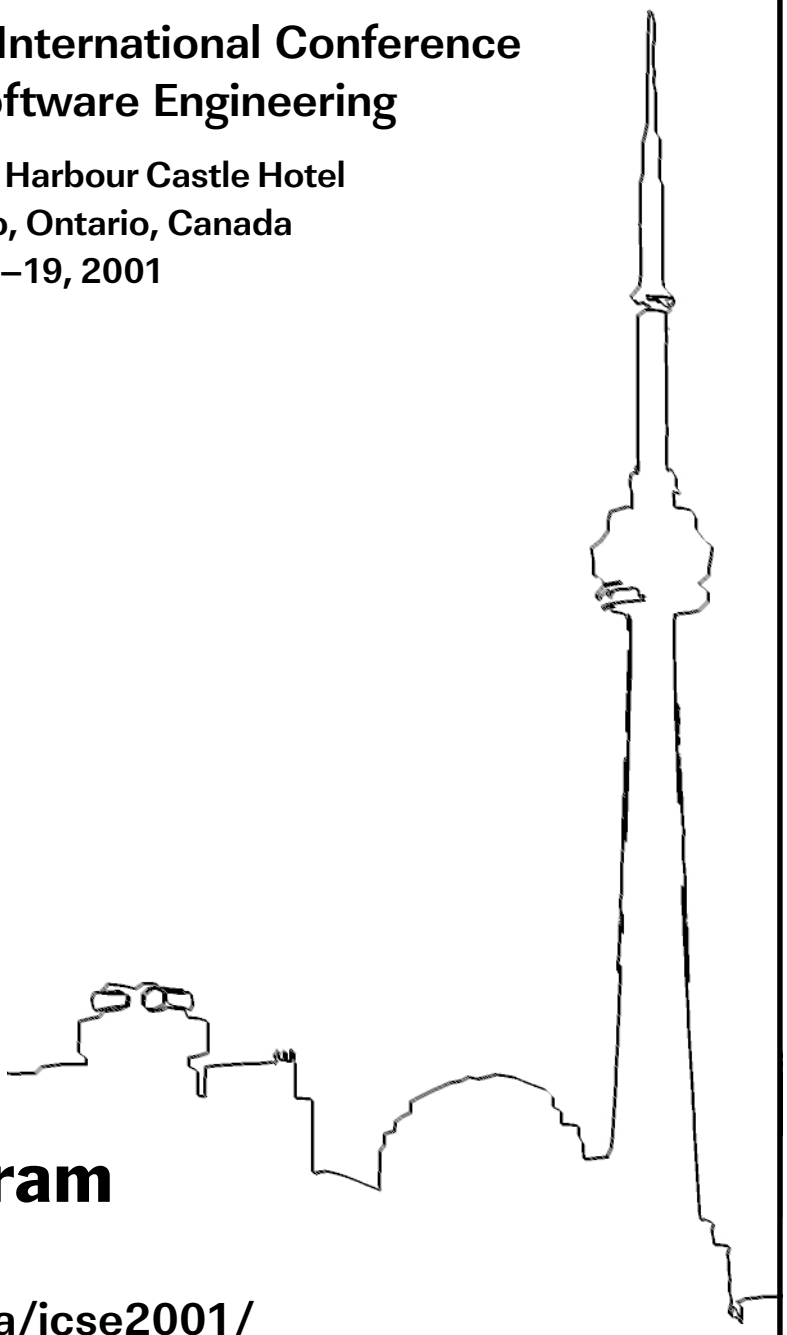
23rd International Conference on Software Engineering

Westin Harbour Castle Hotel
Toronto, Ontario, Canada
May 12–19, 2001



ICSE 2001

Advance Program

http://www.csr.uvic.ca/icse2001/

27th March, 2001

Association for Computing Machinery
Special Interest Group on Software Engineering
Special Interest Group on Programming Languages

IEEE Computer Society
Technical Council on Software Engineering

MESSAGE FROM THE CHAIRS

Welcome to ICSE 2001 Software Engineering Week in Toronto!

Hausi A. Müller
General Chair

Today, the engineering of software profoundly impacts world economics. For example, the desperate demands by all information technology sectors to adapt their information systems to the web has generated a tremendous need for methods, tools, processes, and infrastructure to develop new and evolve existing applications efficiently and cost-effectively.

ICSE 2001, the premier conference for software engineering, will feature the latest inventions, achievements, and experiences in software engineering research and practice, and will give researchers, practitioners, and educators the opportunity to present, discuss, and learn.

The ICSE 2001 Software Engineering Week, May 11–20, 2001 consists of the main ICSE conference and over 50 tutorials, workshops, collocated conferences, and symposia. The conference venue is the Westin Harbour Castle overlooking Lake Ontario in downtown Toronto, with restaurants, theaters, shopping, and plenty of other activities.

Mary Jean Harrold
Program Co-Chair

The main ICSE 2001 program includes 47 technical papers, eight case-study reports, six education papers, an invited industry track, nine formal research demonstrations, and four panels. The program also contains six plenary sessions with outstanding invited keynote speakers. The main ICSE 2001 program also contains two new features: Challenges and Achievements in Software Engineering (CHASE), in which each session offers both research and industrial views of the same topic; and Frontiers of Software Practice (FoSP), which provides mini-tutorials on new and promising software technologies. Throughout the conference, there are also exhibits, posters, and informal research demonstrations. Finally, the conference features three casual receptions with great food and entertainment to give all an opportunity to meet and mingle with old and new friends.

Prior to the main ICSE 2001 program, there are 22 tutorials (full day and half day) on a variety of topics and 18 workshops that offer an informal forum for interaction. There are also three special symposia: the David L. Parnas Symposium, the New Software Engineering Faculty Symposium, and the Doctoral Symposium. Finally, both prior to and immediately following the main ICSE 2001 program, there are four collocated conferences: International Workshop on Program Comprehension (IWPC 2001); Engineering for Human-Computer Interaction (EHCI 2001); Symposium on Software Reusability (SSR 2001); and Spin Workshop on Model Checking of Software (SPIN 2001).

Wilhelm Schäfer
Program Co-Chair

We cordially invite you to participate in ICSE 2001 to help us exchange ideas and experiences in this ever expanding and critical field of software engineering.

Hausi A. Müller *Mary Jean Harrold* *Wilhelm Schäfer*

Conference Location

The Westin Harbour Castle Hotel

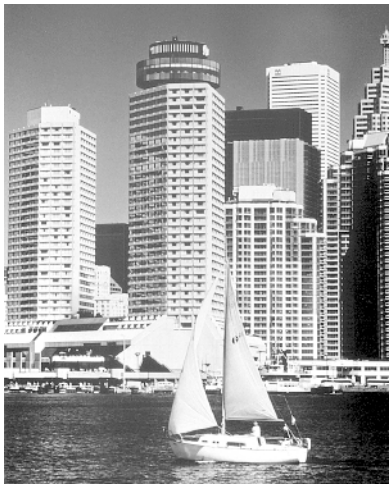
All paper sessions, tutorials, workshops, and exhibits will be held entirely within the Westin Harbour Castle Hotel Complex and Conference Center. This beautiful hotel property is situated directly on the lake front overlooking Lake Ontario, and provides ample meeting and guestroom space for the entire conference. It is also located just a few blocks away from the heart of downtown Toronto, which abounds in restaurants, theaters, shopping and other activities. There is also very convenient and efficient public transportation within a few blocks of the hotel which places the entire city within easy reach.

