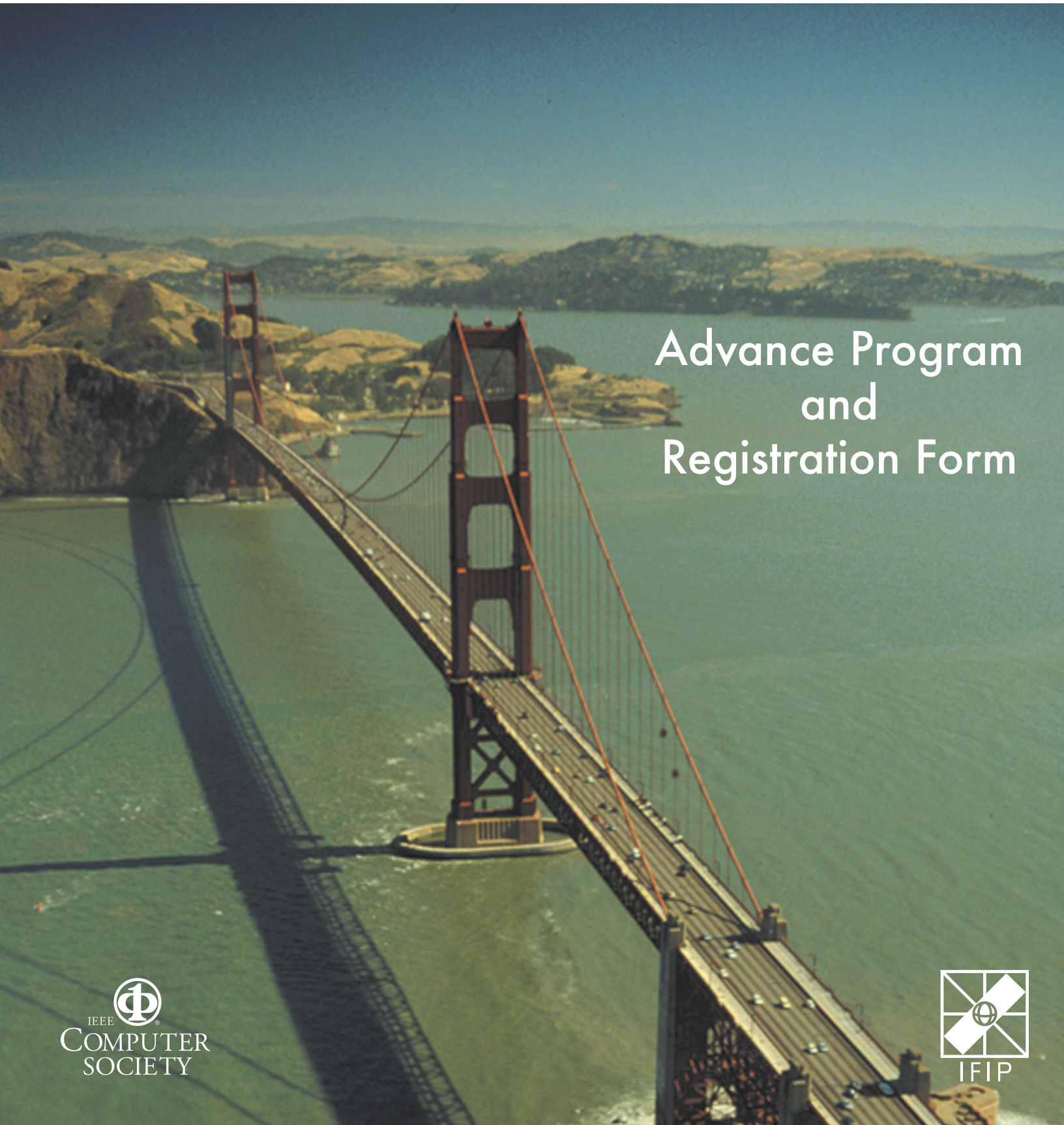
The International Conference on Dependable Systems and Networks

San Francisco, California, USA June 22 – 25, 2003

Sponsored by:
IEEE Computer Society Technical Committee on Fault-Tolerant Computing and IFIP WG 10.4 on Dependable Computing and Fault Tolerance
In cooperation with: The Software Engineering Institute at Carnegie Mellon University.



Advance Program and Registration Form

IEEE COMPUTER SOCIETY

IFIP

Conference

Sunday, June 22

800 to 1200	Tutorial Quality, Specification, Evaluation, Assessment, and Certification of Dependable Systems	Tutorial Time-Triggered Architecture
1200 to 1330	Lunch	
1330 to 1730	Tutorial UML-Based Dependability Modelling and Evaluation	Tutorial Practical Design of Safety Critical Systems
1800 to 2000	Welcome Reception	

Monday, June 23

800 to 830	Continental Breakfast				
830 to 1000	Opening Remarks and Keynote Address				
1000 to 1030	Break				
1030 to 1200	DCC Session 1A Safety and Security	DCC Session 1B Broadcast and Publish/Subscribe	IPDS Session 1C Measurement-Based System Dependability Evaluation	Workshop Design of Self-Managing Systems	Workshop Model Checking for Dependable Software Intensive Systems
1200 to 1330	Lunch				
1330 to 1530	DCC Session 2A Practical Experience and Demonstrations 1	DCC Session 2B Dependability Evaluation	IPDS Session 2C Techniques to Improve System and Network Dependability	Workshop Design of Self-Managing Systems	Workshop Model Checking for Dependable Software Intensive Systems
1530 to 1600	Break				
1600 to 1730	DCC Session 3A Panel: Technology Impact on Dependability	DCC Session 3B Student Forum 1	IPDS Session 3C Analysis of Fault-Tolerant Protocols	Workshop Design of Self-Managing Systems	Workshop Model Checking for Dependable Software Intensive Systems

