



# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

6-10 November 2001, Florence, Italy



**Theme: Systems and Software Evolution in the era of the Internet**

IEEE Computer Society's Technical Council on Software Engineering(TCSE) <http://tcse.org>

**The Conference will be held in conjunction with:**

- [SCAM](#), Source Code Analysis and Manipulation,
- [WESS](#), the Seventh Workshop on Empirical Studies of Software Maintenance
- [WSE](#), the 3<sup>rd</sup> International Workshop on Web Site Evolution
- *Other specialized workshops are welcome, limited slots available*

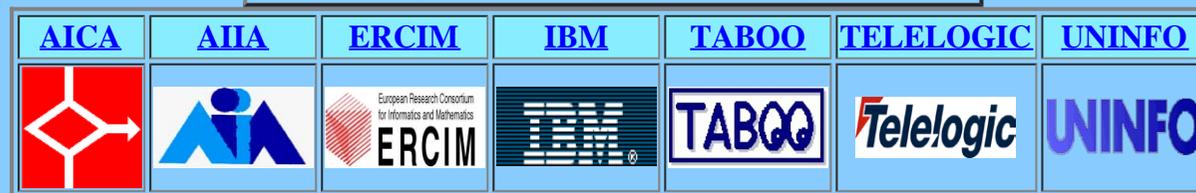
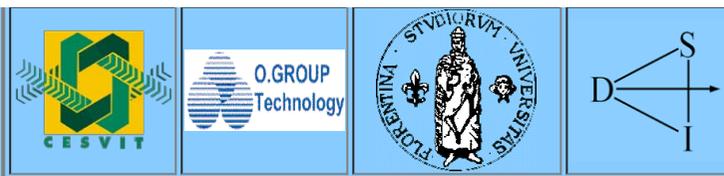
Outstanding Keynotes such as: Prof. David Lorge Parnas, Prof. Dieter Rombach and Dr.Ivar Jacobson

## Conference information



**In collaboration with:**

CESVIT	O Group	Florence Univ.	DSI



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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## Conference information

<ul style="list-style-type: none"> <li><a href="#">▶ About the Conference</a></li> <li><a href="#">▶ General Information</a></li> <li><a href="#">▶ Conference secretary</a></li> <li><a href="#">▶ Topics of interest</a></li> <li><a href="#">▶ Important dates</a></li> </ul>	<p style="color: red; font-weight: bold; font-size: 2em;">Conference</p> <ul style="list-style-type: none"> <li><a href="#">▶ <u>Conference Technical Committee :</u></a></li> <li><a href="#">▶ <u>Program Chairpersons</u></a></li> <li><a href="#">▶ <u>Tutorial Chairpersons</u></a></li> <li><a href="#">▶ <u>Industrial Applications Chairpersons</u></a></li> <li><a href="#">▶ <u>Publicity Chairpersons</u></a></li> <li><a href="#">▶ <u>Local Arrangements Chairpersons</u></a></li> <li><a href="#">▶ <u>Conference Steering Committee</u></a></li> <li><a href="#">▶ <u>Conference Program Committee</u></a></li> </ul>	<p style="color: orange; font-weight: bold; font-size: 2em;">Committee</p>
<ul style="list-style-type: none"> <li><a href="#">▶ <u>Program</u></a></li> <li><a href="#">▶ <u>Keynotes</u></a></li> <li><a href="#">▶ <u>Panels</u></a></li> <li><a href="#">▶ <u>Technical Paper</u></a></li> <li><a href="#">▶ <u>Dissertation Forum</u></a></li> <li><a href="#">▶ <u>Short Papers</u></a></li> <li><a href="#">▶ <u>Tutorials</u></a></li> <li><a href="#">▶ <u>Industrial Application</u></a></li> <li><a href="#">▶ <u>Demonstration</u></a></li> <li><a href="#">▶ <u>Exposition Area</u></a></li> </ul>	<p style="color: red; font-weight: bold; font-size: 2em;">Programm</p> <ul style="list-style-type: none"> <li><a href="#">▶ <u>Conference Location</u></a></li> <li><a href="#">▶ <u>Accomodation Form</u></a></li> <li><a href="#">▶ <u>On Line Registration via IEEE</u></a></li> </ul> <p><i>Download Registration Forms :</i></p> <div style="display: flex; justify-content: center; gap: 10px;">    </div>	<p style="color: red; font-weight: bold; font-size: 2em;">Registration</p>

<ul style="list-style-type: none"><li>▶ <a href="#">Call for papers</a></li><li>▶ <a href="#">Call for Industrial Applications</a></li><li>▶ <a href="#">Call for Tutorials</a></li><li>▶ <a href="#">Call for Exposition Tools</a></li><li>▶ <a href="#">Call for Dissertation Forum</a></li></ul>	<b>Calls</b>	<ul style="list-style-type: none"><li>▶ <a href="#">How to reach Florence</a></li><li>▶ <a href="#">Tourist Information</a></li><li>▶ <a href="#">Take a map</a></li><li>▶ <a href="#">A higher resolution map</a></li></ul>	<b>Tourist</b>

### Past ICSM conferences

<a href="#">ICSM 1994</a> Victoria, Canada	ICSM 1995 Nice, France	ICSM 1996 Monterey, California, USA	<a href="#">ICSM 1997</a> Bari, Italy	<a href="#">ICSM 1998</a> Bethesda, Maryland, USA	<a href="#">ICSM 1999</a> Oxford, UK	<a href="#">ICSM 2000</a> San Jose, California, USA
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*Proposed Conference email and WWW site:*

<http://www.dsi.unifi.it/icsm2001>

<http://www.dsi.unifi.it/ICSM2001>

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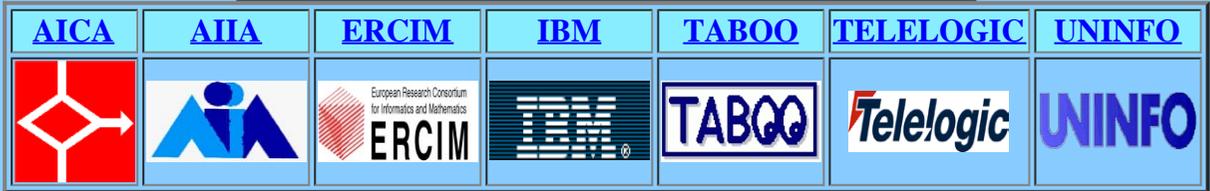
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### About the conference

Since its start in 1983, ICSM (International Conference on Software Maintenance) has grown and developed into an international forum for software maintenance researchers and practitioners to examine key issues facing the software maintenance community. Participants from academia, government, and industry share ideas and experiences solving critical software maintenance problems.

The ICSM conference is the premier international (world wide) event in the maintenance field. The importance of software maintenance is being increasingly recognised, both in terms of professional activities, and also through public perception, the Y2K problem (Millennium bug) and the Euro-conversion being the most obvious examples. Hence it is vital for the community of researchers and practitioners to publish, present, and debate the latest results in the field. ICSM proceedings present works of outstanding international excellence, where reports on the latest advances in the field may be found.

Previous ICSM conferences demonstrated tremendous interest and enthusiasm on the part of both researchers and applications personnel for current work in software maintenance. Many excellent papers were submitted and debated, showing that there is increasing interest in the subject.

ICSM is truly an international meeting place for researchers and practitioners in the field. Members of the program committee represent many different countries of the world. Many of the authors of papers also represent the software engineering interests of the international community.

International business competitiveness is dependent on huge quantities of already installed, legacy software. The Y2K event had convinced companies of the value of the legacy software to the operation of their business, and of the critical importance of the proper maintenance of both this legacy software and newly developed software. ICSM is the major international conference in the field of software and systems evolution, maintenance, and management.

We intend to contact the leaders of major European projects (e.g. Esprit, Eureka, Essi, etc.) to HOST one or half day open workshops jointly with ICSM. Universities and no-profit Research Centres in Tuscany and in the close regions are strongly present in several European Commission project programs: TTN HPCN, TTN TOPS.

We also intend to involve AICA, the Italian Computer Society, and TABOO (Italian association on object oriented technologies) to organise collateral events.

ICSM is the major international conference in the field of software and systems maintenance, evolution, and management.

In the era of the Internet, businesses and end-users have invested in new technologies and small and large software organisations around the world are looking for Internet related solutions to evolve and maintain their new Internet software products.

Internet technologies are strongly impacting system architectures and business processes and rules. In some cases businesses and end-users have been overwhelmed trying to keep up with software development and evolution processes and practices. In addition to novel solutions to enable the life-cycle of new web-based software systems, huge investments are necessary to migrate aging legacy applications to web-enabled contemporary systems.

ICSM 2001 will address these major changes in the software landscape and their impact on maintenance and evolution. The focus of the conference will be to explore the new challenges that the Internet, as a driver for business changes, poses for software maintenance, and the new opportunities it opens as infrastructure and enabling technology.

The purpose of the conference is to promote discussion and interaction between researchers and practitioners. We are particularly interested in exchanging concepts, prototypes, research ideas, and other results which could contribute to the academic arena and also benefit business and the industrial community. ICSM 2001 will be participatory, with working collaborative sessions and presentations of industry projects. ICSM 2001 will bring together researchers, practitioners, developers and users of tools, technology transfer experts, and project managers.

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## Conference Secretary

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 **Conference Secretary**

**Simonetta Ceglia**

Dip. Sistemi e Informatica, Università degli Studi di Firenze  
Via S. Marta, 3, 50139 Firenze, Italy  
Tel: +39-055-4796567, Fax: +39-055-4796363  
[ceglia@dsi.unifi.it](mailto:ceglia@dsi.unifi.it)

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## Topics of Interest

ICSM is the major international conference in the field of software and systems maintenance, evolution, and management.