All guest rooms feature individual climate control, two telephones, remote control cable TV with free and pay-per-view movies, minibars, and many other amenities. Smoking and non-smoking rooms are available. The hotel also has excellent indoor recreational facilities, including a pool, sauna and exercise room. It also features three fine restaurants: The Lighthouse, a revolving restaurant on the top floor of one of the twin towers of the hotel which provides a panoramic view of the city and lake; The Grand Yatt Dynasty, which has an upscale oriental cuisine, and the Chartroom Bar and Lounge adjacent to the main lobby.

Room Booking

To assure the conference room rate at the hotel, conference delegates must book their rooms on or before *April 19, 2001*. Neither the room rate nor room availability is guaranteed after that date. Be sure to mention IEEE/ACM ICSE 2001 when making your reservations.

The conference room rate is CAD$204 (or about USD$130) per night. This room rate is for two double beds, which is the same as for a single bed. The hotel is expected to fill up quickly since it is the best hotel in downtown Toronto. Please make your reservations early and please arrange reservations directly with the hotel.



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CONFERENCE OVERVIEW

ICSE 2001 at a Glance	Sun May 13	Mon May 14	Tue May 15	Wed May 16	Thu May 17	Fri May 18
Keynotes						
Tutorials						
Workshops						
Technical Papers (TP)						
Education Papers (EDU)						
Invited Industry Presentations (IIP)						
Frontiers of Software Practice (FoSP)						
Challenges and Achievements in SE (CHASE)						
Case Study Reports (CSR)						
Formal Demos (FD)						
Awards Presentations						
Doctoral Symposium						
David Lorge Parnas Symposium (DLPS)						
New SE Faculty Symposium						
SE Body of Knowledge Panel (SWEBOK)						
Impact Project Panel						
Perspectives on SE Panel (POSE)						
SE Research Agendas Panel (SERA)						
Lunches						
Receptions						
Internet Cafés						
Exhibits, Posters, and Informal Demos (EPIC)						
Registration Desk						
Conference Office						

EVENTS

Keynotes

ICSE 2001 welcomes several outstanding keynote speakers:

- Daniel Sabbah
- Mary Shaw
- Robert Balzer
- Bernd Voigt
- Linda M. Northrop

Tutorials

ICSE 2001 offers 22 tutorials with a broad range of topics. The full-day or half-day tutorials provide the opportunity to gain new insights, knowledge, and skills in a broad range of areas of software engineering.

Workshops

18 workshops build informal forums to exchange opinions on topics in research and applications of software engineering. Workshops are offered as one-day or two-day events.

Technical Papers

The main ICSE 2001 program contains 47 technical papers that report on a full range of topics, including software engineering principles, theories, techniques, tools, and empirical evaluations.

Invited Industry Presentations

ICSE 2001 features an industrial track with invited industry presentations to discuss leading-edge software technology in practice.

Frontiers of Software Practice

This is a new feature in the ICSE conference program. The ICSE 2001 FoSP sessions are mini-tutorials on new and promising software technologies.

Education Papers

Proper software engineering education and training can significantly improve the current state of software development. ICSE 2001 themes include Ph.D. programs, distance education and training in, and curriculum issues such as the SWEBOK project.

Challenges and Achievements in Software Engineering

Another new feature of ICSE 2001. The CHASE sessions offer both research and industrial views of the same topic.

Case Study Reports

Case study reports will give an account of a significant project, a critical review, and general lessons to be learned. They will describe the architecture of a system and its key design decisions.

Formal Research Demos

Formal research demonstrations will show research systems in action. Use the opportunity and discuss the systems with their creators.

David Lorge Parnas Symposium

Come and help *"Thinking Hard About Software."* A symposium in recognition of the work of David Lorge Parnas in honor of his 60th birthday.

New Software Engineering Faculty Symposium

This morning symposium will bring together faculty who have survived their early years with new and junior faculty. The main goal is to share and exchange ideas on practical methods for having a successful and fulfilling academic career.

Doctoral Symposium

Ph.D. students will present their research objectives, methods, and preliminary results at an early enough stage to allow useful guidance for their further work and future careers.

Panels

ICSE 2001 panel topics include pressing issues in theory and practice of software engineering, emerging trends, enabling technologies, and professional, organizational, and social issues associated with software engineering.

Internet Cafés

Visit the ICSE 2001 Internet Cafés, which provide central zones for meetings, discussions, and collaboration of researchers and developers from around the world.

Exhibits

ICSE 2001 provides a hall for publishers, commercial exhibits, posters, and academic research demonstrations. The exhibits feature leading companies offering software engineering capabilities and tools, education and training, books and journals, and consulting services.

Collocated Events

Both prior to and immediately following the main ICSE 2001 program, there are four collocated conferences:

- IWPC 2001
- EHCI 2001
- SSR 2001
- SPIN 2001

CONTACT

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REGISTRATION

ICSE 2001 registration started on *January 23, 2001*. Make sure to register early as registration fees will rise after *April 12, 2001*. For more details and for downloading the pdf registration form or online registration, please visit
http://www.csr.uvic.ca/icse2001/registration.html

SUNDAY, MAY 13

7:30	**Breakfast**		
8:30–10:00	**Full Day Tutorials** **T1** UML for Software Engineers **T2** The Intertwining between Risk and Project Management	**Morning Tutorials** **T3** Methods of Component-Based Software Engineering	**Workshops** **W1** 2nd International Workshop on Living with Inconsistency **W2** 4th Workshop on Software Engineering over the Internet **W3** Software Product Lines: Economics, Architectures, and Implications **W4** 2nd International Workshop on Automated Program Analysis, Testing, and Verification (WAPATV) **W5** Software Engineering and Mobility **W6** Software Visualization
	Nutrition Break		
10:30–12:00	**Full Day Tutorials** continued	**Morning Tutorials** continued	**Workshops** continued
	Lunch		
2:00–3:30	**Full Day Tutorials** continued	**Afternoon Tutorials** **T4** From Use Cases to Code–Rigorous Software Development with UML	**Workshops** continued
	Nutrition Break		
4:00–5:30	**Full Day Tutorials** continued	**Afternoon Tutorials** continued	**Workshops** continued

MONDAY, MAY 14

7:30	**Breakfast**				
8:30–10:00	**Full Day Tutorials** **T5** OPEN: A Flexible Object-Oriented Component-Based Development Process for Software-Intensive Systems Development–A UML Exposition **T6** Describing Software Architecture with UML **T7** Software Product Lines and Software Architecture Design	**Morning Tutorials** **T8** How to Do Inspections When There is No Time? **T9** EasyWinWin: A Groupware-Supported Methodology for Requirements Negotiation **T10** Fundamental Concepts for Practical Software Architecture **T11** Introduction to Java 2 Micro Edition (J2ME): Java in Small Things	**Workshops** **W5, W6** continued **W7** Generative Techniques for Product Lines **W8** Software Engineering using Metaheuristic Innovative Algorithms (SEMINAL 2001) **W9** From Software Requirements to Architecures (STRAW 2001) **W10** 3rd Intl. Workshop on Net-Centric Computing: Migrating to the Web (NCC 2001) **W11** Global Aspects of Software Engineering Professionalism **W12** 3rd Intl. Workshop on Economics-Driven Software Engineering Research (EDSER) **W13** 4th Workshop on Component-Based Software Engineering: Component Certification and System Prediction **W14** 10th Intl. Workshop on Software Configuration Management (SCM 10)	**Symposia** **A1 Doctoral Symposium** Symposium chair: M.L. Soffa, University of Pittsburgh, USA	
	Nutrition Break				
10:30–12:00	**Full Day Tutorials** continued	**Morning Tutorials** continued	**Workshops** continued	**Symposia** continued	
	Lunch				**Internet Café** **12:00 – 5:30**
2:00–3:30	**Full Day Tutorials** continued	**Afternoon Tutorials** **T12** Improving Software Inspections by Using Reading Techniques **T13** Mining Components for Software Architecture and a Product Line **T14** Hyper/J: Multidimensional Separation of Concerns for Java **T15** Enterprise JavaBean Architecture and Design Issues: Avoiding JavaBean Soup	**Workshops** continued	**Symposia** continued	
	Nutrition Break				
4:00–5:30	**Full Day Tutorials** continued	**Afternoon Tutorials** continued	**Workshops** continued	**Symposia** continued	