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- University of Virginia

Cover photos courtesy of San Francisco Convention & Visitors Bureau

at a Glance

Tuesday, June 24

800 to 830	Continental Breakfast				
830 to 1000	DCC Session 4A Dependability Algorithms	DCC Session 4B Fast Abstracts 1	IPDS Session 4C Analytical Methods	Workshop Self-Stabilizing Systems	Workshop Principles of Dependable Systems
1000 to 1030	Break				
1030 to 1200	DCC Session 5A Network Fault Tolerance	DCC Session 5B Fast Abstracts 2	IPDS Session 5C Validation of System Security and Timing	Workshop Self-Stabilizing Systems	Workshop Principles of Dependable Systems
1200 to 1330	Lunch				
1330 to 1500	DCC Session 6A Services for Distributed Computing	DCC Session 6B Fast Abstracts 3	IPDS Session 6C Analysis of Fault-Tolerant Mechanisms	Workshop Self-Stabilizing Systems	Workshop Principles of Dependable Systems
1500 to 1530	Break				
1530 to 1700	DCC Session 7A Modelling and Formal Methods	DCC Session 7B Panel on Technology Readiness for Safety Critical Automotive Applications	IPDS Session 7C Tool Demonstrations	Workshop Self-Stabilizing Systems	Workshop Principles of Dependable Systems
1745 to 1830	Transfer to Excursion/Banquet				
1900 to 2200	Excursion/Banquet				

Wednesday, June 25

800 to 830	Continental Breakfast				
830 to 1000	DCC Session 8A Computer Design	DCC Session 8B Student Forum 2	IPDS Session 8C Panel: Security Assessment and Benchmarking	Workshop Self-Stabilizing Systems	
1000 to 1030	Break				
1030 to 1230	DCC Session 9A Practical Experience and Demonstrations 2	DCC Session 9B Distributed Systems and Services	IPDS Session 9C Dependability and Performance Analysis	Workshop Self-Stabilizing Systems	
1230 to 1400	Lunch				
1400 to 1600	DCC Session 10A TCP Connection Management	DCC Session 10B Robust Software	IPDS Session 10C Techniques for Improving Dependability		
1600 to 1615					
1615 to 1730	Business Meeting: IEEE Technical Committee on Fault-Tolerant Computing				

Invitation from the General Chair

On behalf of the organizing committee, it is my pleasure to invite you to attend the 2003 International Conference on Dependable Systems and Networks (DSN-2003), the leading international conference on dependability, to be held this year at the Cathedral Hill Hotel in beautiful San Francisco, California from June 22nd to 25th, 2003.

This conference attempts to provide answers to a very important question, namely: "how can we make the computer systems and communication networks that we ever more increasingly rely on more dependable?" Our lives have become critically dependent on the correct functioning of these systems as we surf the web, fly in airplanes, drive our cars, manage our finances, and even heat our homes. The traditional concerns of the dependability community (e.g., inadvertent faults, errors, and failures) have now been enlarged by the massive connectivity provided by the Internet to include malicious exploitation of imperfect systems and networks and intentional cyber-attacks on them.

We have put together an excellent technical program for researchers, practitioners, and users to learn and exchange information on the latest research results and the state of the practice in dependable systems and networks. Multiple tracks include the Dependable Computing and Communications Symposium (DCC), the International Performance and Dependability Symposium (IPDS), as well as Workshops, Tutorials, a Student Forum, and FastAbstracts highlighting late-breaking research. There will be plenty of opportunity for informal discussions during breaks, lunches, a welcome reception, and a dinner cruise.

I invite you to join us at the premiere conference on dependable systems and networks. I look forward to seeing you in San Francisco.

Charles B. Weinstock
General Chair
DSN 2003

Keynote Speaker

Urs Hölzle, Google Fellow, Google Corp.

Urs Hölzle joined Google from the University of California, Santa Barbara where he was an associate professor of computer science. He received a master's degree in computer science from ETH Zurich in 1988 and was awarded a Fulbright Scholarship that same year. In 1994, he earned a Ph.D. from Stanford University, where his research focused on programming languages and their efficient implementation.

As one of the pioneers of dynamic compilation, also known as "just-in-time compilation," Hölzle invented fundamental techniques used in most of today's leading Java compilers. Before joining Google, Hölzle was a co-founder of Animorphic Systems, which developed compilers for Smalltalk and Java. After Sun Microsystems acquired Animorphic Systems in 1997, Hölzle helped build Javasoft's high-performance Hotspot Java compiler.

In 1996, Hölzle received a CAREER award from the National Science Foundation for his work on high-performance implementations of object-oriented languages. Hölzle was also a leading contributor to DARPA's National Compiler Infrastructure project. He has served on program committees for major conferences in the field of programming language implementation, and is the author of numerous scientific papers and U.S. patents.

Hölzle was named Google Fellow after serving as the company's first vice president of Engineering. In that role he led development of the company's operational infrastructure and was renowned for both his red socks and his free-range Leonberger, Yoshka (Google's top dog).

Committees

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Nuno Ferreira Neves (U. Lisboa, Portugal)
James S. Plank (U. Tennessee, USA)
David Powell (LAAS-CNRS, France)
Parmesh Ramanathan (U. Wisconsin, Madison, USA)
Santosh Shrivastava (U. Newcastle, UK)
Luis Silva (U. Coimbra, Portugal)
Arun Somani (Iowa State, USA)
Victoria Stavridou (SRI, USA)
Daniel Sturman (IBM, USA)
Nitin Vaidya (UIUC, USA)
Paulo Veríssimo (U. Lisboa, Portugal)
Ex Officio: Jean Arlat and William H. Sanders

Performance and Dependability Symposium (IPDS)

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Sy-Yen Kuo (National Taiwan U., Taiwan)
Steven Lumetta (UIUC, USA)
Henrique Madeira (U. Coimbra, Portugal)
Mod Marathe (Cisco, USA)
Eliane Martins (State U. Campinas, Brazil)
Daniel Menasce (George Mason, USA)
Victor Nicola (U. Twente, Netherlands)
Carol Smidts (U. Maryland, USA)
Arun Somani (Iowa State, USA)
Neeraj Suri (TU-Darmstadt, Germany)
Dong Tang (Sun, USA)
Ann Tai (IA Tech Inc., USA)
Miklos Telek (TU-Budapest, Hungary)
Aad van Moorsel (HP, USA)
Lawrence Votta (Sun, USA)
Murray Woodside (Carleton, Canada)
Sherif Yacoub (HP, USA)
Ex Officio: R. Iyer, W. Sanders, and K. Trivedi

Fast Abstracts

Fast Abstracts are short presentations of work in progress or opinion pieces that can cover any and all facets of dependable systems and networks (maximum 2 pages - standard double-column IEEE format). Because they have late deadlines and are not rigorously refereed, Fast Abstracts allow their authors to:

- Report on work that may or may not be complete.
- Introduce new ideas to the community.
- State positions on controversial issues.