In the era of the Internet, businesses and end-users have invested in new technologies and small and large software organisations around the world are looking for Internet related solutions to evolve and maintain their new Internet software products.

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ICSM 2001 will be participatory, with working collaborative sessions and presentations of industry projects. ICSM 2001 will bring together researchers, practitioners, developers and users of tools, technology transfer experts, and project managers.

The Conference will be held in conjunction with WESS, the Workshop on Empirical Studies of Software.

Topics of interest include but are not restricted to the following aspects of maintenance and evolution:

- Methods and theories
- Organizational frameworks
- Design for maintenance
- Internet and distributed systems
- User interface evolution
- Third party maintenance
- Program comprehension
- Processes and strategies
- Life cycle and process control
- Tools and environments
- Multimedia systems
- Commercial off-the-shelf (COTS)
- Freeware and open source applications
- Software and system visualization

- Knowledge based systems
- Impact of new software practices
- Software reusability
- Source code analysis and manipulation
- Models and methods for error prediction
- Maintenance and/or productivity metrics
- Personnel aspects of maintenance
- Version and configuration management
- Management and organization
- Formal methods
- Empirical studies
- Programming languages
- Testing and regression testing
- Measurement of Software
- Preventive maintenance
- Reengineering and reverse engineering
- Legal aspects and standards
- Remote, tele-work, and co-operative applications

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## Important dates

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Research Paper submission **15 January 2001(closed)** , notification of acceptance **1 June 2001 (online)**

Dissertation submission **15 January 2001 (closed)**

Industrial Application submission **12 March 2001(closed)**

Tools request and submission **12 March 2001(closed)**

Tutorial submission **12 February 2001(closed)**

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## CONFERENCE TECHNICAL COMMITTEE

### CONFERENCE CHAIRPERSONS

#### ▶ General Chair:

**Paolo Nesi**

Dip. Sistemi e Informatica, Università degli Studi di Firenze

Via S. Marta, 3, 50139 Firenze, Italy

Tel: +39-055-4796523, Fax: +39-055-4796363

[nesi@ingfi1.ing.unifi.it](mailto:nesi@ingfi1.ing.unifi.it)

<http://www.dsi.unifi.it/~nesi/>

#### ▶ Financial Chair:

**Vaclav Rajlich**

Department of Computer Science, Wayne State University

Detroit, MI 48202

tel. +1-313-577-5423, fax +1-313-577-6868

[vtr@cs.wayne.edu](mailto:vtr@cs.wayne.edu)

<http://www.cs.wayne.edu/~vip/VaclavRajlich.html>

#### ▶ Program co-chairs:

**Gerardo Canfora**

University of Sannio, Italy

[canfora@unisannio.it](mailto:canfora@unisannio.it)

**Anneliese Amschler Andrews** (formerly von Mayrhauser)  
Colorado State University, USA  
[aaa@cs.colostate.edu](mailto:aaa@cs.colostate.edu)

## TUTORIALS

### ▶ **Tutorials co-chairs:**

**Lionel C. Briand**

Department of Systems and Computer Engineering, Carleton University  
1125 Colonel By Drive, ME4462  
Ottawa, Canada, K1S 5B6  
Phone: (613) 520 2600 Ext. 2471, Fax: (613) 520 5727  
[briand@sce.carleton.ca](mailto:briand@sce.carleton.ca)  
<http://www.sce.carleton.ca/faculty/briand.html>

**Alessandro Fantechi**

University of Florence, Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
Tel: +39-055-4796265, fax: +39-055-4796363  
[Fantechi@dsi.unifi.it](mailto:Fantechi@dsi.unifi.it)

## INDUSTRIAL APPLICATIONS

### ▶ **Industrial applications co-chairs:**

**Panagiotis K. Linos**

Butler University, USA  
[linos@butler.edu](mailto:linos@butler.edu)

**Harry Sneed**

Independent Consultant, Germany  
[Harry.Sneed@t-online.de](mailto:Harry.Sneed@t-online.de)

**Chris Verhoef**

Free University Amsterdam, NL  
[x@cs.vu.nl](mailto:x@cs.vu.nl)

## PUBLICITY

### ▶ General Publicity co-chair:

**Nicholas Zvegintzov**

Software Management Network,  
141 Saint Marks Place, Suite 5F  
Staten Island NY 10301 USA  
Tel: +1-718-8165522, fax: +1-718-816-9038

[zvegint@hotmail.com](mailto:zvegint@hotmail.com)

<http://www.softwaremanagement.com>

### ▶ Publicity co-chair for Europe:

**Malcolm Munro**

University of Durham, UK  
[malcolm.munro@durham.ac.uk](mailto:malcolm.munro@durham.ac.uk)

### ▶ Publicity co-chair for Far East:

**William Cheng-Chung Chu**

TungHai University, Taiwan  
[chu@cis.thu.edu.tw](mailto:chu@cis.thu.edu.tw)

## LOCAL ARRANGEMENTS

### ▶ Local Arrangements Co-chairs:

**Pierfrancesco Bellini**

University of Florence, Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
Tel: +39-055-4796425, fax: +39-055-4796363

[bellini@hpcn.dsi.unifi.it](mailto:bellini@hpcn.dsi.unifi.it)

**Ivan Bruno**

University of Florence, Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
Tel: +39-055-4796425, fax: +39-055-4796363  
[ivanb@hpcn.dsi.unifi.it](mailto:ivanb@hpcn.dsi.unifi.it)

**Riccardo Della Santa**

University of Florence, Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
Tel: +39-055-4796425, fax: +39-055-4796363  
[dellasanta@hpcn.dsi.unifi.it](mailto:dellasanta@hpcn.dsi.unifi.it)

**Fabrizio Fioravanti**

University of Florence, Italy  
Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
Tel: +39-055-4796425, fax: +39-055-4796363  
[fioravan@dsi.unifi.it](mailto:fioravan@dsi.unifi.it)

**Andrea Giotti**

University of Florence, Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
Tel: +39-055-4796425, fax: +39-055-4796363  
[giotti@hpcn.dsi.unifi.it](mailto:giotti@hpcn.dsi.unifi.it)

► **WEB Pages Responsible:**

**Marius Bogdan Spinu**

University of Florence, Italy  
Department of Systems and Informatics  
Via S. Marta 3, 50139, Firenze, Italy  
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## CONFERENCE STEERING COMMITTEE

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Colorado State University, USA, [aaa@cs.colostate.edu](mailto:aaa@cs.colostate.edu)
- **Keith Bennett,**  
University of Durham, UK, [keith.bennett@durham.ac.uk](mailto:keith.bennett@durham.ac.uk)
- **Lee White,**  
Case Western Reserve University, USA, [leew@alpha.ces.cwru.edu](mailto:leew@alpha.ces.cwru.edu)
- **Aniello Cimitile,**  
University of Sannio, Italy, [cimitile@unisannio.it](mailto:cimitile@unisannio.it)
- **Vaclav Rajlich,**  
Wayne State University, Usa, [vtr@cs.wayne.edu](mailto:vtr@cs.wayne.edu)
- **Giuseppe Visaggio,**  
University of Bari, Italy, [visaggio@di.uniba.it](mailto:visaggio@di.uniba.it)

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## CONFERENCE PROGRAM COMMITTEE

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- **Anneliese Amschler Andrews**, Colorado State University, USA [aaa@cs.colostate.edu](mailto:aaa@cs.colostate.edu)
- **Giuliano Antoniol**, University of Sannio, Italy, [antoniol@unisannio.it](mailto:antoniol@unisannio.it)
- **Françoise Balmas**, Université Paris 8, France, [fb@ai.univ-paris8.fr](mailto:fb@ai.univ-paris8.fr)
- **Ira Baxter**, Semantic Designs, USA, [idbaxter@semdesigns.com](mailto:idbaxter@semdesigns.com)
- **Pierfrancesco Bellini**, University of Florence, Italy [bellini@hpcn.dsi.unifi.it](mailto:bellini@hpcn.dsi.unifi.it)
- **Keith Bennett**, University of Durham, UK, [keith.bennett@durham.ac.uk](mailto:keith.bennett@durham.ac.uk)
- **Shawn A. Bohner**, Virginia Tech, USA, [s.bohner@computer.org](mailto:s.bohner@computer.org)
- **Pearl Brereton**, University of Keele, UK, [pearl@cs.keele.ac.uk](mailto:pearl@cs.keele.ac.uk)
- **Lionel Briand**, Carleton University, Canada, [briand@sce.carleton.ca](mailto:briand@sce.carleton.ca)
- **Fernando Brito e Abreu**, FCT/UNL & INESC, Portugal, [fa@inesc.pt](mailto:fa@inesc.pt)
- **Gerardo Canfora**, University of Sannio, Italy, [canfora@unisannio.it](mailto:canfora@unisannio.it)
- **Ned Chapin**, InfoSci Inc., USA, [NedChapin@acm.org](mailto:NedChapin@acm.org)
- **William Cheng-Chung Chu**, TungHai University, Taiwan [chu@cis.thu.edu.tw](mailto:chu@cis.thu.edu.tw)
- **Roberto Ciampoli**, ARINSO Italia, Italy, [roberto.ciampoli@arinso.com](mailto:roberto.ciampoli@arinso.com)
- **Cristina Cifuentes**, Sun Microsystems, USA, [cristina.cifuentes@eng.sun.com](mailto:cristina.cifuentes@eng.sun.com)
- **Aniello Cimitile**, University of Sannio, Italy, [cimitile@unisannio.it](mailto:cimitile@unisannio.it)
- **Taz Daughtrey** Software Quality Professional, USA [Sqpeditor@aol.com](mailto:Sqpeditor@aol.com)
- **Andrea De Lucia**, University of Sannio, Italy, [delucia@unisannio.it](mailto:delucia@unisannio.it)
- **Khaled El Emam**, NRC, Ottawa, Canada, [Khaled.El-Emam@iit.nrc.ca](mailto:Khaled.El-Emam@iit.nrc.ca)
- **Alessandro Fantechi**, University of Florence, Italy [Fantechi@dsi.unifi.it](mailto:Fantechi@dsi.unifi.it)
- **Fabrizio Fioravanti**, University of Florence, Italy, [f.fioravanti@tin.it](mailto:f.fioravanti@tin.it)
- **Harald Gall**, Technical University of Vienna, Austria, [gall@infosys.tuwien.ac.at](mailto:gall@infosys.tuwien.ac.at)
- **Keith Brian Gallagher**, Loyola College, USA, [kb@loyola.edu](mailto:kb@loyola.edu)
- **Jean-François Girard**, Fraunhofer IESE, Germany, [girard@iese.fhg.de](mailto:girard@iese.fhg.de)
- **Mark Harman**, Brunel University, UK, [mark.harman@brunel.ac.uk](mailto:mark.harman@brunel.ac.uk)
- **Mariam Kamkar**, Linköping University, Sweden, [marka@ida.liu.se](mailto:marka@ida.liu.se)
- **Rick Kazman**, CMU/SEI, USA, [Kazman@sei.cmu.edu](mailto:Kazman@sei.cmu.edu)