TUESDAY, MAY 15

7:30	**Breakfast**				**Internet Café** (all day)
8:30–10:00	**Full Day Tutorials** **T16** Integrated Formal Modeling Techniques and UML **T17** From UML to Java: Building a 3-Tier Architecture **T18** Designing Concurrent, Distributed, Real-Time Applications with UML **T19** Using Automated Transformation Systems for Software Maintenance and Reengineering **T20** Effective Software Architecture Design: From Global Analysis to UML Descriptions	**Morning Tutorials** **T21** Bridging the Requirements/Design Gap in Dymanic Systems with Use Case Maps	**Workshops** **W12** continued **W13** continued **W14** continued **W15** XML Technologies and Software Engineering (XSE 2001) **W16** Describing Software Architecture with UML **W17** Advanced Separation of Concerns in Software Engineering **W18** 1st Workshop on Open Source Software Engineering	**Symposia** **A2 David Lorge Parnas Symposium** Symposium chairs: D. Weiss, Avaya Communication, USA; D. Hoffman, University of Victoria, Canada **A3 New Software Engineering Faculty Symposium (morning only)** Symposium chairs: L. Osterweil, University of Massachusetts, Amherst, USA; G. Silberman, Centre for Advanced Studies, Canada; K. Wong, University of Alberta, Canada	
	Nutrition Break				
10:30–12:00	**Full Day Tutorials** continued	**Morning Tutorials** continued	**Workshops** continued	**Symposia** continued	
	Lunch				
2:00–3:30	**Full Day Tutorials** continued	**Afternoon Tutorials** **T22** Introduction to the Attribute Driven Design Method	**Workshops** continued	**Symposia** continued	
	Nutrition Break				
4:00–5:30	**Full Day Tutorials** continued	**Afternoon Tutorials** continued	**Workshops** continued	**Symposia** continued	
	Break				
5:45–7:00	**S1 Closing for David L. Parnas Symposium** (Open to all ICSE attendees) **Software Fundamentals: The Ideas of David L. Parnas** **David Weiss, Avaya Communication, USA** **Diogenes, Where Are You?** **Frederick P. Brooks, Jr., University of North Carolina, Chapel Hill, USA** Session chair: D. Hoffman, University of Victoria, Canada				**Exhibits, Posters, and Informal Demos (EPIC)**
7:00–9:00	**S2 Reception – sponsored by ACD Systems**				

WEDNESDAY, MAY 16

7:30	Breakfast	Speaker's Breakfast			Internet Café
8:30–10:00	**S3 Welcome and Keynote** **Daniel Sabbah, IBM Corporation, USA** Session chair: H. Müller, University of Victoria, Canada				EPIC
	Nutrition Break				(all day)
10:30–12:00	**S4 Technical Papers** **Design and Specification of Distributed Systems** Session chair: A. Zündorf, University of Paderborn, Germany	**S5 Technical Papers** **Static Analysis** Session chair: J. Atlee, University of Waterloo, Canada	**S6 Education Papers** **Practical Software Engineering Education** Session chair: H. Saiedian, University of Nebraska at Omaha, USA	**S7 Invited Industry Presentations** Session chair: D. Perry, University of Texas at Austin, USA	
	Lunch				
1:10–1:50	**S8 Frontiers of Software Practice** **Enabling Technologies for the Future of Voice-Based Web Access** S. Woods, Quack.com (an AOL Interactive Company), USA Session chair: S. Tilley, University of California at Riverside, USA	**S9 Frontiers of Software Practice** **Jini™ Network Technology: Devices, Desires, and Designs** A. Ricciardi, Valaran Corp., USA Session chair: C. Kaiser, Columbia University, USA	**S10 Frontiers of Software Practice** **Simple Object Access Protocol (SOAP) and Web Services** A. Ryman, IBM Canada Ltd., Canada Session chair: R. Holt, University of Waterloo, Canada	**S11 Frontiers of Software Practice** **Auditing Legacy Systems for Security and Survivability** T. Longstaff, Carnegie Mellon Software Engineering Institute, USA Session chair: P. Devanbu, University of California, Davis, USA	
	Break				
2:00–3:30	**S12 Technical Papers** **Process Improvement for Multi-Site Environments** Session chair: D. Berry, University of Waterloo, Canada	**S13 Technical Papers** **Design Recovery and Program Understanding** Session chair: C. Snelting, University of Passau, Germany	**S14 Education Papers** **Degree Programs for Software Engineering Education** Session chair: A. Finkelstein, University College London, UK	**S15 Invited Industry Presentations** Session chair: L. Northrop, Software Engineering Institute, USA	
	Nutrition Break				
4:00–5:30	**S16 Technical Papers** **Effective Uses of Inspections** Session chair: L. Briand, Carleton University, Canada	**S17 Technical Papers** **Building Formal-Analysis Tools** Session chair: T. Ball, Microsoft Research, USA	**S18 Education Papers** **Software Engineering Body of Knowledge Panel** Panel chair: P. Freeman, Georgia Institute of Technology, USA	**S19 Invited Industry Presentations** Session chair: J. Slonim, Dalhousie University, Canada	
5:30–9:00	**S20 Reception – sponsored by IBM**				

