona Tech., Ireland

17:10 – 17:20
Closing session: Plan for future ISORC

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The IEEE Computer Society's 1st International Symposium on Object-Oriented Real-Time Distributed Computing (ISORC 98)

Kyoto International Conference Hall, Kyoto, Japan

April 20-22, 1998

Sponsored by the IEEE Computer Society TCDP

SYMPOSIUM REGISTRATION FORM

(Please type or print)

Name _____
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REGISTRATION FEE PAYMENT (circle one of the following):

	Advance (by March 20, 1998)	Late (after March 20, 1998)
IEEE member	\$300.00	\$360.00
non-IEEE member	\$375.00	\$450.00
student (non-author) ¹	\$175.00	\$210.00

(A non-student registration fee includes proceedings, coffee breaks, reception, and 1 banquet.)

(ICSE '98 participants are qualified for \$25 discount in this registration fee. To receive the discount, this ISORC '98 registration form and the appropriate payment must be submitted together with a copy of the ICSE '98 registration form submitted to ICSE. If you are registering for both, mark here)

If IEEE member, Membership No.: _____

METHOD OF PAYMENT:

Please attach the exact payment in one of the following forms:

1. A check or money order drawn on a U.S. bank, payable to the order of "IEEE-ISORC 98"
2. A proof of direct (wire) transfer to Great Western Bank with the following:
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 - Account No. 244800-4958
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Please send this form and full fee payment to be received by **March 20th, 1998** for advance registration at the following address:

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Ph: (714) 824-4148, FAX: (714) 824-3203, e-mail: masaki@ece.uci.edu

Cancellation policy: Registration fees can be refunded after deduction of a processing fee of \$100 per each registration being cancelled only if written requests for cancellation of registrations are received by the deadline of April 5th, 1998.

Symposium Location: Kyoto International Conference Hall Phone: 81-75-705-1234
Kyoto, Japan Fax: 81-75-705-1100

Hotels: The *hotel selection/reservation form* for ISORC '98 participants is available from the ISORC 98 home page at <http://dream.eng.uci.edu/isorc> .

¹ (1) The student registration fee covers 1 copy of the proceedings and coffee breaks but no meal events.
(2) A student who is the author/co-author presenting a paper must pay the non-student registration fee.