Participants in this track will present a short talk (5 minutes including 1 minute for questions) and publish a concise, two-page abstract in the Supplement of the 2003 International Conference on Dependable Systems and Networks. More information on format and submission can be found at www.dsn.org/fastabs.html

Deadlines

Submission: April 21, 2003 (earlier if all slots filled)

Notification: May 7, 2003

Program Committee

Chair: Michel Cukier (University of Maryland, USA)

Felicita Di Giandomenico, (CNR, Italy), Steven Lumetta, (UIUC, USA)

Student Forum

The Student Forum will provide an opportunity for students working in the area of dependable computing to interact in various ways and to present and discuss their dissertation research objectives, approaches, and preliminary results. It will consist of two main sessions. The first will be a poster session during which students will present their research. Since we are expecting participants from all over the world, the second session will provide an opportunity for students to have informal interactions and discussions about their different academic cultures. During this session, the students will be invited to present brief resumes, explain their doctoral work, and outline their objectives after thesis completion.

Submission: On-going student research papers should be singly authored by the students and describe preliminary results and future directions of on-going research that is expected to continue over the next years. The papers will be reviewed by a Committee led by the Student Forum Chair. Accepted contributions will be published in the Supplement of the 2003 International Conference on Dependable Systems and Networks.

Papers should be no more than three pages long (IEEE double-column format), and should be submitted in their final form, ready to be printed. Contributions must be submitted electronically (.pdf or .ps format) to the Student Forum Chair. See http://www.dsn.org for more submission information.

Deadlines

Submission: April 21, 2003

Notification: May 7, 2003

Program Committee

Chair: Mohamed Kaâniche (LAAS-CNRS, France)

Zbigniew Kalbarczyk (UIUC, USA), Michael Lyu (Chinese U. of Hong-Kong), Eliane Martins (UNICAMP, Brazil), Robert Stroud (U. Newcastle, UK)

Tutorials

All tutorials will be held on Sunday, June 22, and each lasts four hours. Morning tutorials begin at 0800 and afternoon tutorials begin at 1330. The tutorial registration fee includes lunch on Sunday.

SAFETY-CRITICAL SYSTEMS TRACK

Time Triggered Architecture

presented by Hermann Kopetz, Technical University of Vienna, Austria (hk@mail.vmars.tuwien.ac.at)

The tutorial focuses on embedded distributed hard real-time control systems within the time-triggered architecture (TTA). Attendees will acquire a fundamental understanding about the TTA and practical skills to built composable real-time systems. In particular, attendees will (i) be able to assess the fundamental tradeoffs in the design of distributed embedded real-time systems, (ii) acquire a methodology how to build a predictable real-time system out of encapsulated components within the TTA, (iii) learn how to design a system for testability in order to reduce the test effort, while, at the same time, increasing the reliability, and (iv) understand how to implement a fault-tolerant system economically for high dependability applications within the TTA.

Practical Design of Safety-Critical Systems

presented by William R. Dunn, Independent Consultant (bk.dunn@verizon.net)

Dependable system concepts and architectures are often proposed and claimed, or judged, as being "safe" yet are found to be impractical for real-life engineering applications where lives, property, or the environment are at risk. The tutorial addresses these issues by (i) reviewing the fundamental definitions and concepts of system safety, (ii) describing the overall structure and function of the real-life safety-critical system, and (iii) outlining the time-tested analytical methods that examine all components of this system to verify that it will be safe. The approach taken in the tutorial is to show how safety-critical systems are systematically designed in engineering practice and how it is verified that the designs will be safe. Attendees interested in, or working with, dependable system concepts intended for use in safety-critical applications should attend the tutorial.

DEPENDABLE SOFTWARE ENGINEERING TRACK

Quality Specification, Evaluation, Assessment and Certification of Dependable Systems

presented by Hans-Ludwig Hausen, Fraunhofer, Germany (hausen@gmd.de)

The tutorial will cover the methods and principles of information and software system quality assurance (comprising test, measurement and assessment) for procedural, object-oriented and agent-based dependable software systems. Attendees will exercise proven techniques for goal-directed measurement, scaling and assessment for software certification. Assessment of both the software product as well as the software process will be discussed with respect to its relevance for such acceptance assessments. A standardized process model for measurement, assessment and certification of dependable software will be used to make the attendees familiar with this comprehensive assessment procedure and to learn how to embed it into today's standardized or non-standardized software processes. Basic knowledge in mathematics and some knowledge of software methods and tools is required. Emphasis will be given to selected advanced topics depending on the needs of attendees.

UML-Based Dependability Modeling and Evaluation

presented by András Pataricza, Budapest University of Technology and Economics (pataric@mit.bme.hu)

The tutorial focuses on the integration of the UML (Unified Modeling Language)-based design process with the formal proof of correctness and dependability evaluation methodologies. The tutorial aims at a self-contained presentation of the current academic research and best industrial practice in the field. No UML skills are prerequisites. In addition to an overview of UML basics, and software development with UML, attendees will learn (i) the proposed UML profile for schedulability, performance and time, (ii) modeling and analysis of dependability attributes, (iii) UML-to-mathematical-analysis tool transformation methodologies, and (iv) typical commercial and academic tools.

Workshops

PoDSy 2003: Principles of Dependable Systems

Dependable systems are supposed to satisfy an ensemble of distinct properties, namely safety, security and availability, to name a few. These properties are in parts complementary and also diverse enough to have spawned complete topic areas of their own. Consequently, work on achieving and validating the different properties has partly been performed in different communities and with varied nuances. Maybe most prominently this is true for the two areas of fault-tolerant systems on the one hand and secure systems (especially cryptography) on the other. For example, researchers in fault-tolerance often make statements about systems by treating cryptographic primitives as black boxes. This is done to simplify analysis and (sometimes) avoid number and probability theory. However, by abstracting away the basic properties of the cryptographic primitives, this severely constrains the ability to conduct rigorous security proofs. Various examples of the past show that by over-abstraction, important attributes got neglected, contributing to attack vulnerabilities in the resultant protocols. But despite these examples, many researchers have confirmed that there are strong similarities between the ways of modeling and handling uncertainty in both areas.