THURSDAY, MAY 17

7:30	Breakfast		Speaker's Breakfast			Internet Café
8:30–10:00	**S21 Technical Papers** **Dynamic Analysis and Testing** Session chair: D. Rosenblum, University of California, Irvine, USA	**S22 Technical Papers** **Construction of Component-Based Systems** Session chair: D. Batory, University of Texas at Austin, USA	**S23 Case Study Reports** **Infrastructure Support** Session chair: J. Kramer, Imperial College, UK	**S24 CHASE** **Process-Centered Software Engineering Environments** Session chair: W. Schäfer, University of Paderborn, Germany	**S25 Formal Demos** **Software Architecture** Session chair: R. Keller, University of Montreal, Canada	EPIC (all day)
	Nutrition Break					
10:30–11:30	**S26 Keynote** **The Coming-of-Age of Software Architecture Research** **Mary Shaw, Carnegie Mellon University, USA** Session chair: M.J. Harrold, Georgia Institute of Technology, USA					
11:30–12:00	**S27 ACM SIGSOFT and IEEE TCSE Award** **Most Influential Paper from ICSE 13** **"Tolerating Inconsistency" Revisited** Robert Balzer, Teknowledge Corporation, USA Session chairs: M.J. Harrold, Georgia Institute of Technology, USA; W. Schäfer, University of Paderborn, Germany					
	Lunch					
1:10–1:50	**S28 Awards Presentations** **ACM Service, ACM Research, IEEE Computer Society Harlan D. Mills Award** Session chairs: ACM SIGSOFT and IEEE TCSE Chairs					
	Break					
2:00–3:30	**S29 Technical Papers** **Reengineering and Software Evolution** Session chair: J. Jahnke, University of Victoria, Canada	**S30 Technical Papers** **Analysis of Architectures** Session chair: N. Medvidovic, University of Southern California, USA	**S31 Case Study Reports** **Applications of New Paradigms in Software Development** Session chair: D. Smith, Software Engineering Institute, USA	**S32 CHASE** **Modelling and Specification Techniques** Session chair: G. Engels, University of Paderborn, Germany	**S33 Formal Demos** **Reuse and Integration** Session chair: E. Stroulia, University of Alberta, Canada	
	Nutrition Break					
4:00–5:30	**S34 Technical Papers** **Improving the Testing Process** Session chair: K. Inoue, Osaka University, Japan	**S35 Technical Papers** **Mobile Agents** Session chair: I. Ben-Shaul, Technion-Israel Institute of Technology, VersEdge Technologies, Israel	**S36 Case Study Reports** **Software Evolution** Session chair: T. Lethbridge, University of Ottawa, Canada	**S37 CHASE** **Impact Project** Panel chair: L. Osterweil University of Massachusetts at Amherst, USA	**S38 Formal Demos** **Verification and Maintenance** Session chair: G. Heinemann, Worchester Polytechnic Institute, USA	
7:00–10:00	**S39 Reception**					

FRIDAY, MAY 18

7:30	Breakfast		Speaker's Breakfast		Internet Café
8:30–10:30	**S40 Technical Papers** **Analysis of Requirements** Session chair: P. Tarr, IBM T.J. Watson Research Center, USA	**S41 Technical Papers** **Formal Frameworks** Session chair: K. Futatsugi, JAIST, Japan	**S42 Perspectives on SE Panel** **The Future of Software Engineering** Panel chair: D. Notkin, University of Washington, USA		EPIC 7:30–2:00
	Nutrition Break				
11:00–12:00	**S43 Keynote** **Bernd Voigt, Lufthansa, Germany** Session chair: W. Schäfer, University of Paderborn, Germany				
	Lunch				
1:10–1:50	**S44 Frontiers of Software Practice** **Anti-Patterns in Software Architecture** T. Mobray, World Wide Institute of Software Architects (WWISA), USA Session chair: M.A. Storey, University of Victoria, Canada	**S45 Frontiers of Software Practice** **Dependability of Embedded Systems** J. Knight, University of Virginia, USA Session chair: A. Kark, National Research Council, Canada	**S46 Frontiers of Software Practice** **Inter-language Object Sharing with the Common Language Runtime: Infrastructure for MS .NET** J. Hamilton, Microsoft Corporation, USA Session chair: J. Mylopoulos, University of Toronto, Canada	**S47 Frontiers of Software Practice** **Collaborative Software Engineering** A. Brown, Catapulse, Inc., USA Session chair: P. Sorenson, University of Alberta, Canada	
	Break				
2:00–3:00	**S48 Keynote** **Reuse That Pays** **Linda M. Northrop, Software Engineering Institute, USA** **Session chair:** H. Müller, University of Victoria, Canada				
	Nutrition Break				
3:15–4:45	**S49 Technical Papers** **Architecture for Emerging Applications** Session chair: E. Di Nitto, Politecnico di Milano, Italy	**S50 SE Research Agendas Panel** Panel chair: D. Rombach, Fraunhofer IESE, Germany			
4:45–5:00	**S51 ICSE 2001 Closing** Session chair: W. Tracz, Lockhead Martin Federal Systems, USA				

KEYNOTES

Daniel Sabbah
Vice President Application and
Integration Middleware Division,
IBM Corporation, USA
Photo courtesy of IBM

Dr. Sabbah is the Vice President, Development, Application and Integration Middleware (AIM) Division of IBM. He manages software development for all application server, messaging, and development tools in IBM's portfolio. This is a group that spans over 9 locations worldwide with over 4000 software developers that produce the Websphere platform, CICS, all MQ Series products and the VisualAge tools across a base of 9 or more operating system platforms. Prior to that, he was vice president architecture and tools development where he was responsible for the architecture and strategy for IBM's application development tools as well as IBM's overall web application servers and business integration software. He began his career at IBM in 1974 in telecommunications software (VTAM) in Kingston, New York. He received his Ph.D. in Computer Science from the University of Rochester in 1981, specializing in artificial intelligence and computer vision. He returned to the IBM Research Division and was responsible for the artificial intelligence effort, then programming languages, and finally for software technology. Dr. Sabbah has direct experience in both product development and in software research.

Mary Shaw
Alan J. Perlis Professor of Computer Science,
Carnegie Mellon University, USA
http://www.cs.cmu.edu/~shaw/
Photo courtesy of Carnegie Mellon University

Mary Shaw is the Alan J. Perlis Professor of Computer Science at Carnegie Mellon University. She has been a member of this faculty since completing the Ph.D. degree at Carnegie-Mellon in 1972. She had previously earned a B.A (cum laude) from Rice University and worked in systems programming and research at the Research Analysis Corporation and Rice University. Her research interests in computer science lie primarily in the areas of programming systems and software engineering, particularly software architecture, programming languages, specifications, and abstraction techniques. She has participated in developing innovative curricula in Computer Science from the introductory to the doctoral level. Dr. Shaw has received the Warnier prize for contributions to software engineering and is a Fellow of the Association for Computing Machinery, the Institute for Electrical and Electronics Engineers, and the American Association for the Advancement of Science.

The Coming-of-Age of Software Architecture Research by M. Shaw

Over the past decade, software architecture research has emerged as the principled study of the overall structure of software systems, especially the relations among subsystems and components. From its roots in qualitative descriptions of useful system organizations, software architecture has matured to encompass broad explorations of notations, tools, and analysis techniques. Whereas initially the research area interpreted software practice, it now offers concrete guidance for complex software design and development. We can understand the evolution and prospects of software architecture research by examining the research paradigms used to establish its results. These are, for the most part, the paradigms of software engineering. We advance our fundamental understanding by posing research questions of several kinds and applying appropriate research techniques, which differ from one type of problem to another, yield correspondingly different kinds of results, and require different methods of validation. Unfortunately, these paradigms are not recog-

nized explicitly and are often not carried out correctly; indeed not all are consistently accepted as valid. This retrospective on a decade-plus of software architecture research examines the maturation of the software architecture research area by tracing the types of research questions and techniques used at various stages. We will see how early qualitative results set the stage for later precision, formality, and automation and how results build up over time. This generates advice to the field and projections about future impact.

Robert Balzer
Chief Technical Officer and Director of Distributed Systems Unit, Teknowledge Corporation, USA
http://www.teknowledge.com/

Dr. Robert Balzer received his B.S., M.S., and Ph.D. degrees in Electrical Engineering from the Carnegie Institute of Technology, Pittsburgh, Pennsylvania, in 1964, 1965, and 1966, respectively. After several years at the Rand Corporation, he left to help form the University of Southern California's Information Sciences Institute (USC-ISI) where he served as Director of ISI's Software Sciences Division and Professor of Computer Science at USC from 1972 to 2000. Last year he joined Teknowledge Corporation as their Chief Technical Officer and Director of their Distributed Systems Unit. The Distributed Systems Unit combines artificial intelligence, database, and software engineering techniques to automate the software development process. Current research includes wrapping COTS products to provide safe and secure execution environments, extend their functionality, and integrate them together; instrumenting software architectures; and generating systems from domain specific specifications.