- **Taghi M. Khoshgoftaar**, Florida Atlantic University, USA, [taghi@cse.fau.edu](mailto:taghi@cse.fau.edu)
- **Kostas Kontogiannis**, University of Waterloo, Canada, [kostas@swen.uwaterloo.ca](mailto:kostas@swen.uwaterloo.ca)
- **Rainer Koschke**, University of Stuttgart, Germany, [koschke@informatik.uni-stuttgart.de](mailto:koschke@informatik.uni-stuttgart.de)
- **Arun Lakhotia**, University of Louisiana at Lafayette, USA, [arun@cacs.louisiana.edu](mailto:arun@cacs.louisiana.edu)
- **Filippo Lanubile**, University of Bari, Italy, [lanubile@di.uniba.it](mailto:lanubile@di.uniba.it)
- **Paul Layzell**, UMIST, UK, [paul.layzell@umist.ac.uk](mailto:paul.layzell@umist.ac.uk)
- **M. M. Lehman**, Imperial College, UK, [mml@doc.ic.ac.uk](mailto:mml@doc.ic.ac.uk)
- **Panagiotis K. Linos**, Butler University, USA [linos@butler.edu](mailto:linos@butler.edu)
- **Loredana Mancini**, O-Group, I [Loredana.Mancini@getronics.com](mailto:Loredana.Mancini@getronics.com)
- **Ettore M. Merlo**, Ecole Polytechnique of Montreal, Canada, [ettore.merlo@polymtl.ca](mailto:ettore.merlo@polymtl.ca)
- **Hausi Muller**, University of Victoria, Canada, [hausi@csr.uvic.ca](mailto:hausi@csr.uvic.ca)
- **Malcolm Munro**, University of Durham, UK [malcolm.munro@durham.ac.uk](mailto:malcolm.munro@durham.ac.uk)
- **Paolo Nesi**, Università degli Studi di Firenze Italy [nesi@ingfi1.ing.unifi.it](mailto:nesi@ingfi1.ing.unifi.it)
- **Allen P.Nikora**, California Institute of Technology, USA [Allen.P.Nikora@jpl.nasa.gov](mailto:Allen.P.Nikora@jpl.nasa.gov)
- **Mario Piattini**, University of Castilla-La Mancha, Spain, [mpiattin@inf-cr.uclm.es](mailto:mpiattin@inf-cr.uclm.es)
- **Thomas M.Pigoski**, TECHSOFT, USA, [tmpigoski@techsoft.com](mailto:tmpigoski@techsoft.com)
- **Vaclav Rajlich**, Wayne State University, USA, [vtr@cs.wayne.edu](mailto:vtr@cs.wayne.edu)
- **Gregg Rothermel**, Oregon State University, USA, [grother@cs.orst.edu](mailto:grother@cs.orst.edu)
- **Spencer Rugaber**, Georgia Institute of Technology, USA, [spencer@cc.gatech.edu](mailto:spencer@cc.gatech.edu)
- **Norman Schneidewind**, Naval Postgraduate School, USA, [nschneid@nps.navy.mil](mailto:nschneid@nps.navy.mil)
- **Harry Sneed**, Independent Consultant, Germany [Harry.Sneed@t-online.de](mailto:Harry.Sneed@t-online.de)
- **Raj Sood**, Dofasco Inc., Canada [raj\\_sood@dofasco.ca](mailto:raj_sood@dofasco.ca)
- **Marius Bogdan Spinu**, University of Florence, Italy, [spinu@dsi.unifi.it](mailto:spinu@dsi.unifi.it)
- **Perdita Stevens**, University of Edinburgh, UK, [Perdita.Stevens@dcs.ed.ac.uk](mailto:Perdita.Stevens@dcs.ed.ac.uk)
- **Margaret-Anne Storey**, University of Victoria, Canada, [mstorey@csr.uvic.ca](mailto:mstorey@csr.uvic.ca)
- **Scott Tilley**, University of California-Riverside, USA, [stilley@cs.ucr.edu](mailto:stilley@cs.ucr.edu)
- **Chris Verhoef**, Free University Amsterdam, NL [x@cs.vu.nl](mailto:x@cs.vu.nl)
- **Giuseppe Visaggio**, University of Bari, Italy, [visaggio@di.uniba.it](mailto:visaggio@di.uniba.it)
- **Jeffrey M. Voas**, Cigital, USA, [voas@cigital.com](mailto:voas@cigital.com)
- **Lawrence G. Votta Jr.**, Motorola, Inc., USA, [lvotta1@email.mot.com](mailto:lvotta1@email.mot.com)
- **Lee White**, Case Western Reserve University, USA, [leew@alpha.ces.cwru.edu](mailto:leew@alpha.ces.cwru.edu)
- **Norman Wilde**, University of West Florida, USA, [nwilde@uwf.edu](mailto:nwilde@uwf.edu)
- **F.G. Wilkie**, University of Ulster, Northern Ireland, [fg.wilkie@ulst.ac.uk](mailto:fg.wilkie@ulst.ac.uk)
- **Claes Wohlin**, Lund University, Sweden, [claes.wohlin@telecom.lth.se](mailto:claes.wohlin@telecom.lth.se)
- **Hongji Yang**, De Montfort University, UK, [hjy@dmu.ac.uk](mailto:hjy@dmu.ac.uk)
- **Jianjun Zhao**, Fukuoka Institute of Technology, Japan, [zhao@cs.fit.ac.jp](mailto:zhao@cs.fit.ac.jp)
- **Nicholas Zvegintzov**, Software Management Network, USA [zvegint@hotmail.com](mailto:zvegint@hotmail.com)

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## Conference Program - Final version

Tuesday, November 6, 2001				
	<b>ICSM TUTORIALS</b> (See "Selection of Tutorials")			<b>Workshops</b>
9:30-13:00	Ira D. Baxter - <i>Using Automated Transformation Systems for Software Maintenance and Reengineering</i>			
13:00-14:00	Lunch			
14:00-17:30	Ned Chapin - <i>Managing Software Maintenance</i>			
Wednesday, November 7, 2001				
9:30-10:00	ICSM Opening			
10:00-11:00	Keynote 1			
	<b>ICSM Technical Papers</b>			<b>ICSM Industrial track</b>
11:30-13:00	S1A	S1B	S1C	Industrial Short Papers
13:00-14:00	Lunch			
14:00-15:30	S2A	S2B	S2C	Demo
16:00-1730	S3A	S3B	S3C	Demo
18:00	Reception			
Thursday, November 8, 2001				
9:00-10:00	Keynote 2			
	<b>ICSM Technical Papers</b>			<b>ICSM Workshop track</b>
10:00	S4A	S4B	S4C	IBM
10:30				Telelogic

11:30-12:00	Stevens Award			
12:00	S5A	S5B	S5C	Demo or Vendor
12:30				Demo or Vendor
13:00-14:00	Lunch			
14:00-16:00	S6A	S6B	S6C	Dissertation Forum
16:30-18:00	Panel 1			Demo
18:00	Dinner			
<b>Friday, November 9, 2001</b>				
9:00-10:00	Keynote 3			
	<b>ICSM Technical Sessions</b>			<b>WESS</b>
10:00-11:30	S8A	S8B	S8C	WESS
12:00-13:00	Panel 2			
13:00-14:00	Lunch			
14:00-15:30	Industrial Short Papers	S9B	S7C	WESS
16:00-17:30	S10A	S10B	WESS	WESS
18:00			SCAM Reception	WESS Reception
<b>Saturday, November 10, 2001</b>				
9:00-18:00	WSE	SCAM		