This workshop brings together researchers and practitioners from both the fault-tolerance and security communities to discuss foundational topics (and related applied experiences) on the similarities and differences between both areas. The workshop is structured around a set of invited talks by well-known specialists which have experiences in both areas. It is complemented by a panel which explores the question, what fault-tolerance people can learn from security people and vice versa.

Invited speakers: Paulo Veríssimo, University of Lisboa; Ran Canetti, IBM Research; Catherine Meadows, Naval Research Laboratory; John Knight, University of Virginia

Research Papers

Panel: "What can fault-tolerance people learn from security people and vice versa?", Neeraj Suri, TU Darmstadt, Leslie Lamport, Microsoft Research, Jonathan Millen, SRI International, Yves Deswarte, LAAS, Roy Maxion, Carnegie Mellon University

Co-Chairs: Felix Gartner (EPF, Switzerland), Klaus Kurawe (IBM, Switzerland), Levente Buttyan (Budapest University of Technology and Economics, Hungary)

Model Checking for Dependable Software-Intensive Systems

Model checking is indispensable in the development of modern digital circuitry and is emerging as a valuable instrument for software verification. Model checking has uncovered errors in a variety of software-intensive systems, including spacecraft redundancy management, aircraft collision avoidance, and weapons control systems. The approach offers the potential to help ensure behavioral properties and eliminate catastrophic errors in software systems that require high levels of dependability.

While it offers significant promise for dependable system analysis, model checking faces a variety of technical and practical challenges that must be overcome. These range from theoretical questions relating to optimal analysis approaches, to implementation constraints like state explosion, to adoption issues faced by a development organization.

This full-day workshop will be a forum for sharing research results, practical experiences, and advances in the application of model checking as a software engineering tool. All of the sessions of the workshop will be interactive. In these sessions, attendees and presenters will discuss, identify, and detail the state of the technology and the technical advantages, limitations, and critical research areas impacting the effective use of model checking in dependable software-intensive systems design and analysis.

Co-Chairs: Edmund Clarke (CMU, USA), Masahiro Fujita (University of Tokyo, Japan), David Gluch (Embry-Riddle University, USA)

First Workshop on the Design of Self-Managing Systems

As systems become increasingly connected to an increasingly diverse set of other systems and environments, architects will lose their ability to intricately plan interactions among system components, because an increasing fraction of those interactions will be with foreign and possibly unanticipated systems or components. Humans will be increasingly less competent to install, configure, optimize, maintain, and merge massive, complex, and heterogeneous computing systems. They will not be able to make sufficiently quick, decisive responses to a rapid stream of changing and conflicting demands.

To meet these new and vast challenges, systems need to be designed so that they are self-managing. Self-managing systems automate all phases in the life-cycle of complex computing systems, from installation to run-time maintenance and optimization. This workshop will provide a forum for a small group of participants to consider new paradigms, system designs, and algorithms for self-managing computing systems.

We solicit papers addressing topics that include, but are not limited to: self-managing storage, peer-to-peer architectures, and grid architectures

- economic models for self-management
- biological models for self-management
- self-managing transaction systems
- adaptation to human errors
- limits and dangers of relying on self-managing systems
- decision algorithms
- data-mining, statistics, and other analytic techniques

Workshop attendance is open to all attendees registered for DSN-2003. We welcome participation by professionals with diverse backgrounds, who can contribute to advancing the technology and understanding of the workshop subject.

Co-Chairs: Lisa Spainhower (IBM, USA), Aad van Moorsel (HP, USA)

SSS'03: Sixth Symposium on Self-Stabilizing Systems

Self-stabilization contrasts with other approaches to dependable systems — instead of entirely masking failures by replication or safe storage, or using backward recovery to restore system state, self-stabilization is pure forward recovery, tolerating any degree of transient failure. Though self-stabilization has been a standard algorithmic topic of distributed systems, there is now renewed interest due to emerging concerns of scalability and more extreme distribution of system control. There is also recognition that system components become more valuable if they are individually self-stabilizing.

Meetings of researchers interested in self-stabilization have been stimulating and useful. At recent workshops, new adaptations of stabilization have been proposed, new technical advances in algorithms and analysis have been discussed, and perhaps most important, new problem areas and applications suited to the stabilization approach became known to a wider community. This workshop will continue these themes with high-quality research presentations and open discussion of the latest results and most exciting new directions.

Tentative Schedule:

There will be 15 to 18 technical presentations, and open discussion session, and perhaps some short presentations of recent work of interest to the community of researchers on self-stabilization.

Invited Talk: Anish Arora, Ohio State University

Chair: Shing-Tsaan Huang (National Central University, Taiwan)

Combined Program

Sunday, June 22

0800 to 1200, Tutorials

Tutorial: *Quality, Specification, Evaluation, Assessment, and Certification of Dependable Systems*, Hans-Ludwig Hausen, Fraunhofer, Germany

Tutorial: *Time-Triggered Architecture*, Hermann Kopetz, Technical University of Vienna, Austria

1200 to 1330, Lunch

1330 to 1730, Tutorials

Tutorial: *UML-Based Dependability Modelling and Evaluation*. András Pataricza, Budapest University of Technology and Economics

Tutorial: *Practical Design of Safety Critical Systems*, William R. Dunn, Independent Consultant

1800 to 2000, Welcome Reception

Monday, June 23

0800 to 0830, Continental Breakfast

0830 to 1000, Opening Remarks and Keynote Address, Urs Hölzle, Google Corp.