"Tolerating Inconsistency" Revisited by R. Balzer

We're surrounded by inconsistency: in our requirements, in the data that our software processes, and in those software systems themselves. Yet our formal systems can't handle such inconsistency. Most of them lose the ability to form any valid conclusions or analyses in the presence of even a single inconsistency. This forces our programs to operate in terms of an idealized model rather than the real world with the attendant requirement to either maintain a mapping between the two or force human operators to resolve the inconsistencies before the data is processed by the idealized system. My Tolerating Inconsistency paper introduced a simple way to scope formal constraint systems so that they applied only to the consistent data. Data inconsistent with these rules could then be represented and processed by giving them special marks to place them outside the rules' scope. My talk will review the influence this idea had on the field and my subsequent work.

Bernd Voigt
Senior Vice President and Chief Information Officer, Lufthansa, Germany
Photo courtesy of Lufthansa

Before joining Lufthansa in 1992, Bernd Voigt was doing research and teaching mathematics at various German universities. At Lufthansa, he directed the Frankfurt office of Lufthansa Informationstechnik und Software GmbH Berlin, and formed the new Competence Center Decision Support Technology at Lufthansa Systems GmbH. In 1995, he founded the Lufthansa subsidiary Lufthansa Systems Hungary Kft. in Budapest, Hungary. From 1996 to 1998, he was managing director of Lufthansa Systems Berlin GmbH. Since the beginning of 1999, he has been Senior Vice President and Chief Information Officer of Lufthansa German Airlines.

Linda M. Northrop
Director, Product Line Systems Program,
Software Engineering Institute, USA
http://www.sei.cmu.edu/staff/lmn/
Photo courtesy of the Software Engineering Institute

Linda Northrop has over 30 years of experience in the software development field as practitioner, manager, consultant, and educator. She is currently director of the Product Line Systems Program at the Software Engineering Institute (SEI). The Product Line Systems Program works in the areas of software architecture, reengineering, component and product line engineering. Her current publications are in the areas of software product lines, software architecture, and object technology. She is a frequently invited speaker at technical conferences and was featured in a television special on object technology aired by the British Broadcasting Company. Before joining the SEI, she was associated with both the United States Air Force Academy and the State University of New York as professor of computer science and with both Eastman Kodak and IBM as a software engineer. As a private consultant, Linda also worked for an assortment of companies covering a wide range of software systems. She recently chaired the first Software Product Line Conference. Linda is an eight-year member of the OOPSLA Organizing Committee, was OOPSLA '99 Technical Program Chair, and is OOPSLA '2001 Conference Chair. She is also a member of the ACM and the IEEE Computer Society, and the Computer Science Accreditation Commission.

Reuse That Pays by L. Northrop

A company builds a software system capable of running a diesel engine in a week, and in one case over a weekend, as opposed to the full year that it used to take. Another company builds one of its typical systems with 13 software engineers instead of the more than 100 it once required, and at the same time decreases the system's defect rate ten-fold. Still another increases its software-intensive product offerings from four per year to 50 per year. Imagine being able to use one person to integrate and test 1.5 million source lines of Ada for a real-time command-and-control system onboard a ship, with safety-critical requirements? Or increasing software productivity four-fold over three years, as another company has done? These organizations all achieved their results through strategic software reuse. We software people have been promising the benefits of reuse for decades. Are we finally achieving a reuse strategy that lives up to its hype?

SYMPOSIA

Doctoral Symposium

Symposium Chair: M.L. Soffa, University of Pittsburgh, USA; soffa@cs.pitt.edu

The Doctoral Workshop is a forum for graduate students to present and discuss their dissertation research objectives, approaches, and preliminary results. The workshop aims to broaden the perspectives and improve the research skills of new entrants to the software engineering community. Students will receive guidance and feedback on various aspects of their research from established researchers and the other graduate student attendees. The workshop is intended for students who have a specific research proposal and some preliminary results, but with sufficient time prior to thesis completion to benefit from the workshop experience. A summary of the workshop program and contributions will appear in the conference proceedings. Attendance is by prior application and invitation.

David Lorge Parnas Symposium (DLPS)

Symposium Chairs: David M. Weiss, Avaya Communication, USA;
Dan Hoffman, University of Victoria, Canada; dhoffman@csr.uvic.ca

David L. Parnas is one of the grandmasters of software engineering. His academic research and industrial collaborations have exerted far-reaching influence on software design and development. His groundbreaking writings capture the essence of the innovations, controversies, challenges, and solutions of the software industry. Together, they constitute the foundation for modern software theory and practice. This symposium is being held in Recognition of Parnas's work and in honour of his 60th birthday. It is an opportunity for everyone in the software engineering community to celebrate his contributions, and to think hard about where we are today and where we are going. The symposium program consists of talks by leading software engineering experts, including keynotes by Fred Brooks and Jon Bentley, a short presentation by Parnas, and a panel on software engineering education. Each symposium attendee will receive a copy of the book "Software Fundamentals: Collected Papers by David L. Parnas" a new book from Addison-Wesley.

New Software Engineering Faculty Symposium (morning only)

Symposium Chairs: Leon Osterweil, University of Massachusetts, Amherst, USA;
Gabriel Silberman, Centre for Advanced Studies, Canada; and Kenny Wong, University of Alberta, Canada; kenw@cs.ualberta.ca

New software engineering faculty face many challenges in this ever-changing world of software. They are typically under tremendous pressure to teach courses for new software engineering programs, supervise many graduate students, collaborate with industry, raise research funds, be leaders in their field, and publish journal papers. While trying to obtain tenure, they are also enticed by the high salaries of those who have chosen to work in industry. There is a tremendous shortage of software engineering faculty in many countries around the world. The ICSE community is committed to help new software engineering faculty survive in academia. This symposium grew out of the need to support and encourage new software engineering faculty in their early careers. This morning symposium will bring together faculty who have survived their early years with new and junior faculty. The main goal is to share and exchange ideas on practical methods for having a successful and fulfilling academic career. The attendees can work together on strategies for success and shop from the best ideas and experiences of their colleagues.