## ICSM Sessions

**Tuesday, November 6, 2001**

**Registration for ICSM, WESS, SCAM, WSE**

**Extreme Programming**

**Selected Tutorials:**

- **9.30-13.00**

**T3. Using Automated Transformation Systems for Software Maintenance and Reengineering**

**Instructor: Ira D. Baxter, Ph.D., Semantic Designs, Inc., Austin USA**

- **14.00-17.30**

**T5. Managing Software Maintenance**

**Instructor: Ned Chapin, InfoSci Inc., Menlo Park, USA**

**Wednesday, November 7, 2001**

**Registration for ICSM, WESS, SCAM, WSE**

**Keynote: Dave Parnas, McMaster University, Canada**

**Session Chair: Giacomo Bucci**

**S1A: Reverse engineering**

**Session Chair: Mary Jean Harrold**

**Representing and Accessing Extracted Information**

**Authors: Anthony Cox, Charles Clarke**

**Supporting Software Maintenance by Mining Software Update Records**

**Authors: Jelber Sayyad Shirabad, Timothy C. Lethbridge, Stan Matwin**

**Reverse Engineering Legacy Information Systems for Internet Based Interoperation**

**Authors: Michael Johnson, Robert Rosebrugh**

**S1B: Program analysis I**

**Session Chair: Jianjun Zhao**

**A Change Propagation Model and Platform for Multi-Database Applications**

**Authors: L. Deruelle, M. Bouneffa, N. Melab, H. Basson**

**Implementation Techniques for Efficient Data-Flow Analysis of Large Programs**

**Authors: Darren C. Atkinson, William G. Griswold**

**Context Sensitive Flow Analysis to Detect Blocked Statements**

**Authors: Bruno Malenfant, Giuliano Antoniol, Ettore Merlo, Michel Dagenais**

**S1C: Impact analysis**

**Session Chair: Shawn Bohner**

**The Impact of Software Evolution on Code Coverage Information**

**Authors: Sebastian Elbaum, David Gable, Gregg Rothermel**

**Impact Analysis of Maintenance Tasks for a Distributed Object-oriented System**

**Authors: Harry M. Sneed**

**Analyzing the Impact of Changing Requirements**

**Authors: James S. O'Neal, Doris L. Carver**

**Industrial Short Papers**

**Session Chair: Harry Sneed**

**Evolving a Mainframe Order System into a Multi-Channel Online Brokerage System**

**Siegfried Goeschl**

**An Architecture for the Reengineering of Client/Server Applications**

**Antonio Furone**

**Extending UML to support Evolution Management**

**Robert France, James Bieman, Ray Trask**

**Multi-View Architecture Trend Analysis for Medical Imaging**

**Tobias Röttschke, René Krikhaar, Danny Havenith**

**An Intranet-based application for supporting effective maintenance activities on large software systems**

**Massimo Contini, Sergio Scotto di Vettimo, Donato Tagliabue**

**S2A: Metrics**

**Session Chair: Taz Daughtrey**

**Entropies as Measures of Software Information**

**Authors: Salwa K. Abd-El-Hafiz**

**The Role of Independent Verification and Validation in Maintaining a Safety Critical Evolutionary Software in a Complex Environment: The NASA Space Shuttle Program**

**Authors: Marvin Zelkowitz, Ioana Rus**

**Investigation of the Risk to Software Reliability and Maintainability of Requirements Changes**

**Authors: Norman F. Schneidewind**

**S2B: Slicing**

**Session Chair: Jeffrey Voas**

**Pre/Post Conditioned Slicing**

**Authors: Sebastian Danicic, Chris Fox, Mark Harman, Rob Hierons**

**Web Application Slicing**

**Authors: Filippo Ricca, Paolo Tonella**

**Incremental Slicing Based on Data-Dependences Types**

**Authors: Alessandro Orso, Saurabh Sinha, Mary Jean Harrold**

**S2C: Change driven testing**

**Session Chair: Lee White**

**Incorporating Incremental Validation and Impact Analysis into Spreadsheet Maintenance: An Empirical Study**

**Authors: Vijay B. Krishna, Curtis R. Cook, Daniel Keller, Joshua Cantrell, Chris Wallace, Margaret M. Burnett, Gregg Rothermel**

**An Implementation of and Experiment with Semantic Differencing**

**Authors: David Binkley, Rob Capellini, L. Ross Raszewski, Christopher Smith**

**Test-suite Reduction and Prioritization for Modified Condition/Decision Coverage**

**Authors: James A. Jones, Mary Jean Harrold**

**Demos**

**Session Chair: Panos Linos**

**Analysis, Checking, Measurement and Postdocumentation of Object-oriented Systems**

**Author: Harry Sneed**

**Platform for language processing Tools**

**Author: Darius Blasband**

**Auditing Legacy Application Systems**

**Author: Erika Nyary**

**Understanding Legacy systems with OSK**

**Authors: A. Brizioli, L. Chiocci, M. Loffredo**

**Sash weblications, a highly evolved network client application platform**

**Authors: John Ponzio, Sean Martin**

**WebFabIS: a WEB based information system for microelectronics manufacturing**

**Authors: Lorenza Ferrario, Cristina Armaroli**

### **S3A: Effort analysis**

**Session Chair: Fabrizio Fioravanti**

**Using code metrics to predict maintenance of legacy programs: a case study**

**Authors: Macario Polo, Mario Piattini, Francisco Ruiz**

**Software Renewal Process Comprehension using Dynamic Effort Estimation**

**Authors: Danilo Caivano, Filippo Lanubile, Giuseppe Visaggio**

**An Approach to Modelling Long-Term Growth Trends in Large Software Systems**

**Authors: J. F. Ramil, M. M. Lehman, U. Sandler**

### **S3B: Tools**

**Session Chair: Panos Linos**

**RIPPLES: Tool for Change in Legacy Software**

**Authors: Kunrong Chen, Václav Rajlich**

**Cost-Effective Maintenance Tools for Proprietary Languages**

**Authors: Merijn de Jonge, Ramin Monajemi**

**Integrating Information Sources for Visualizing Java Programs**

**Authors: Jeff Michaud, Margaret-Anne Storey, Hausi Müller**

### **S3C: Case studies**

**Session Chair: Loredana Mancini**

**Defect Prevention through Defect Prediction: A Case Study at Infosys**

**Authors: Sanjay Mohapatra, Srinivas P**

**Modeling clones evolution through time series**

**Authors: G. Antoniol, G. Casazza, M. Di Penta, E. Merlo**

**Does the Modern Code Inspection Have Value?**

**Authors: Harvey Siy, Lawrence Votta**

**Cocktail of Software Engineering Week in Florence**

**Baglioni Hotel Terrace**

**Thursday, November 8, 2001**

**Registration for ICSM, WESS, SCAM, WSE**

**Keynote: Dieter Rombach, Fraunhofer Institut IESE, Germany**

**Session Chair: Gerardo Canfora**

**Assignment of Stevens Award**

**Stevens Award winner: Peter Chen**

**Session Chair: Elliot Chikofsky**

**Industrial Presentations**

**Session Chair: .....**

**IBM presentation .....details will be defined.....**

**Telelogic Presentation .....details will be defined.....**

**S4A: Rapid evolution**

**Session Chair: Ned Chapin**

**An Architectural Model for Service-Based Software with Ultra Rapid Evolution**

**Authors: Keith Bennett, Malcolm Munro, Nicolas Gold, Paul Layzell, David Budgen, Pearl Brereton**

**Extreme Maintenance**

**Authors: Charles J. Poole, Tim Murphy, Jan Willem Huisman, Allen Higgins**

**S4B: Software architectures I**

**Session Chair: Jean-Francois Girard**

**Aspects of design and implementation of a multi-channel and multi-modal information system**

**Authors: V. Demesticha, J. Gergic, J. Kleindienst, M. Mast, L. Polymenakos, H. Schulz, L. Seredi**

**Describing Evolving Dependable Systems using Co-operative Software Architectures**

**Authors: Rogério de Lemos**

**S4C: Behaviour of concurrent programs**

**Session Chair: Ira D. Baxter**

**Measuring Behavioral Correspondence to a Timed Concurrent Model**

**Authors: Jonathan Cook, Cha He, Changjun Ma**

**Using Coordination to Restructure Sequential Source Code into a Concurrent Program**

**Authors: C. T. H. Everaars, F. Arbab, B. Koren**

**S5A: Documentation**

**Session Chair: Nicholas Zvegintzov**

**The State of Documentation Practice within Corrective Maintenance**

**Authors: Mira Kajko-Mattsson, and students of the course on Software Maintenance (Lola Andersson, Andreas Eriksson, Fredrik Börjesson, Nine Grundemark, Sandra Giarimi, Rasmus Gunnar, Karl Heling, Mia Kokko, Magnus Pettersson, Maria Petterson, Åsa Maria Pettersson, Jolanta Plisko, Maria Luisa Quiroga de Arreyes, Fabian Rivière, Helena Sjöberg, Fredrik Schmidt, Urban Öorthberg, Leila Vanhala-Packendorff, Tove Wättestam)**