1000 to 1030, Break

1030 to 1200, Session 1

Session 1A: Safety and Security

Session Chair: TBA

Masquerade Detection Using Enriched Command Lines, Roy A. Maxion; Carnegie Mellon University

Evidential Volume Approach (EVA) for Certification, Silke Kuball and Gordon Hughes; SSRC, University of Bristol

Multi-legged Arguments: the Impact of Diversity Upon Confidence in Dependability Arguments, Bev Littlewood; City University, London, and Robin Bloomfield; City University and Adelard

Session 1B: Broadcast and Publish/Subscribe

Session Chair: TBA

Reliable Broadcast in a Computational Hybrid Model with Byzantine Faults, Crashes, and Recoveries, Michael Backes and Christian Cachin; IBM Research

Adaptive Gossip-Based Broadcast, Luis Rodrigues; Lisbon University; S. Handurukande; Swiss Federal Institute of Technology; J. Pereira; Universidade do Minho; R. Guerraoui; Swiss Federal Institute of Technology; and A.-M. Kermarrec; Microsoft Research

Scalably supporting Durable Subscriptions in a Publish/Subscribe System, Sumeer Bhola, Yuanyuan Zhao, and Joshua Auerbach; IBM T.J. Watson Research Center

Session 1C: Measurement-based System Dependability Evaluation

Session Chair: Dong Tang

Characterization of Linux Kernel Behavior under Errors, Zbigniew Kalbarczyk, Ravishankar K. Iyer, and Zhenyu Yang; University of Illinois at Urbana-Champaign

Reproducible Dependability Benchmarking Experiments Based on Unambiguous Benchmark Setup Descriptions, K. Buchacker, M. Dal Cin, H.-J. Hoexer, R. Karch, V. Sieh, and O. Tschaeche; University of Erlangen-Nürnberg

A Hybrid Fault Injection Approach Based on Simulation and Emulation Co-operation, Alireza Ejlali, Seyed Ghassem, Miremadi Hamidreza, Zarandi Ghazanfar, Asadi Siavash, and Bayat Sarmadi; Sharif University

Workshop: Design of Self-Managing Systems

Workshop: Model Checking for Dependable Software Intensive Systems

1200 to 1330, Lunch

1330 to 1530, Session 2

Session 2A: Practical Experience and Demonstrations - 1

Session Chair: TBA

Pragmatic Fault Tolerance for Railway Control and Safety Protection of the Channel Tunnel, Simon D. Pugh and Eric Aliot; Eurotunnel

Practical Experience of Dependability Assessment of Software of Safety-Critical System by Static Analysis Methods, Thuy Nguyen, and Alain Ourghanlian; Electricité de France

Experiences with Integrating Recovery Strategies in a Primary Substation Automation System, Geert Deconinck, V. De Florio, and R. Belmans; K.U.Leuven - ESAT; G. Dondossola, and J. Szanto; CESI

The OLAP and Data Warehousing Approaches for Analysis and Sharing of Results From Dependability Evaluation experiments, Henrique Madeira; University of Coimbra, João Costa, and Marco Vieira; Polytechnic Institute of Coimbra

All "A" and "B" sessions (other than Fast Abstracts and the Student Forums) are part of the Dependable Computing and Communications Symposium. All "C" sessions are part of the International Performance and Dependability Symposium.

Session 2B: Dependability Evaluation

Session Chair: TBA

Building SWIFI Tools from Temporal Logic Specifications, Manuel Rodríguez, Jean-Charles Fabre, and Jean Arlat; LAAS-CNRS

Definition of Software Fault Emulation Operators: a Field Data Study, João A. Durães; Polythecnic Institute of Coimbra and Henrique Madeira; University of Coimbra

Robustness Benchmarking for Hardware Maintenance Events, Ji J. Zhu, James Mauro, and Ira Pramanick; Sun Microsystems, Inc.

Dependability Evaluation of the Time-Triggered Architecture with Bus and Star Topology, Astrit Ademaj, Guenther Bauer; Vienna University of Technology, Hakan Sivencrona, and Jan Torin; Chalmers University of Technology

Session 2C: Techniques to Improve System and Network Dependability

Session Chair: Mod Marathe

Pre-Processing Input Data to Augment Fault Tolerance in Space Applications, Jayakrishnan Nair, Zahava Koren, Israel Koren, and C. Mani Krishna; University of Massachusetts at Amherst

Duplex: A Reusable Fault Tolerance Extension Framework for Network Access Devices, Srikant Sharma, Kartik Gopalan, Jiawu Chen, Wei Li, and Tzi-cker Chiueh; SUNY at Stony Brook

Reliable Communication in Overlay Networks, Yair Amir and Claudiu Danilov; Johns Hopkins University

Dependability Enhancement for IEEE 802.11 Wireless LAN with Redundancy Techniques, Dongyan Chen, Sachin Garg, Chandra Kintala, and Kishor S. Trivedi; Duke University, Avaya

Workshop: Design of Self-Managing Systems (continues)

Workshop: Model Checking for Dependable Software Intensive Systems (continues)

1530 to 1600, Break

1600 to 1630, Session 3

Session 3A: Panel

Technology Impact on Dependability, Cristian N. Constantinescu; Intel Corporation, Jean Arlat; LAAS-CNRS, and Hermann Kopetz; Technical University of Vienna

Session 3B: Student Forum 1

Session Chair: Marc-Olivier Killijian

Session 3C: Analysis of Fault-Tolerant Protocols

Session Chair: Arun Somani

Cost-optimisation of the IPv4 Zeroconf Protocol, H C Bohnenkamp, P. v.d. Stok, H. Hermanns, and F. Vaandrager; University of Twente, Research Laboratories, University of Nijmegen

Evaluating the Condition-based Approach to Solve Consensus, A. Mostéfaoui, E. Mourgaya, Ph. Raipin-Parvedy, and M. Raynal; IRISA

How Bad Are Wrong Suspicions? Towards Adaptive Distributed Protocols, Lvia Maria Rodrigues Sampaio, Francisco Vilar Brasileiro, Walfredo Cirne, Jorge Csar, and Abrantes de Figueiredo; Universidade Federal de Campina Grande

Workshop: Design of Self-Managing Systems (concludes)

Workshop: Model Checking for Dependable Software Intensive Systems (concludes)

Tuesday, June 24

0800 to 0830, Continental Breakfast

0830 to 1000, Session 4

Session 4A: Dependability Algorithms

Session Chair: TBA

LSRP: Local Stabilization in Shortest Path Routing, Hongwei Zhang, and Anish Arora; Ohio State University

A Preemptive Deterministic Scheduling Algorithm for Multithreaded Replicas, Claudio Basile, Zbigniew Kalbarczyk and Ravi Iyer; University of Illinois at Urbana-Champaign

An Algorithm for Automatically Obtaining Distributed and Fault-Tolerant Static Schedules, Alain Girault, Hamoudi Kalla; INRIA; Mihaela Sighireanu, University of Paris 7; and Yves Sorel; INRIA