CLOSING FOR DAVID L. PARNAS SYMPOSIUM (Open for all ICSE attendees)

Software Fundamentals: The Ideas of David L. Parnas by David M. Weiss, Avaya Communication, USA
At ICSE 2001 we are honoring the work of one of the grandmasters of our field, highlighting the fundamental ideas that David L. Parnas invented and expounded, including such ideas as information hiding, abstract interfaces, the uses relation, program families, explicit layered exception handling, and deterministic scheduling for hard real-timesystems. Do you need to understand how to organize your software into modules so that it can be easily maintained and your modules are reusable, whether they are expressed as classes, packages, or other forms? Dave Parnas identified the information hiding principle and showed how to use it to construct workable, reusable modular structures that are stable over time. Are you struggling to create APIs to make your software useful to application programmers? Dave Parnas devised the idea (and coined the term) for abstract interfaces, and showed how to design interfaces that provided services without revealing their implementations. Languages like C++ and Java directly support this idea with abstract classes. Are you wondering how to create your software as a set of layers that define a hierarchical structure that meets your requirements, lets you build your system a few layers at a time, and lets others add to the structure that you have created? Dave Parnas clearly explained what a hierarchical structure is, what some of the important hierarchical structures that we use are, why people often confuse them, and how to create a layered structure that meets your needs. Do you know that your software is going to exist in many different versions, but are having difficulty designing your software not just to accommodate the different versions, but to take advantage of your situation to make your development process more efficient? Dave Parnas defined program families to help with just this situation and showed how to create them in a cost-effective way. However, Dave has been busy in more than just technical areas. His work includes commentary on the social responsibility of software engineers, both by exposition and by example, and on how we should educate our students so that software development becomes an engineering profession. His stance on our inability to create trustworthy software for the Strategic Defense Initiative, as well as his thoughts on how to teach software engineering have influenced how we think, act, and teach, as well as how the public perceives us. David Parnas is both a clear and creative thinker and an extraordinary expositor of seminal ideas. The issues that he addresses are at the heart of software engineering today; his explanations are still relevant and his solutions, trialed on real systems, transfer well to today's software development organizations and environments.

"Diogenes, Where Are You?" by Frederick P. Brooks, Jr., University of North Carolina, Chapel Hill, USA
What kind of person do we honor today? Fearlessly honest; honestly fearless. Dave is brilliant; many people are brilliant. Dave is impressively productive; many are productive. Dave is articulate and lucid; many are articulate, some are lucid. As much as we admire that profound, tough, clean mind, it is the attributes of character that we admire more. I submit that it is Dave's character attributes, as much as his mind, that have produced this incredible body of work. First his honesty. Dave is ready to question his own assumptions, ready to accept such critique by others, and ready to let the chips fall where they may as the logical consequences of assumptions emerge. "Our first duty in research is to the truth." Second, his principled approach to every task. He has technical principles, which he articulates, which he follows in his research, and which he tests and demonstrates in practice. His principles of professional ethics he has clearly enunciated and consistently followed. His social conscience, his professional conscience, and his personal conscience are all keen. Third, his boldness. He likes to question assumptions, to challenge widely held beliefs and attitudes. He is not shy about criticizing, even satirizing, work he considers shoddy. He freely states opinions, as such, that cannot yet be supported by data, but which he bases on experience and judgment. "I am not a modest man." Fourth, his commitment. Mili has put it well: Dave has not looked for quick or superficial contributions, but has made a "long-term, focused, painstaking effort." Each of those four words is crucial for his contributions. An honest sketch of an honest man must remark that any one virtue--even honesty--fully embraced, makes some other virtues difficult.

Software Engineering Body of Knowledge Panel (SWEBOK)

Panel Chair: Peter Freeman, Georgia Institute of Technology, USA
Contact: Hossein Saiedian; saiedian@eecs.ukans.edu

Panelists

- Don Bagert, Texas Technical University, USA
- Robert Dupui, Université du Québec à Montréal, Canada
- Hossein Saiedian, University of Kansas, USA
- Mary Shaw, Carnegie Mellon University, USA
- Barriei Thompson, University of Sunderland, UK

The goals of the SWEBOK project have been to develop a topical guide to the body of knowledge (BoK) supporting the discipline of software engineering. The project, sponsored by IEEE Computer Society, is over three years old and is nearing completion of its third and final stage. However, there has been some disagreement as to whether there is currently a common core software engineering body of knowledge at its current stage of evolution, and if so, what is size and contents of that BoK. This panel will present the current status of the SWEBOK and discuss its strengths and weakness, as well as address the more general question of the possible existence and nature of a software engineering body of knowledge. The panel discussion will have two parts. The first part will be an informative session. A short history will be presented and issues related to the curriculum, accreditation, and the maturity of the field to warrant a defined BoK will be discussed. In the second part, the panel members will discuss and debate the planned experimentation of the guide, its shortcomings, and how various computing societies may and should cooperate to improve the guide.

Impact Project Panel

Panel Chair: Leon Osterweil, University of Massachusetts, Amherst, USA; ljo@cs.umass.edu

Determining the Impact of Software Engineering Research Upon Practice

The goal of the Impact project is to study the impact that software engineering research has had upon software development practice. The reasons for doing this include: identifying the sorts of contributions that have had substantial impact, determining the research modalities that have been relatively more successful, and anticipating the directions that software engineering research might most effectively pursue, based upon its history and positioning. Impact project research will be held to the highest standards of scrupulous scholarship. It is expected to be useful to the software engineering research and development communities, as well as to other academic disciplines, government funding agencies and the public at large in helping with the objective assessment of the software engineering community's record of achievement. The output of the project will be series of documents and briefings targeted to different audiences. At the base of the documentation will be a series of articulate, objective, and complete scholarly papers, each tracing the way in which software technology that is in common use has drawn upon software engineering research. Each of these papers is expected to be of journal quality and size, and is expected to be published eventually in a high quality journal. It is expected that each such paper will be the product of the joint efforts of a team of perhaps 8–10 experts in the particular area. It is anticipated that as many as 20 such papers will be produced, each studying the genesis of a different area of important contemporary software engineering practice. It is also expected that a compendium of the papers will be published as a separate volume, perhaps as part of the ICSE 2002 proceedings.

Perspectives on Software Engineering Panel (POSE)

Panel Chair: David Notkin, University of Washington, USA; notkin@cs.washington.edu

Panelists:

- Marc Donner, Morgan Stanley, USA
- M. Ernst, Massachusetts Institute of Technology, USA
- M. Gorlick, Aerospace Corp., USA
- J. Whitehead, University of California, Santa Cruz, USA

This session will be divided into two parts. The first part will consist of six invited speakers giving their view of the future of software engineering: most of these speakers will be advanced or recently graduated Ph.D. students, while several of them will be active researchers who will speak on the software engineering challenges in areas of growing importance (such as ubiquitous computing). The second part will be an open microphone for the audience to ask questions and comment on their view of the future of software engineering.

Software Engineering Research Agendas Panel (SERA)

Panel Chair: Dieter Rombach, Fraunhofer IESE, Germany; rombach@iese.fhg.de

What can't we do, but need to learn how to do?

The software challenges of the new millennium include more mature users expecting functioning software, more critical technical and business applications requiring dependable software, globalization requiring distributed development teams, and paradigm clashes between new and old economy firms. Software engineering has to be evaluated anew in terms of "what can't we do today, and what do we have to learn how to do in order to meet those challenges." This panel discusses and proposes urgent research topics as well as research programs to address those topics. Although, such discussions are going on in all different countries (e.g., PITAC in the US, similar activities in Germany), this international panel will add new perspectives thought intercultural cross-fertilization. The panel will consist of three parts: position statements and brief discussions among panelists, questions/answers from the audience, and summary.

Software Engineering Week at a Glance	Fri. May, 11	Sat. May, 12	Sun. May, 13	Mon. May, 14	Tue. May, 15	Wed. May, 16	Thu. May, 17	Fri. May, 18	Sat. May, 19	Sun. May, 20
Intl. Software Engineering Conference 2001			ICSE 2001							
ICSE 2002 Organizational Meeting										
ICSE 2003 Org.anizational Meeting										
ICSE Steering Committee Meeting										
ICSE Post Mortem Meeting										
Engineering for Human-Computer Interaction	EHCI 2001									
Intl. Workshop on Program Comprehension		IWPC 2001								
Symposium on Software Reusability								SSR 2001		
Spin Workshop on Model Checking of Software									SPIN 2001	
CSER Meeting										
SICSOFT General Meeting										
TCSE General Meeting										
IEEE TSE Ed. Board Meeting										
ICSM 2001 PC Meeting										
ESEC/FSE PC Meeting										

EXHIBITS

Exhibits, Posters, and Demos

Tuesday–Friday

ICSE 2001 will provide a hall for publishers, commercial exhibits, and academic research demonstrations. Formal research demos, posters and informal research demonstrations are displayed in the exhibits area and provide the opportunity to exhibit late-breaking results and to discuss these results with conference participants. ICSE 2001 exhibits feature publishers and leading companies offering software engineering capabilities and tools, education and training, books and journals, and consulting services.