**CVSSearch: Searching through Source Code using CVS Comments**

**Authors: Annie Chen, Eric Chou, Joshua Wong, Andrew Y. Yao, Qing Zhang, Shao Zhang, Amir Michail**

**S5B: UML**

**Session Chair: Norman Schneidewind**

**Reverse Engineering of the UML Class Diagram from C++ Code in Presence of Weakly Typed Containers**

**Authors: Paolo Tonella, Alessandra Potrich**

**Multi-View Software Evolution: A UML-based Framework for Evolving Object-Oriented Software**

**Authors: Robert France, James Bieman**

**S5C: Software architectures II**

**Session Chair:**

**The Build-Time Software Architecture View**

**Authors: Qiang Tu, Michael W. Godfrey**

**A Graph Pattern Matching Approach to Software Architecture Recovery**

**Authors: Kamran Sartipi, Kostas Kontogiannis**

**S6A: Maintenance process assessment and improvement**

**Session Chair: Raj Sood**

**An Empirical Study of Maintenance Issues within Process Improvement Programmes in the Software Industry**

**Authors: Tracy Hall, Austen Rainer, Nathan Baddoo, Sarah Beecham**

**Suggestions for Extensions to ISO/IEC FDIS 14764**

**Authors: Mira Kajko-Mattsson, Anna Grimlund Glassbrook, Maria Nordin**

**Introducing Workflow Management in Software Maintenance Processes**

**Authors: Lerina Aversano, Sergio Betti, Andrea De Lucia, Silvio Stefanucci**

**Assessing Massive Maintenance Processes: an Empirical Study**

**Authors: Andrea De Lucia, Antonello Pannella, Eugenio Pompella, Silvio Stefanucci**

**S6B: Distributed object systems**

**Session Chair: Scott Tilley**

**A customization Method for Network Management Functions without Modification of Off-the-shelf Components**

**Authors: T. Otani, Y. Yamamoto**

**A Framework for Re-use and Maintenance of Quality of Service Mechanisms in Distributed Object Systems**

**Authors: Kurt Geihs, Christian Becker**

**Changing Java Programs**

**Authors: Susan Eisenbach, Chris Sadler**

**Live Upgrades of CORBA Applications Using Object Replication**

**Authors: L. A. Tewksbury, L. E. Moser, P. M. Melliar-Smith**

**S6C: Business models**

**Session Chair: Alberigi Quaranta**

**Towards a Business Maintenance Model**

**Authors: Mira Kajko-Mattsson**

**A Queue Theory-Based Approach to Staff Software Maintenance Centers**

**Authors: M. Di Penta, F. Rago, G. Di Lucca, G. Antoniol, G. Casazza**

**K-Mediator: Towards Evolving Information Systems**

**Authors: H. Zedan, S. Zhou, N. Sampat, X. Chen, A. Cau, H. Yang**

**A Client-Benefits Oriented Taxonomy of ERP Maintenance**

**Authors: Celeste See Pui Ng, Taizan Chan, Guy G. Gable**

**Dissertation forum**

**Session Chair: Alessandro Fantechi**

**Dynamically Discovering Likely Program Invariants**

**Author: Michael D. Ernst**

**Hypothesis-Based Concept Assignment to Support Software Maintenance**

**Author: Nicolas Edwin Gold**

**A Formal Foundation for Object-Oriented Software Evolution**

**Author: Tom Mens**

**Perspectives on Improving Software Maintenance**

**Author: Frank Niessink**

**A Metric Framework for the Assessment of Object Oriented Systems**

**Author: Fabrizio Fioravanti**

**A Database Evolution Approach for Object-Oriented Databases**

**Author: M. Awais Rashid**

**Bayesian Analysis of Software Cost and Quality Models**

**Author: Sunita Devnani-Chulani**

**Panel 1: Software Evolution: Roadmap**

**Chair: K. H. Bennett, University of Durham, UK**

**V. T. Rajlich, Wayne State University, USA**

**Panel members:**

**D. Parnas, McMaster University, Canada**

**H. Sneed, Independent Consultant, Germany**

**K. Beck, CSLife, Switzerland**

**P. J. Layzell, University of Sussex, UK**

**Social Dinner and visit**

**Friday, November 9, 2001**

**Registration for ICSM, WESS, SCAM, WSE**

**Keynote: Ivar Jacobson, Rational, USA**

**Four Macro Trends in Software Development**

**Session Chair: Anneliese. Amschler Andrews**

**S8A: Dynamic and static analysis**

**Session Chair: Mark Harman**

**Dynamic and Static Views of Software Evolution**

**Authors: Stephen Cook, He Ji, Rachel Harrison**

**Aiding Program Comprehension by Static and Dynamic Feature Analysis**

**Authors: Thomas Eisenbarth, Rainer Koschke, Daniel Simon**

**Form: A Framework for Creating Views of Program Executions**

**Authors: Tim Souder, Spiros Mancoridis, Maher Salah**

**S8B: Legacy systems**

**Session Chair: Roberto Ciampoli**

**Using Design Recovery Techniques to Transform Legacy Systems**

**Authors: Thomas R. Dean, James R. Cordy, Kevin A. Schneider, Andrew J. Malton**

**Iterative Reengineering of Legacy Functions**

**Authors: Alessandro Bianchi, Danilo Caivano, Vittorio Marengo, Giuseppe Visaggio**

**A Decisional Framework for Legacy System Management**

**Authors: Andrea De Lucia, Anna Rita Fasolino, Eugenio Pompella**

**S8C: Industrial Short papers**

**Session Chair: Pierfrancesco Bellini**

**Automating Language Conversion: A Case Study**

**Authors: Andrey A. Terekhov,**

**The FermaT Assembler Re-engineering Workbench**

**Authors: Martin Ward,**

**Architecture-Based Semantic Evolution: A Study of Remotely Controlled Embedded Systems**

**Authors: Nary Subramanian, Lawrence Chung**

**Software Maintenance: An Approach towards Control**

**Authors: Rob J. Kusters, Fred J. Heemstra**

**S9B: Program analysis II**

**Session Chair: Mark Harman**

**A Program Dependence Model for Concurrent Logic Programs and its Applications**

**Authors: Jianjun Zhao, Jingde Cheng, Kazuo Ushijima**

**Incremental Call Graph Reanalysis for Object-Oriented Software Maintenance**

**Authors: Amie L. Souter, Lori L. Pollock**

**Syntax-Directed Construction of Value Dependence Graphs**

**Authors: David Byers, Mariam Kamkar, Ture Pålsson**

**S10A: Testing**

**Session Chair: Maurizio Campanai**

**A Graphical Representation of Classes for Integrated Black- and White-Box Testing**

**Authors: Sami Beydeda, Volker Gruhn, Michael Stachorski**

**Using Component Metadata to Support the Regression Testing of Component-Based Software**

**Authors: Mary Jean Harrold, Alessandro Orso, David Rosenblum, Gregg Rothermel, Mary Lou Soffa, Hyunsook Do**

**Managing the Maintenance of Ported, Outsourced, and Legacy Software via Orthogonal Defect Classification**

**Authors: Kathryn Bassin, P. Santhanam**

**S10B: Reengineering**

**Session Chair: Harry Sneed**

**Automated Support for Program Refactoring using Invariants**

**Authors: Yoshio Kataoka, Michael D. Ernst, William G. Griswold, David Notkin**

**Comparing the Decompositions Produced by Software Clustering Algorithms using Similarity Measurements**

**Authors: Brian S. Mitchell, Spiros Mancoridis**

**The Method Replacement Indicator: A Metric for Analyzing Behavioral Substitution**

**Authors: Reinhard Schauer, Rudolf K. Keller**

**Panel 2: Maintenance Metrics: Who are the different stakeholders?**

**Chair: Loredana Mancini, Getronics Consulting, Italy**

**Panel members:**

**A. Grillo, Associazione Italiana EDP Auditors - EIEA, Italy**

**N. Cimitile, Magnifico Rettore Università del Sannio, Italy**

**R. Ehmer, Getronics, Germany**

**S. Fabrizi, Banca d'Italia, Italy**

**S7C: Design patterns**

**Session Chair:**

**A Declarative Evolution Framework for Object-Oriented Design Patterns**

**Authors: Tom Mens, Tom Tourwé**

**OO Design Patterns, Design Structure, and Program Changes: An Industrial Case Study**

**Authors: James M. Bieman, Dolly Jain, Helen J. Yang**

**Sections of WESS**

**ICSM Closure**

**WESS & SCAM Reception**

**WESS Closure**

**Saturday, November 10, 2001**

**Registration for SCAM, WSE**

**Sections of SCAM**

**Sections of WSE**

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## Program

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### **Keynote**

Session Chair: Giacomo Bucci

Dave Parnas, McMaster University, Canada ¾ "Design for Maintenance and Maintaining Design"

### **Keynote**

Session Chair: Gerardo Canfora

Dieter Rombach, Fraunhofer Institut IESE, Germany

### **Keynote**

Session Chair: Anneliese Amschler Andrews

Ivar Jacobson, Rational, USA ¾ "Four Macro Trends in Software Development"

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[FLORENCE: history and some hints.](#)

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## PANELS

### First panel Software evolution: Roadmap

**chair:**

- K. H. Bennett, University of Durham, UK,

**panelmembers:**

- D. Parnas, McMaster University, Canada
- K. Beck,
- P. J. Layzell, UMIST, UK
- V. T. Rajlich, Wayne State University, USA
- H. Sneed, Independent Consultant, DE

### Second Panel Maintenance Metrics: who are the different stakeholders?

**chair:**

- Loredana Mancini (O.Group Technology)

**panelmembers:**

- Romeo Ehmer (Getronics)
- Stefano Fabrizi (Banca d'Italia)
- Agatino Grillo (Associazione Italiana EDP Auditors - AIEA)
- Nello Cimitile (Magnifico Rettore Università del Sannio)

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## TECHNICAL PAPERS

### Reverse engineering

- Representing and Accessing Extracted Information  
Anthony Cox, Charles Clarke.
- Supporting Software Maintenance by Mining Software Update Records  
Jelber Sayyad Shirabad, Timothy C. Lethbridge, Stan Matwin.
- Reverse Engineering Legacy Information Systems for Internet Based Interoperation  
Michael Johnson, Robert Rosebrugh.

### Program analysis

- A Change Propagation Model and Platform for Multi-Database Applications  
L. Deruelle, M. Bouneffa, N. Melab, H. Basson.
- Implementation Techniques for Efficient Data-Flow Analysis of Large Programs  
Darren C. Atkinson, William G. Griswold.
- Context Sensitive Flow Analysis to Detect Blocked Statements  
Bruno Malenfant, Giuliano Antoniol, Ettore Merlo, Michel Dagenais.

### Change driven testing

- Incorporating Incremental Validation and Impact Analysis into Spreadsheet Maintenance: An Empirical Study  
Vijay B. Krishna, Curtis R. Cook, Daniel Keller, Joshua Cantrell, Chris Wallace, Margaret M. Burnett, Gregg Rothermel.
- An Implementation of and Experiment with Semantic Differencing  
David Binkley, Rob Capellini, L. Ross Raszewski, Christopher Smith.
- Test-suite Reduction and Prioritization for Modified Condition/Decision Coverage  
James A. Jones, Mary Jean Harrold.