Session 4B: Fast Abstracts 1

Session Chair: TBA

Session 4C: Analytical Methods

Session Chair: Gianfranco Ciardo

A Combinatorial Method for the Evaluation of Yield of Fault-Tolerant Systems-on-Chip, D. P. Munteanu, V. Suñé, R. Rodríguez-Montañés, and J. A. Carrasco; Technical University of Catalonia

Real-Time Estimation of Event-Driven Traffic Latency Distributions when Layered on Static Schedules, Pam Binns; Honeywell Laboratories

ParEs - A Parameter-Estimation-Tool, Felix Engelhard, Stefan Greiner, and Reinhard German; University of Erlangen-Nürnberg

Workshop: Symposium on Self-Stabilizing Systems

Workshop: Principles of Dependable Systems

1000 to 1030, Break

1030 to 1200, Session 5

Session 5A: Network Fault Tolerance

Session Chair: TBA

Detection and Handling of MAC Layer Misbehavior in Wireless Networks, Pradeep N. Kyasanur, and Nitin H. Vaidya; University of Illinois at Urbana-Champaign

Packet Delivery After Topology Failures in a Richly Connected Internet, Dan Pei, and Lan Wang; University of California Los Angeles; Dan Massey; USC/ISI East; and Lixia Zhang; University of California Los Angeles

Low Overhead Fault Tolerant Networking, Vijay Lakamraju, Israel Koren, and C. Mani Krishna, University of Massachusetts, Amherst

Session 5B: Fast Abstracts 2

Session Chair: TBA

Session 5C: Validation of System Security and Timing

Session Chair: Bill Sanders

Compiler-directed Program-fault Coverage for Highly Available Java Internet Services, Chen Fu, Rich Martin, Kiran Nagaraja, Thu Nguyen, Barbara Ryder, and David Wonnacott; Haverford College, Rutgers University

Data Driven Finite State Machine Model for Analyzing Security Vulnerabilities, Shuo Chen, Zbigniew Kalbarczyk, Jun Xu, and Ravishankar K. Iyer; University of Illinois at Urbana-Champaign

Probabilistic Validation of an Intrusion-Tolerant Replication System, Sankalp Singh, Michel Cukier, and William H. Sanders; University of Illinois at Urbana-Champaign, University of Maryland

An Abstract Interpretation-Based Timing Validation of Hard Real-Time Avionics, Stephan Thesing, Jean Souyris, Reinhold Heckmann, Famantanantsoa Randimbivololona, Marc Langenbach, Reinhard Wilhelm, and Christian Ferdinand; Saarland University, Airbus France, AbsInt GmbH

Workshop: Symposium on Self-Stabilizing Systems (continues)

Workshop: Principles of Dependable Systems (continues)

1200 to 1330, Lunch

1330 to 1500, Session 6

Session 6A: Services for Distributed Computing

Session Chair: TBA

Dependable and Secure Data Storage and Retrieval in Mobile, Wireless Networks, Stefano Chessa, and Piero Maestrini; Università di Pisa and Istituto di Scienza e Tecnologie dell'í Informazione

Design and Implementation of Repairable File Service, Ningning Zhu, and Tzi-Cker Chiueh; Stony Brook University

On the Cost of Enhancing Fault-toleranceSupport for Corba Services, Neil A. Speirs, Dimane Mpoeleng, and Paul Ezhilchelvan; University of Newcastle

Session 6B: Fast Abstracts 3

Session Chair: TBA

Session 6C: Analysis of Fault-Tolerant Mechanisms

Session Chair: Saurabh Bagchi

Performance Analys of Hierarchical Failure Detector, Marin Bertier, Olivier Marin, and Pierre Sens; University of Le Havre, University Paris, INRIA

Comparison of Failure Detectors and Group Membership: Performance Study of Two Atomic Broadcast Algorithms, Peter Urban, Ilya Shnayderman, and Andre Schiper; Swiss Federal Institute of Technology in Lausanne

Opportunity-Adaptive QoS Enhancement in Satellite Constellations: A Case Study, Ann T. Tai, Kam S. Tso, Leon Alkalai, Savio N. Chau, and William H. Sanders; IA Tech, Jet Propulsion Laboratory, University of Illinois at Urbana-Champaign

Workshop: Symposium on Self-Stabilizing Systems (continues)

Workshop: Principles of Dependable Systems (continues)

1500 to 1530, Break

1530 to 1700, Session 7

Session 7A: Modeling and Formal Methods

Session Chair: TBA

Adaptive Software Rejuvenation: Degradation Models and Rejuvenation Schemes, Yujuan Bao, Xiaobai Sun, and Kishor S. Trivedi; Duke University

Human-machine Diversity in the Use of Computerised Advisory Systems: a Case Study, Lorenzo Strigini, Andrey Povyakalo, and Eugenio Alberdi; City University

Implementing Atomic Memory in Dynamic Networks, Using an Aggressive Reconfiguration Strategy, Seth Gilbert, and Nancy Lynch; Massachusetts Institute of Technology; and Alex Shvartsman; University of Connecticut

Session 7B: Panel on Technology Readiness for Safety Critical Automotive Applications

Session 7C: Tool Demonstrations

Workshop: Symposium on Self-Stabilizing Systems (continues)

Workshop: Principles of Dependable Systems (concludes)

1745 to 1830, Transfer to Excursion/Banquet

1900 to 2200, Excursion/Banquet

Wednesday, June 25

0800 to 0830, Continental Breakfast

0830 to 1000, Session 8

Session 8A: Computer Design

Session Chair: TBA

The Design of Wearable Systems: A Shift in Development Effort, John G. Dorsey, and Daniel P. Siewiorek; Carnegie Mellon University

Dynamic Verification of System-Wide Invariants in Multiprocessors, Daniel J. Sorin; Duke University; Mark D. Hill, and David A. Wood; University of Wisconsin

ICR: In-Cache Replication for Enhancing Data Cache Reliability, Wei Zhang, Sudhanva Gurumurthi, Mahmut Kandemir, and Anand Sivasubramaniam; Penn State University

Session 8B: Student Forum 2

Session Chair: Luca Simoncini

Session 8C: Panel

Security Assessment and Benchmarking: Methods, Techniques, and Approaches, Organized by Zbigniew Kalbarczyk

Workshop: Symposium on Self-Stabilizing Systems (continues)

1000 to 1030, Break

1030 to 1230, Session 9

Session 9A: Practical Experiences and Demonstrations - 2

Session Chair: TBA

Benchmarking the Dependability of Different OLTP Systems, Marco Vieira; Polytechnic Institute of Coimbra, and Henrique Madeira; University of Coimbra

Persistent-state Checkpoint Comparison for Troubleshooting Configuration Failures, Yi-Min Wang, Chad Verbowski, and Dan Simon ; Microsoft Research

HEALERS: A Toolkit for Enhancing the Robustness and Security of Existing Applications, Christof Fetzer and Zhen Xiao; AT&T Labs - Research

The Anacapa System, Rupert R. Koch, Sanjay Hortikar, Sivaguru Sankaridurg, and Paul Ngan ; Eternal Systems, Inc.