Exhibits

May 15, Tuesday	5:45 pm–9:00 pm
May 16, Wednesday	8:30 am–9:00 pm
May 17, Thursday	8:30 am–7:00 pm
May 18, Friday	8:30 am–2:00 pm

Set Up

May 15, Tuesday	2:00 pm–5:45 pm

Tear Down

May 18, Friday	2:00 pm–5:00 pm

Formal Demos Presentations

May 17, Thursday	10:30 am–5:30 pm

Internet Cafés

Monday—Friday

You are welcome to visit the two ICSE 2001 Internet Cafés. They will provide central zones for meetings, discussions, and collaboration of researchers and developers from around the world. Read your email, and visit all the interesting URLs you will notice during the conference and the exhibits at once. And don't forget the ICSE 2001 web page with the latest announcements and up-to-date information.

Come and meet your colleagues!

Internet Cafés

May 14, Monday	12:00 pm–9:00 pm
May 15, Tuesday	7:30 am–9:00 pm
May 16, Wednesday	7:30 am–9:00 pm
May 17, Thursday	7:30 am–9:00 pm
May 18, Friday	7:30 am–2:00 pm

Set Up

May 14, Monday	8:30 am–12:00 am
May 15, Tuesday	2:00 pm–5:45 pm

Tear Down

May 18, Friday	2:00 pm–5:00 pm

For exhibits please contact:

Homy Dayani-Fard
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CITY AND TRAVEL


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Toronto is a clean, safe, cosmopolitan city with a wonderful network of parks, recreational, and cultural facilities. Toronto is the home of four professional sports teams and the third largest English-speaking theatre district in the world, behind New York and London. One of the world's most ethnically diverse cities, it is home to more than 80 ethnic communities from Africa, Asia, and Europe. Toronto is also the business centre of Canada. Exciting, vibrant and cosmopolitan, Metropolitan Toronto with a population of approximately 2.5 million people, reigns as Canada's largest city, the capital of the Province of Ontario, and Canada's cultural, financial and transportation hub. Metro Toronto is within a one hour drive for about five million Canadians, and is 90 minutes by air for about 60 per cent of the population of the United States. Toronto is home to the CN Tower, the world's tallest free standing structure; two-time World Champion Blue Jays baseball team; SkyDome, the world's first retractable roof stadium; Ontario Place, which features the first permanent giant-screen IMAX theatre, a Canadian invention; and is in close proximity to the Niagara region featuring Niagara falls. Please find more details at http://www.csr.uvic.ca/icse2001/toronto.html.

Entering Canada

A passport is preferred, but is not necessary, for U.S. visitors entering Canada. U.S. citizens should have their birth certificate or citizenship certificate as well as a picture ID; permanent residents (who are not citizens) need their alien-registration card and passport. Citizens from all countries other than the US must have a valid passport, and in some cases a visitor visa may be required. Canadian customs regulations apply for all personal and business travel into Canada. For most travelers, they may clear customs with their personal goods and belongings at the airport in Toronto. Please check your local customs regulations if you are planning on taking Canadian purchases home with you.

Air Transportation and Discount Airfare

Air Canada and many US and international carriers provide direct flights to Toronto's Lester B. Pearson International Airport (YYZ) from major cities in North and South America, Europe, the Orient, and the Pacific Rim. Conference discounted airfares are currently available with:

- Air Canada, +1-800-361-7585, convention number CV931642

Ground Transportation

The downtown Toronto hotels are approximately 13 km (8 miles) from Lester B. Pearson International Airport.The Pacific Western Airport Express bus to downtown hotels usually operates every 20 minutes and costs CAD$12.50. The fixed-rate taxi/limo fares to downtown are about CAD$36.

Currency

Money may be exchanged at a favorable rate at the Westin Harbour Castle Hotel or at nearby banks. Shops and restaurants will often accept U.S. currency, but at a less favorable exchange rate. *Note, however, that all registration, short course, tours and luncheon or dinner fees paid at the conference will be collected in US dollars.*


City Hall

Sales Taxes and Sales Tax Rebate

Most items in Ontario, except food, are subject to both a 7% Provincial Sales Tax (PST) and a 7% federal Goods and Services Tax (GST). Non-residents of Canada, however, may claim a rebate for the CST paid on accommodation and most consumer goods taken out of the country. The GST Rebate Guide for Visitors, which includes the rebate form, will be supplied in the registration package. Please ensure that you retain all your receipts so that you can claim your rebate at a Duty Free Shop as you leave the country.

More Information

Visit http://www.csr.uvic.ca/icse2001/travel.html and find out more details about all the above topics as well as many more informative hyperlinks.

Sponsoring Organizations

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http://www.computer.org/

The IEEE Computer Society is the oldest and largest association of computer professionals in the world. It offers over 90,000 members a comprehensive program of publications, meetings, and technical and educational activities, fostering an active exchange of information, ideas, and innovation. No other professional or commercial organization comes close to matching the Computer Society in terms of the quality, quantity, or diversity of its publications. Headquartered in Washington, DC, the society serves its members from offices in Los Alamitos, CA; Tokyo, Japan; and Brussels, Belgium. The society is the largest technical society within the Institute of Electrical and Electronics Engineers.

Association for Computing Machinery
http://www.acm.org/

The Association for Computing Machinery (ACM), is the world's oldest and largest educational and scientific computing society. With a worldwide membership of 80,000 IT practitioners and academics, the ACM is the premier forum for all those that wish to keep abreast of the latest information, trends and developments in the IT industry. ACM offers its members an unprecedented number of publications, conferences, tutorials, and special interest groups.

IEEE Computer Society
Technical Council on Software Engineering
http://www.tcse.org/

The Technical Council on Software Engineering (TCSE) is the IEEE Computer Society's coordinating body for innovative programs and services in software engineering. TCSE is at the forefront of information exchange and support for both practitioners and researchers throughout the software engineering field.

ACM SIGSOFT Special Interest Group on Software Engineering
http://www.acm.org/sigsoft/

ACM SIGSOFT focuses on issues relating to all aspects of software engineering, providing a forum for computing professionals from industry, government and academia to examine principles, practices, education, and new research results in software engineering. In addition to ICSE, SIGSOFT sponsors the Foundations of Software Engineering conference and a variety of one-time and on-going workshops that bring practitioners, researchers, and educators together to discuss and debate timely issues. SIGSOFT publishes a bimonthly newsletter, Software Engineering Notes, which includes articles submitted by members as well as the popular forum "The Risks Digest", which describes software safety mishaps and concerns.