### Metrics

- Entropies as Measures of Software Information  
Salwa K. Abd-El-Hafiz.
- The Role of Independent Verification and Validation in Maintaining a Safety Critical Evolutionary Software in a Complex Environment: The NASA Space Shuttle Program  
Marvin Zelkowitz, Ioana Rus.
- Investigation of the Risk to Software Reliability and Maintainability of Requirements Changes  
Norman F. Schneidewind.

### Slicing

- Pre/Post Conditioned Slicing  
Sebastian Danicic, Chris Fox, Mark Harman, Rob Hierons.
- Web Application Slicing  
Filippo Ricca, Paolo Tonella.
- Incremental Slicing Based on Data-Dependences Types  
Alessandro Orso, Saurabh Sinha, Mary Jean Harrold.

### Impact analysis

- The Impact of Software Evolution on Code Coverage Information  
Sebastian Elbaum, David Gable, Gregg Rothermel.
- Impact Analysis of Maintenance Tasks for a Distributed Object-oriented System  
Harry M. Sneed.
- Analyzing the Impact of Changing Requirements  
James S. O'Neal, Doris L. Carver.

### Effort analysis

- Using code metrics to predict maintenance of legacy programs: a case study  
Macario Polo, Mario Piattini, Francisco Ruiz.
- Software Renewal Process Comprehension using Dynamic Effort Estimation  
Danilo Caivano, Filippo Lanubile, Giuseppe Visaggio.
- An Approach to Modelling Long-Term Growth Trends in Large Software Systems  
J. F. Ramil, M. M. Lehman, U. Sandler.

### Tools

- RIPPLES: Tool for Change in Legacy Software  
Kunrong Chen, Václav Rajlich.
- Cost-Effective Maintenance Tools for Proprietary Languages

- Merijn de Jonge, Ramin Monajemi.  
 ◦ Integrating Information Sources for Visualizing Java Programs  
 Jeff Michaud, Margaret-Anne Storey, Hausi Müller.

### Case studies

- Defect Prevention through Defect Prediction: A Case Study at Infosys  
 Sanjay Mohapatra, Srinivas P.
- Modeling clones evolution through time series  
 G. Antoniol, G. Casazza, M. Di Penta, E. Merlo.
- Does the Modern Code Inspection Have Value?  
 Harvey Siy, Lawrence Votta

### Rapid evolution

- An Architectural Model for Service-Based Software with Ultra Rapid Evolution  
 Keith Bennett, Malcolm Munro, Nicolas Gold, Paul Layzell, David Budgen, Pearl Brereton.
- Extreme Maintenance  
 Charles J. Poole, Tim Murphy, Jan Willem Huisman, Allen Higgins.

### Software architectures

- Aspects of design and implementation of a multi-channel and multi-modal information system  
 V. Demesticha, J. Gergic, J. Kleindienst, M. Mast, L. Polymenakos, H. Schulz, L. Seredi.
- Describing Evolving Dependable Systems using Co-operative Software Architectures  
 Rogério de Lemos.

### Behaviour of concurrent programs

- Measuring Behavioral Correspondence to a Timed Concurrent Model  
 Jonathan Cook, Cha He, Changjun Ma.
- Using Coordination to Restructure Sequential Source Code into a Concurrent Program  
 C. T. H. Everaars, F. Arbab, B. Koren.

### Documentation

- The State of Documentation Practice within Corrective Maintenance  
 Mira Kajko-Mattsson, and students of the course on Software Maintenance (Lola Andersson, Andreas Eriksson, Fredrik Börjesson, Nine Grundemark, Sandra Giarimi, Rasmus Gunnar, Karl Heling, Mia Kokko, Magnus Pettersson, Maria Petterson, Åsa Maria Pettersson, Jolanta Plisko, Maria Luisa Quiroga de Arreyes,

Fabian Rivière, Helena Sjöberg, Fredrik Schmidt, Urban Örtberg, Leila Vanhala-Packendorff, Tove Wättestam)

- CVSSearch: Searching through Source Code using CVS Comments  
Annie Chen, Eric Chou, Joshua Wong, Andrew Y. Yao, Qing Zhang, Shao Zhang, Amir Michail.

### UML

- Reverse Engineering of the UML Class Diagram from C++ Code in Presence of Weakly Typed Containers  
Paolo Tonella, Alessandra Potrich.
- Multi-View Software Evolution: A UML-based Framework for Evolving Object-Oriented Software  
Robert France, James Bieman.

### Software architectures

- The Build-Time Software Architecture View  
Qiang Tu, Michael W. Godfrey.
- A Graph Pattern Matching Approach to Software Architecture Recovery  
Kamran Sartipi, Kostas Kontogiannis.

### Maintenance process assessment and improvement

- An Empirical Study of Maintenance Issues within Process Improvement Programmes in the Software Industry  
Tracy Hall, Austen Rainer, Nathan Baddoo, Sarah Beecham.
- Suggestions for Extensions to ISO/IEC FDIS 14764  
Mira Kajko-Mattsson, Anna Grimlund Glassbrook, Maria Nordin.
- Introducing Workflow Management in Software Maintenance Processes  
Lerina Aversano, Sergio Betti, Andrea De Lucia, Silvio Stefanucci.
- Assessing Massive Maintenance Processes: an Empirical Study  
Andrea De Lucia, Antonello Pannella, Eugenio Pompella, Silvio Stefanucci.

### Distributed object systems

- A customization Method for Network Management Functions without Modification of Off-the-shelf Components  
T. Otani, Y. Yamamoto.
- A Framework for Re-use and Maintenance of Quality of Service Mechanisms in Distributed Object Systems  
Kurt Geihs, Christian Becker.
- Changing Java Programs  
Susan Eisenbach, Chris Sadler.
- Live Upgrades of CORBA Applications Using Object Replication

L. A. Tewksbury, L. E. Moser, P. M. Melliar-Smith.

### Business models

- Towards a Business Maintenance Model  
Mira Kajko-Mattsson.
- A Queue Theory-Based Approach to Staff Software Maintenance Centers  
M. Di Penta, F. Rago, G. Di Lucca, G. Antonioli, G. Casazza.
- K-Mediator: Towards Evolving Information Systems  
H. Zedan, S. Zhou, N. Sampat, X. Chen, A. Cau, H. Yang.
- A Client-Benefits Oriented Taxonomy Of ERP Maintenance  
Celeste See Pui Ng, Taizan Chan, Guy G. Gable.

### Design patterns

- A Declarative Evolution Framework for Object-Oriented Design Patterns  
Tom Mens, Tom Tourwé.
- Design Patterns, Design Structure, and Program Changes: An Industrial Case Study  
James M. Bieman, Dolly Jain, Helen J. Yang.

### Dynamic and static analysis

- Dynamic and Static Views of Software Evolution  
Stephen Cook, He Ji, Rachel Harrison.
- Aiding Program Comprehension by Static and Dynamic Feature Analysis  
Thomas Eisenbarth, Rainer Koschke, Daniel Simon.
- A Framework for Creating Views of Program Executions  
Tim Souder, Spiros Mancoridis, Maher Salah.

### Legacy systems

- Using Design Recovery Techniques to Transform Legacy Systems  
Thomas R. Dean, James R. Cordy, Kevin A. Schneider, Andrew J. Malton.
- Iterative Reengineering of Legacy Functions  
Alessandro Bianchi, Danilo Caivano, Vittorio Marengo, Giuseppe Visaggio.
- A Decisional Framework for Legacy System Management  
Andrea De Lucia, Anna Rita Fasolino, Eugenio Pompella.

### Program analysis

- A Program Dependence Model for Concurrent Logic Programs and its Applications  
Jianjun Zhao, Jingde Cheng, Kazuo Ushijima.
- Incremental Call Graph Reanalysis for Object-Oriented Software Maintenance  
Amie L. Souter, Lori L. Pollock.
- Syntax-Directed Construction of Value Dependence Graphs  
David Byers, Mariam Kamkar, Ture Pålsson.

### Testing

- A Graphical Representation of Classes for Integrated Black- and White-Box Testing  
Sami Beydeda, Volker Gruhn, Michael Stachorski
- Using Component Metadata to Support the Regression Testing of Component-Based Software  
Alessandro Orso, Mary Jean Harrold, David Rosenblum, Gregg Rothermel, Mary Lou Soffa, Hyunsook Do
- Managing the Maintenance of Ported, Outsourced, and Legacy Software via Orthogonal Defect Classification  
Kathryn Bassin, P. Santhanam

### Reengineering

- Automated Support for Program Refactoring using Invariants  
Yoshio Kataoka, Michael D. Ernst, William G. Griswold, David Notkin.
- Comparing the Decompositions Produced by Software Clustering Algorithms using Similarity Measurements  
Brian S. Mitchell, Spiros Mancoridis.
- The Method Replacement Indicator: A Metric for Analyzing Behavioral Substitution  
Reinhard Schauer, Rudolf K. Keller.

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### DISSERTATION FORUM

- Dynamically Discovering Likely Program Invariants  
Michael D. Ernst.
- Hypothesis-Based Concept Assignment to Support Software Maintenance  
Nicolas Edwin Gold.
- A Formal Foundation For Object-Oriented Software Evolution  
Tom Mens.
- Perspectives on Improving Software Maintenance  
Frank Niessink.
- A Metric Framework For The Assessment Of Object Oriented Systems  
Fabrizio Fioravanti.
- A Database Evolution Approach for Object-Oriented Databases  
M. Awais Rashid.
- Bayesian Analysis Of Software Cost And Quality Models  
Sunita Devnani-Chulani.