Session 9B: Distributed Systems and Services

Session Chair: TBA

Node Failure Detection and Membership in CANELy, José Rufino; Universidade Técnica de Lisboa; Paulo Veríssimo; Faculdade de Ciências da Universidade de Lisboa; and Guilherme Arroz; Universidade Técnica de Lisboa

Design and Implementation of a Consistent Time Service for Fault-Tolerant Distributed Systems, Wenbing Zhao, Louise E. Moser, and P. M. Melliar-Smith; University of California, Santa Barbara

Asynchronous Implementation of Failure Detectors, Achour Mostéfaoui, Eric Mourgaya, and Michel Raynal; IRISA

Communication Strategies for Heartbeat-Style Failure Detectors in Ad Hoc Networks. Szu-Chi Wang and Sy-Yen Luo, National Taiwan University

Session 9C: Dependability and Performance Analysis

Session Chair: Lawrence Votta

A Methodology for Dependability and Performability Analysis in SAM, Tianjun Shi and Xudong He; Florida International University

Reliability Analysis of Fault-Tolerant Systems with Common-Cause Failures, Liudong Xing; University of Massachusetts at Dartmouth

Validation of Approximate Dependability Models of a RAID Architecture with Orthogonal Organization, Juan A. Carrasco; Technical University of Catalonia

User-perceived Availability of a Web based Travel Agency, M. Kaâniche, K. Kanoun, and M. Martinello; LAAS-CNRS

Workshop: Symposium on Self-Stabilizing Systems (concludes)

1230 to 1400, Lunch

1400 to 1600, Session 10

Session 10A: TCP Connection Management

Session Chair: TBA

TCP Server Fault Tolerance Using Connection Migration to a Backup Server, Shivakant Mishra, and Manish Marwah; University of Colorado; and Christof Fetzer; AT&T Labs

Transparent TCP Connection Failover, Rupert R. Koch, Sanjay Shortikar , Louise E. Moser, and P. Michael Melliar-Smith ; University of California, Santa Barbara and Eternal Systems, Inc.

Engineering Fault-tolerant TCP/IP Services Using FT-TCP, Dmitrii V. Zagorodnov; University of California San Diego; Lorenzo Alvisi; University of Texas; Keith Marzullo; University of California San Diego; and Thomas C. Bressoud: Denison University

N-Way Fail-Over Infrastructure for Survivable Servers and Routers, Yair Amir, Ryan Caudy, Ashima Munjal, Theo Schlossnagle, and Ciprian Tutu; Johns Hopkins University

Session 10B: Robust Software

Session Chair: TBA

A Self-Checking Integrator for Design of Fault Tolerant Control Algorithms, Jonny P. Vinter; Chalmers University of Technology; Andreas Johansson; Luleå University of Technology; Peter Folkesson, and Johan Karlsson; Chalmers University of Technology

A Fault-Tolerant Java Virtual Machine, Jeff M. Napper, Lorenzo Alvisi, and Harrick Vin; The University of Texas at Austin

Towards Implementing Multilevel Reflection for Fault-Tolerance, François Taïani, Jean-Chales Fabre and Marc-Olivier Killijian; LAAS-CNRS

Automatic Detection and Masking of Non-Atomic Exception Handling, Pascal Felber; Eurecom; Karin Hogstedt and Christof Fetzer; AT&T Labs - Research

Session 10C: Techniques for Improving Software Dependability

Session Chair: Karama Kanoun

Software Aging and Multifractality of Memory Resources, Mark Shereshevsky, Bojan Cukic, Jonathan Crowel, and Vijai Gandikota; West Virginia University

Deadlock Resolution via Exceptions for Dependable Java Applications, Fancong Zeng; Rutgers University

A Voltage Scheduling Heuristic for Real-Time Task Graphs, D. Roychowdhury, I. Koren, C.M. Krishna, and Y.-H. Lee; University of Massachusetts at Amherst

On Dynamic Assignment of Impatient Customers to Parallel Queues, Ali Movaghar; Sharif University

1615 to 1730, Business Meeting: IEEE Technical Committee on Fault-Tolerant Computing, Paulo Veríssimo, Committee Chair (open to everyone)

Local Information

Venue

The conference will be held at the Cathedral Hill Hotel, 1101 Van Ness Avenue, San Francisco, California, 94109. The hotel has extended the conference a rate of $149.00 single or double occupancy. This rate will be offered for three days prior to and three days after the conference subject to availability.

You are responsible for making your own hotel reservations using any of the following methods:

- By telephone to 800-622-0855 or 415-776-8200
- By fax to 415-441-2841
- By e-mail to reservations@cathedralhillhotel.com

Be sure to reference DSN when making reservations to get the conference rate. The hotel will require a one night deposit or credit card to guarantee your reservation.

Please make your reservation by Friday, May 30, 2003 at 5:00pm Pacific Time. Reservations received after this date will be accepted by the hotel on a space available basis and may not receive the conference rate.

Social Events

Reception

There will be a welcome reception on Sunday, June 22 from 1800 to 2000.

Excursion and Banquet

On Tuesday evening, June 24th, we'll transfer via bus to pier 9 and board the luxurious yacht San Francisco Spirit for a three hour dinner cruise on San Francisco Bay.

Conference Registration Desk

The Registration Desk for DSN will be located in the hotel mezzanine and will be open on Sunday, June 22 through Wednesday, June 25.

Guests

The welcome reception is free of charge for guests. Please indicate your participation on the registration form for planning purposes. Additional tickets for the dinner cruise can be booked in advance on the registration form for $100.00 each. On-site availability is not guaranteed.