Cooperating Organizations

ACM SICPLAN Special Interest Group on Programming Languages
http://www.acm.org/sigplan/

Supporting Organizations

- **Consortium for Software Engineering Research**
  http://www.cser.ca/
- **Software Engineering Institute, Carnegie-Mellon University**
  http://www.sei.cmu.edu/
- **University of Alberta**
  http://www.cs.ualberta.ca/
- **University of Paderborn**
  http://www.uni-paderborn.de/
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Challenges and Achievements in SE

Chairs: Gregor Engels, University of Paderborn, Germany; engels@uni-paderborn.de; and **Wilhelm Schäfer,** University of Paderborn, Germany; wilhelm@uni-paderborn.de

Invited Industry Presentations

Chairs: François Coallier, Bell Canada, Canada; francois.coallier@bell.ca; and **Linda M. Northrop**, Software Engineering Institute, USA; lmn@sei.cmu.edu; and **Dewayne E. Perry**, University of Texas at Austin, USA; perry@ece.utexas.edu
Mikio Aoyama, Niigata Institute of Technology, Japan; **Volker Gruhn**, University of Dortmund, Germany; **Gene F. Hoffnagle**, IBM Corporation, USA; **Jim Ning**, Andersen Consulting, USA; **Jacob Slonim**, Dalhousie University, Canada

Frontiers of Software Practice

Chairs: **Scott R. Tilley**, University of California, Riverside, USA; stilley@cs.ucr.edu; and **Hausi A. Müller**, University of Victoria,Canada; hausi@csr.uvic.ca

Perspectives on SE Panel

Chair: David Notkin, University of Washington, USA; notkin@cs.washington.edu

SE Research Agendas Panel

Chair: Dieter Rombach, Fraunhofer IESE, Germany; rombach@iese.fhg.de

New SE Faculty Symposium

Chairs: Leon Osterweil, University of Massachusetts, Amherst; ljo@cs.umass.edu; **Cabriel Silberman,** Centre for Advanced Studies, Canada; gabbys@ca.ibm.com; and **Kenny Wong,** University of Alberta, Canada; kenw@cs.ualberta.ca

David L. Parnas Symposium

Chairs: **Dan Hoffman**, University of Victoria, Canada; dhoffman@csr.uvic.ca; and **David M. Weiss**, Avaya Communication, USA; weiss@avaya.com

Tutorials

Chairs: Gail Kaiser, Columbia University,USA; kaiser@cs.columbia.edu; and **Paul Sorenson,** University of Alberta, Canada; sorenson@cs.ualberta.ca
Alan Brown, Catapulse Inc., USA; **Paul C. Clements**, Software Engineering Institute, USA; **Gregor Engels**, University of Paderborn, Germany; **Oscar Nierstrasz**, University of Bern, Switzerland; **Scott R. Tilley**, University of California, Riverside, USA; **Ursula Wolz**, The College of New Jersey, USA

Workshops

Chairs: Prem Devanbu, University of California, Davis, USA; devanbu@cs.ucdavis.edu; and **John Mylopoulos**, University of Toronto, Canada; jm@cs.toronto.edu
Anneliese Amschler Andrews, Colorado State University, USA; **Harald Gall**, Technical University of Vienna, Austria; **David Garlan**, Carnegie Mellon University, USA; **Roland Mittermeir**, University of Klagenfurt, Austria; **Frank Tip**, IBM T.J. Watson Research Center, USA

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Chair: Mary Lou Soffa, University of Pittsburgh, USA; soffa@cs.pitt.edu
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Chair: Rudolf K. Keller, University of Montréal, Canada; keller@iro.umontreal.ca
Gerald Cannod, Arizona State University, USA; **George T. Heineman**, Worchester Polytechnic Institute, USA; **Spencer Rugaber**, Georgia Institute of Technology, USA; **Eleni Stroulia**, University of Alberta, Canada; **Steve Woods**, Quack.com, USA

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c/o Registration Systems Lab
2060 Goldwater Court
Maitland, FL 32751 USA

TUTORIALS *(Please circle tutorial numbers)*

Sunday Full Day	T1	T2			
Sunday Morning	T3				
Sunday Afternoon	T4				
Monday Full Day	T5	T6	T7		
Monday Morning	T8	T9	T10	T11	
Monday Afternoon	T12	T13	T14	T15	
Tuesday Full Day	T16	T17	T18	T19	T20
Tuesday Morning	T21				
Tuesday Afternoon	T22				

WORKSHOPS & COLLOCATED EVENTS *(Please circle number or name)*

Friday - Saturday - Sunday	EHCI				
Saturday - Sunday (5/12 - 5/13)	IWPC				
Sunday	W1	W2	W3	W4	
Sunday-Monday	W5	W6			
Monday	W7	W8	W9	W10	W11
Monday-Tuesday	W12	W13	W14		
Tuesday	W15	W16	W17	W18	
Tuesday Morning	New SE Faculty Symposium (no registration fee)				
Tuesday	David Lorge Parnas Symposium				
Saturday - Sunday (5/19 - 5/20)	SPIN	SSR			

(Please circle the appropriate fees)

FEES in U.S. DOLLARS:	On or Before April 12, 2001			After April 12, 2001			
	Member	Non-Member	Student	Member	Non-Member	Student	
ICSE 2001 Full Conference	430	550	175	530	680	250	$_____
One Day Conference: ☐ Wed ☐ Thu ☐ Fri	250	250	250	250	250	250	$_____
Tutorial: Full Day or 2 Half Days	350	450	200	450	550	225	$_____
Tutorial: Half Day	200	275	125	250	300	150	$_____
Workshop: 2-Day	250	350	125	385	475	235	$_____
Workshop: 1-Day	150	200	75	275	345	150	$_____
David Lorge Parnas Symposium	250	320	175	320	400	250	$_____
IWPC	IEEE 310	390	120	IEEE 375	470	145	$_____
EHCI	ACM 400	425	125	ACM 500	525	150	$_____
SPIN	ACM 175	225	125	ACM 205	255	155	$_____
SSR	ACM 300	325	125	ACM 330	365	155	$_____
SSR Tutorial*	ACM 130	150	100	ACM 150	180	130	$_____
Exhibit Hall Only (One Day)	20	20	20	20	20	20	$_____
Additional Reception Ticket	50	50	50	50	50	50	$_____
Additional Proceedings	30	30	30	30	30	30	$_____
					TOTAL ENCLOSED:		$_____

* You will choose your tutorial onsite. Please see http://www.abitmore.be/ssr2001/

ICSE 2001 Conference fee includes entry to all technical sessions, exhibits, receptions, nutrition breaks, and one copy of conference proceedings.
One Day Conference fee includes entry to one day of technical sessions, exhibits, reception if applicable, nutrition breaks for one day, and one copy of conference proceedings.
Tutorial fee includes entry to chosen tutorial(s), luncheon(s), nutrition break(s), and applicable tutorial notes.
Workshop fee includes entry to chosen workshop(s), luncheon(s), nutrition break(s), and preprints of workshop position papers.
Collocated Conference(s) (IWPC,EHCI, SPIN, SSR) fee(s) include entry to the chosen conference(s), luncheon(s) (if provided), nutrition breaks(s) and conference proceedings.
Cancellations made in writing and faxed or postmarked by April 12, 2001 will be accepted subject to a $50 cancellation fee. Refunds will be made within four weeks of the end of the conference. Cancellations will not be accepted after April 12, 2001. "No shows" are not refundable and are liable for the full registration fee. Instead of canceling, your registration may be transferred by giving a colleague a written authorization.

Forms without payment will NOT be processed.
Make checks payable to **ACM/ICSE 2001.**
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