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## SHORT PAPERS

- Automating Language Conversion: A Case Study  
Andrey A. Terekhov.
- The FermaT Assembler Re-engineering Workbench  
Martin Ward.
- Architecture-Based Semantic Evolution: A Study of Remotely Controlled Embedded Systems  
Nary Subramanian, Lawrence Chung.
- Software maintenance: an approach towards control  
Rob J. Kusters, Fred J. Heemstra.

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## Tutorials

Final list of selected tutorials		
Tuesday, November 6, 2001		
9.30-13.00	<b>Ira Baxter</b>	<a href="#">Using Automated Transformation Systems for Software Maintenance and Reengineering</a>
14.00-17.30	<b>Ned Chapin</b>	<a href="#">Managing Software Maintenance</a>

### Registration to the tutorials.

The registration fee for the tutorial day is unique and allows attending both scheduled tutorial.

Registered participants will anyway receive at the registration desk the paper version of handouts of the tutorials.

#### [On-line registration](#)

*We apologize with the pre-registered that we were not able, due to budget restrictions, offer more than two tutorials. As previously published, in the case a pre-registered participant had selected no tutorials that are offered in the list above, he/she is entitled to attend the tutorials above, but he/she may also decide to cancel his/her registration at no cost.*

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## IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

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### Industrial Application

- Extreme Maintenance  
Charles J. Poole; Tim Murphy; Jan Willem Huisman; Allen Higgins
- Evolving a Mainframe Order System into a Multi-Channel Online Brokerage System  
Siegfried Goeschl
- An Architecture for the Reengineering of Client/Server Applications  
Antonio Furone
- Extending UML to support Evolution Management  
Robert France, James Bieman, Ray Trask
- Multi-View Architecture Trend Analysis for Medical Imaging  
Tobias Röttschke, René Krikhaar, Danny Havenith
- An Intranet-based application for supporting effective maintenance activities on large software systems  
Massimo Contini, Sergio Scotto di Vettimo, Donato Tagliabue

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## Demonstration

- Analysis,Checking,Measurement and Postdocumentation of Object-oriented Systems  
Harry Sneed
- Platform for language processing Tools  
Darius Blasband
- Auditing Legacy Application Systems  
Erika Nyary
- Understanding Legacy systems with OSK  
A. Brizioli, L.Chiocci, M. Loffredo
- Sash weblications, a highly evolved network client application platform  
John Ponzo & Sean Martin
- WebFabIS: a WEB based information system for microelectronics manufacturing  
Lorenza Ferrario & Cristina Armaroli

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

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## ICSM 2001 Location

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- ICSM 2001 is located at the [Grand Hotel Baglioni](#)

P.zza Unità Italiana, 6  
50123 Florence, Italy  
Tel. +39 055 23580  
Fax +39 055 2358895

- Please consider that in order to have lower prices you have to use the following [accommodation form](#).
- Download [a map](#) of the central part of Florence.

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6 – 10 November  
 Florence, Italy

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**Payment should be received by 15 October 2001.**

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 and you must re-register onsite with payment. For questions  
 please call: +1-202-371-0101 (Sorry, no phone registrations.)

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 Washington, DC 20042-6006  
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How did you learn about the conference? Please check box below:

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**Registration** (All fees are in US Dollars)

	ICSM Registration		SCAM Registration		WESS Registration		ICSM Tutorials	
	Advance	Late	Advance	Late	Advance	Late	Advance	Late
Member	<input type="checkbox"/> \$450.00	<input type="checkbox"/> \$550.00	<input type="checkbox"/> \$200.00	<input type="checkbox"/> \$240.00	<input type="checkbox"/> \$130.00	<input type="checkbox"/> \$150.00	<input type="checkbox"/> \$250.00	<input type="checkbox"/> \$350.00
Nonmember	<input type="checkbox"/> \$560.00	<input type="checkbox"/> \$685.00	<input type="checkbox"/> \$250.00	<input type="checkbox"/> \$300.00	<input type="checkbox"/> \$165.00	<input type="checkbox"/> \$190.00	<input type="checkbox"/> \$310.00	<input type="checkbox"/> \$375.00
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- Personal Check  Company Check  U.S. Government Purchase Order  
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Credit Card/Check Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_

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Please make checks payable to: **IEEE Computer Society**. All checks must be in US DOLLARS drawn on US BANKS. Credit card charges will appear on statement as "IEEE Computer Society - Registration." Cancellations must be in writing and received before **22 October 2001**. Cancellations are subject to a \$50 processing fee. Substitutions are allowed at anytime.

### Registering

Print this PDF form, fill in the requested information, and mail or fax it with your payment to IEEE Computer Society at the address on the first page. Phone registrations will not be accepted.

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### Important Dates

15 October 2001 -- Advance registration ends 5:00 pm Eastern Time, late fees apply

22 October 2001 -- Cancellation deadline -- cancellations **MUST** be in writing

22 October 2001 -- Late registration ends

22 October 2001 -- All wire transfers and check payments must be received to avoid onsite registration and payment. Copies are not accepted.

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International attendees can register online by credit card or in advance by sending a wire transfer. Wire transfers must be received by the deadline, and will not be accepted at on-site registration. For complete wire transfer information please contact [register@computer.org](mailto:register@computer.org), and reference ICSM/SCAM/WESS. **PLEASE NOTE: Please include the additional \$25 bank fee per wire transfer.**

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A letter on your company's letterhead is required from the original registrant stating the conditions of the substitution and the name of the replacement.

### Individual Conference Information

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Registration includes admission to ICSM conference sessions, ICSM conference proceedings, industry track slide presentations, and a visit to the Uffizi Museum. Also included are the ICSM meals which include refreshment breaks, lunches, a reception and a conference dinner. Extra tickets are available for guests for the conference dinner and should be purchased at the time you register to ensure adequate seating (breakfasts are included in your hotel fee).

### **WESS CONFERENCE REGISTRATION**

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### **SCAM CONFERENCE REGISTRATION**

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### **ICSM TUTORIAL REGISTRATION**

- 1) Half-day Tutorials will be offered on one day (6th Nov. 2001) in parallel sessions, morning and afternoon.
- 2) Tutorial registration is for the whole Tutorial day, and allows attending any 2 scheduled Tutorials or moving from one to the others.
- 3) Registrants before 15th September are requested to select 3 Tutorials out of 10 as their preferred choice.
- 4) On the basis of the preferences scored at preregistration before 15th September, only the (at most) 8 best scoring Tutorials will be offered. (Less than 8 Tutorials may be offered if the scores are too low, or depending on budget considerations.) The list of the offered Tutorials will be published on the web after 15th of September.
- 5) Pre-registered participants will receive at the registration desk the paper version of handouts of the Tutorials they selected at preregistration (up to 3 booklets). Additional booklets will be available at an extra price.

Though we will try to schedule Tutorials in order to minimize collisions on the basis of the selection at preregistration, we cannot guarantee the attendee that the Tutorials that he/she selected will not overlap.

If a pre-registered attendee has selected 3 Tutorials and none of them is offered, he/she may cancel his/her registration, or may maintain the registration, being free to attend any 2 Tutorials, and in this case he/she may indicate in advance the extra booklets he/she is willing to receive (up to the number of 3).

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### **OTHER INFORMATION**

#### **Airline Discount for Conference Attendees**

We are pleased to announce that we have been able to secure a special discount agreement with United Airlines unavailable to the general public.

A 5% discount off the lowest applicable fare will be offered ONLY when you or your travel agent call United's toll-free number, 1-800-521-4041 and refer to the Meeting ID Number 556AQ. A 10% discount off the unrestricted mid-week coach fares is available when purchased 7 days in advance. Discounts apply on United, Shuttle by United and United Express. Dedicated reservationists are on duty 7 days a week, 7:00 am to 12:00 midnight EST. Book early to take advantage of promotional fares that give you the greatest discount. Mileage Plus members receive full credit for all miles flown to this meeting.

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## Call for Papers

**closed**

ICSM is the major international conference in the field of software and systems maintenance, evolution, and management.

In the era of the Internet, businesses and end-users have invested in new technologies and small and large software organisations around the world are looking for Internet related solutions to evolve and maintain their new Internet software products.

Internet technologies are strongly impacting system architectures and business processes and rules. In some cases businesses and end-users have been overwhelmed trying to keep up with software development and evolution processes and practices. In addition to novel solutions to enable the life-cycle of new web-based software systems, huge investments are necessary to migrate aging legacy applications to web-enabled contemporary systems.

ICSM 2001 will address these major changes in the software landscape and their impact on maintenance and evolution. The focus of the conference will be to explore the new challenges that the Internet, as a driver for business changes, poses for software maintenance, and the new opportunities it opens as infrastructure and enabling technology.

The purpose of the conference is to promote discussion and interaction between researchers and practitioners. We are particularly interested in exchanging concepts, prototypes, research ideas, and other results which could contribute to the academic arena and also benefit business and the industrial community.

ICSM 2001 will be participatory, with working collaborative sessions and presentations of industry projects. ICSM 2001 will bring together researchers, practitioners, developers and users of tools, technology transfer experts, and project managers.

The Conference will be held in conjunction with

- SCAM, Source Code Analysis and Manipulation
- WESS, the seventh Workshop on Empirical Studies of Software Maintenance.
- WSE, Workshop on WEBSITE evolution

Outstanding Keynotes such as: Prof. David Lorge Parnas and Prof. Dieter Rombach

### RESEARCH PAPERS

Research papers should describe original and significant work in the research and practice of software maintenance. Research case studies, empirical research, and experiments are particularly welcome. Papers should be 2000 - 5000 words in length, in English (accepted papers will have 10 pages in the proceedings). Submit them in PDF or PostScript via email to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by **15 January 2001 (closed)**.

Notification of acceptance **1 June 2001(online)**.