Transportation

If traveling by air, San Francisco is most conveniently reached via San Francisco International Airport (SFO). Additionally, convenient rail service via Amtrak is available from many points in the US.

Taxi service from the airport to the hotel should cost about $37.00 for up to five people. SuperShuttle provides airport to hotel service for $12.50 per person.

Climate & Dress

In the words of the famous American author, Mark Twain "The coldest winter I ever spent was a summer in San Francisco". Blessed with natural air conditioning, the mean high temperature for June is a pleasant 64 degrees (18 C). The mean low temperature is 53 (12 C). Layering is recommended. Rainfall in June is negligible.

Information

For latest information regarding conference arrangements, www.dsn.org, for tourist information for San Francisco, www.sfvisitor.com. Registration questions can be directed to register@computer.org referencing DSN.

Registration Form

To register, fax or mail this form to the address at the right.
Payment must be received before June 13, 2003.
Registration forms without payment *will not* be processed, and you must re-register onsite with payment. For questions please call: +1-202-371-0101 (*Sorry, no phone registrations*)

IEEE Computer Society
DSN Registration
Dept 6006
Washington, DC 20042-6006
Fax: +1-202-728-0884

Name: _____
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Address/Mail Stop: _____

City/State/Province/Zip/Country: _____

Daytime Phone: _____ Fax: _____ E-Mail: _____

Do not include me on: the attendance list ___ the mailing list ___

Membership: IEEE: _____ IEEE Computer Society: _____
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Special Needs? _____

Register on the Web!
www.dsn.org

Method of Payment (please circle one): MasterCard Visa American Express Diners Club Check

Credit Card/Check Number: _____ Expiration Date: _____ Total Fee: _____

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DSN Conference Registration (includes all DCC and IPDS sessions and Workshops (Monday - Wednesday), Sunday Reception, Continental Breakfasts, Breaks, Luncheons, Dinner Cruise, Proceedings, CD, and the Supplemental Volume.)

Advance (on or before May 23)
— Member - $530
— Non-Member - $665
— Student - $250

Late/On-site (after May 23)
— Member - $635
— Non-Member - $795
— Student - $325

Banquet Dinner Choice (circle): Steak Chicken Vegetarian Vegan Will not attend

_____ (qty) extra excursion/banquet tickets @ $100 each (also indicate choices) _____

Single Day Workshop Only Registration (includes the single day workshops of your choice, Sunday Reception, Continental Breakfast, Breaks, and Luncheon on the day of the workshop, and the Supplemental Volume.)

Choose the workshop you plan to attend: —Self-Managing Systems —Model Checking —Principles of Dependable Systems

Advance (on or before May 23)
— Member - $240
— Non-Member - $300

Late/On-site (after May 23)
— Member - $290
— Non-Member - $360

Note: You should register for the full DSN Conference if you want to attend the multi-day Self-Stabilizing Systems Workshop or more than one of the workshops listed above.

Tutorial Registration (includes the chosen tutorial(s), Sunday Reception, Sunday Breaks and Luncheon and handouts.)

Choose one morning and/or one afternoon tutorial:

Morning: — Quality Dependable Systems — Time-Triggered Architecture
Afternoon: — UML-based Dependability — Safety-Critical Systems

Advance (on or before May 23)

Member: —1 tutorial $110 —2 tutorials $200
Non-Member: —1 tutorial $140 —2 tutorials $250

Late/On-site (after May 23)

Member: —1 tutorial $130 —2 tutorials $240
Non-Member: —1 tutorial $165 —2 tutorials $300

Registration Information

Payment

If payment is not received by **June 13** you may be required to register again, provide credit card information, and to pay the late registration/on-site fees before attending the conference.

Please make checks payable to *IEEE Computer Society*. All checks must be in US dollars drawn on a US bank. Credit card charges will appear on your statement as "IEEE Computer Society - Registration." Cancellations must be in writing and received before June 6, 2003. Cancellations subject to a $50 processing fee. Substitutions are allowed at any time.

Wire transfers are an acceptable form of payment but are subject to an additional $25 bank fee, and are not considered paid until received by our bank. These payments must be received by **May 30**. For wiring instructions please contact register@computer.org referencing DSN 2003.

To qualify for the advance registration discount, form and payment must be received by the deadline. Registrations received after the deadline will be charged at the late/on-site rate. Those received after the late deadline (June 13) may not be acknowledged or accepted and may require processing and payment on-site.

Registration Confirmation

Written confirmation of registration will be mailed by the IEEE Computer Society within two days of receiving your registration. If you do not received confirmation please call +1-202-371-0101 or email us at register@computer.org referencing DSN 2003.

Member and Student Discounts

To qualify for the discounted Member rates, you must be a member of the IEEE or the IEEE Computer Society and include your membership number. To qualify for the student rate you must be a full time student. Be prepared to show your student ID at registration.

On-Site Registration

On-site registrants will pay late registration fees. Credit cards are the preferred form of payment. All checks must be in US dollars drawn on US banks. Wire transfers will not be accepted.

Cancellations and Substitutions

Cancellations and substitutions are allowed. However, full registration fees will be charged unless a cancellation notice is sent in writing (mail or fax is acceptable), and received before the deadline of June 6. A $50 handling fee will be applied to all cancellations. Fees will not be refunded after the cancellation deadline. Substitutions are allowed at any time upon receipt of a letter from the original registrant on company letterhead stating the conditions of the substitution and the name of the replacement. Please send cancellations to: IEEE Computer Society, Attn: DSN 2003, 1730 Massachusetts Ave, NW, Washington, DC 20036. Fax: +1-202-728-0884.

Attendee List

It is the Computer Society's policy not to distribute an attendee list to registrants on-site. Once on-site registrations have been added to the database, we will send the attendee list via postal mail to those who request it. When on-site, please check your information for accuracy.

Airline Discount

We are pleased to offer a special discount for travel on United Airlines in conjunction with DSN 2003. United is offering 5% off of the lowest applicable fare or 10% off unrestricted coach fares when purchased seven days in advance. These discounts are only available by calling 1-800-521-4041 and referring to Meeting ID Number 556AQ.

Questions

Please direct all registration related questions to register@computer.org referencing DSN 2003.

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