*To encourage strong submissions a Prize will be awarded for the Best Paper as Submitted.*

*This Prize is offered by John Wiley & Sons, the publishers of the Journal of Software Maintenance and Evolution.*

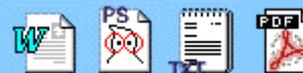
*The winner will be selected by the Program Committee and a formal presentation of the Prize will be made in Florence at ICSM 2001.*

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Topics of interest include but are not restricted to the following aspects of maintenance and evolution:

- Methods and theories
  - Organizational frameworks
  - Design for maintenance
  - Internet and distributed systems
  - User interface evolution
  - Third party maintenance
  - Program comprehension
  - Knowledge based systems
  - Impact of new software practices
  - Software reusability
  - Source code analysis and manipulation
  - Models and methods for error prediction
  - Maintenance and/or productivity metrics
  - Personnel aspects of maintenance
  - Version and configuration management
  - Management and organization
  - Processes and strategies
  - Life cycle and process control
  - Tools and environments
  - Multimedia systems
  - Commercial off-the-shelf (COTS)
  - Freeware and open source applications
  - Software and system visualization
  - Formal methods
  - Empirical studies
  - Programming languages
  - Testing and regression testing
  - Measurement of software
  - Preventive maintenance
  - Reengineering and reverse engineering
  - Legal aspects and standards
  - Remote, tele-work, and co-operative applications
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Duke's sensitive nose with unpleasant smells on his walk, and replaced (from 1593) with the goldsmiths who continue to work there today. On the other side of the Arno, the corridor passes through the interior of the church of Santa Felicita, over the tops of the houses and the gardens of the Guicciardini family until it finally reaches the Boboli gardens (one of the exits stands beside Buontalenti's Grotto) and the apartments in the Pitti Palace.



## IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

# Call for Industrial Applications

ICSM is the major international conference in the field of software and systems maintenance, evolution, and management.

In the era of the Internet, businesses and end-users have invested in new technologies and small and large software organisations around the world are looking for Internet related solutions to evolve and maintain their new Internet software products.

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The Conference will be held in conjunction with

- SCAM, Source Code Analysis and Manipulation
- WESS, the seventh Workshop on Empirical Studies of Software Maintenance.
- WSE, Workshop on WEBSITE evolution

Outstanding Keynotes such as: Prof. David Lorge Parnas and Prof. Dieter Rombach

We welcome proposals for presentations of Industrial Applications.

These can be experience reports from real projects, industrial practices and models, or tool demonstrations.

Submit proposals for Industrial Application presentations via email to [icsm2001.industry@unisannio.it](mailto:icsm2001.industry@unisannio.it) by **12 March 2001. (closed)**

Industrial Applications proposals will be reviewed by a designated sub-committee of the program committee and a 1 page summary of accepted proposals will be included in the conference proceedings.

Proposals have to include:

- a one page abstract on what the presentation comprises
- Company profile
- the position of the submitter within the Company (software engineer, CEO, CIO, maintenance programmer, etc.)
- a preliminary version of the slides

Topics of interest include but are not restricted to the following aspects of maintenance and evolution:

- Methods and theories
- Organizational frameworks
- Design for maintenance
- Internet and distributed systems
- User interface evolution
- Third party maintenance
- Program comprehension
- Knowledge based systems
- Impact of new software practices
- Software reusability
- Source code analysis and manipulation
- Models and methods for error prediction
- Maintenance and/or productivity metrics
- Personnel aspects of maintenance
- Version and configuration management
- Management and organization
- Processes and strategies
- Life cycle and process control
- Tools and environments
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- Programming languages
- Testing and regression testing
- Measurement of software
- Preventive maintenance
- Reengineering and reverse engineering
- Legal aspects and standards
- Remote, tele-work, and co-operative applications

*Proposed Conference email and WWW site:*

<http://www.dsi.unifi.it/icsm2001>

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*Webmaster: [Marius Spinu](#)*

*Contact me for any question or comment.*

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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

## Tutorial Proposals

### Dates

**12 February 2001** for tutorial proposals.

**1 June 2001** for acceptance notification.

### Goal

The ICSM tutorial program provides conference participants with the opportunity to gain new insights, knowledge, and skills in the areas of software and systems maintenance, evolution, and management.

### Scope

We are soliciting proposals for half-day (3-hour) tutorials. A tutorial can cover a wide range of topics, from practical techniques, guidelines surveys, to theoretical issues. We encourage tutorials that reflect the conference themes and provide clear utility to practitioners. The topics are not limited to past ICSM tutorial offerings.

Tutorials are intended to provide independent instruction on a relevant, therefore no commercial or sales-oriented presentations will be accepted.

Potential tutorialists should keep in mind that there may be quite a varied audience, including software practitioners, managers, teachers, researchers, and students. The tutorialists should be prepared to cope with this diversity unless they make clear that the tutorial is oriented to a particular subgroup. Also bear in mind that not everyone will have English as their first language. Thus, presenters should provide comprehensive notes written in clear, standard English. Idioms, irony, slang and culture-specific references should be avoided as far as possible.

### Review Process

Each tutorial proposal will be evaluated on its anticipated benefit for prospective participants and its fit within the tutorial program as a whole. Factors to be

considered also include: relevance, timeliness, importance, and audience appeal; suitability for presentation in a half -day tutorial format; effectiveness of teaching methods; and past experience and qualifications of the instructors.

## How to Submit

The tutorial proposal should include a title, proposer's contact information and biography, tutorial aims and objectives, purpose and scope, duration and timeline and a summary.

If applicable, give also information about:

availability of support material (e.g. on the web), target audience, required background, history of the tutorial, equipment needed, some examples of slides.

The format of tutorial proposals (maximum ten pages) may be:

- ASCII text (plain or HTML), or
- Adobe Portable Document Format
- Postscript format.

Submit proposals via e-mail to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by **12 February 2001**. **(closed)**

## Acceptance Notification

Notification of acceptance date is set to **1 June 2001**.

Each accepted tutorial will have one page for a summary in the conference proceedings.

This summary must conform to the standard 2-columns IEEE proceedings publication format.

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*Proposed Conference email and WWW site:*

<http://www.dsi.unifi.it/icsm2001>

<http://www.dsi.unifi.it/ICSM2001>

[icsm2001@dsi.unifi.it](mailto:icsm2001@dsi.unifi.it)



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## IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

# Call for Exposition Tools

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- WESS, the seventh Workshop on Empirical Studies of Software Maintenance.
- WSE, Workshop on WEBSite evolution

Submit exposition tools proposals via email to [icsm2001\\_tutorial@unisannio.it](mailto:icsm2001_tutorial@unisannio.it) by **12 February 2001(closed)**.

*Proposed Conference email and WWW site:*

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[icsm2001@dsi.unifi.it](mailto:icsm2001@dsi.unifi.it)



Webmaster: [Marius Spinu](#)  
Contact me for any question or comment.



## IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

# Call for Dissertation Forum

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- WSE, Workshop on WEBSITE evolution

We welcome submissions of young researchers that have delivered their dissertation (degree, master or Ph.D.) in the last three years. Please submit the PDF of the dissertation via email to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by **15 January 2001**. **(closed)**

An award and a full support to attend the conference will be given to the prize winner. Two other free registration will be assigned at the second and third. 4 pages summary of accepted dissertation will be included in the conference proceedings and a special forum section will be organised at the conference.

Topics of interest include but are not restricted to the following aspects of maintenance and evolution:

- Methods and theories
- Organizational frameworks
- Design for maintenance
- Internet and distributed systems
- User interface evolution
- Third party maintenance
- Program comprehension
- Knowledge based systems
- Impact of new software practices
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# IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

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## HOW TO REACH FLORENCE

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### By Car

From Milan: The Highway Del Sole (A1) connects Florence both with southern and northern Italy. We suggest the exit "Firenze Sud" for those coming from Rome; "Firenze Nord" for those coming from Milan, Bologna, Venice.

### By Train

Please consult the [on-line timetable](#) for update information on train departures and arrivals.

### By Plane

Florence Airport connect principal european capitals to Florence. For International flights please consider the use of Rome, Milan and Pisa International airports. Please consult the [online timetable](#) for the flights' arrival and depature from Pisa and Florence.

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## IEEE INTERNATIONAL CONFERENCE ON SOFTWARE MAINTENANCE

### Florence Touristic Information

Florence is a wonderful city placed in the Earth of Tuscany, at about 300 Km far from Rome and Milan and at about 90 Km from the Tirrenian sea. Arno river crosses the whole city .

Tours could be organized with the Agency by BUS or by feet to visit: Boboli Garden, the Dome, Giotto Tower, The Old Bridge, Michelangelo Vista Point, Belvedere, Cappelle Medicee, S. Croce Church, S. Miniato Church, Fiesole Village, S. Gimignano Village, The Chianti Vine Area, the Old Market Area, Siena Village, Museum with the David of Michelangelo, (Accademia Gallery), Uffizi Museum, Medieval Arms Museum, Archeological Museum, and more than 100 churches along the town. etc.

Walking in Florence is an exciting experience. Please Visit WWW pages related to conference location on the conference WWW page. Travel Agency NewTours will be happy to help you in selecting one of the several opportunities offered by the wonderful Florence (Phone +39-55-33611, Fax: +39-55-3361250, +39-55-3361350).

*Please visit Florence as well*

 <a href="#">Museums</a>	 <a href="#">Piazza della Signoria</a>
 <a href="#">Firenze San Lorenzo</a>	 <a href="#">Ponte Vecchio</a>
 <a href="#">Florence</a>	 <a href="#">A walk</a>
 <a href="#">Cupola Live</a>	 <a href="#">Tuscany</a>
 <a href="#">Consulates</a>	 <a href="#">Useful Information</a>
 <a href="#">FlorenceArt.net</a>	

Proposed Conference email and WWW site:

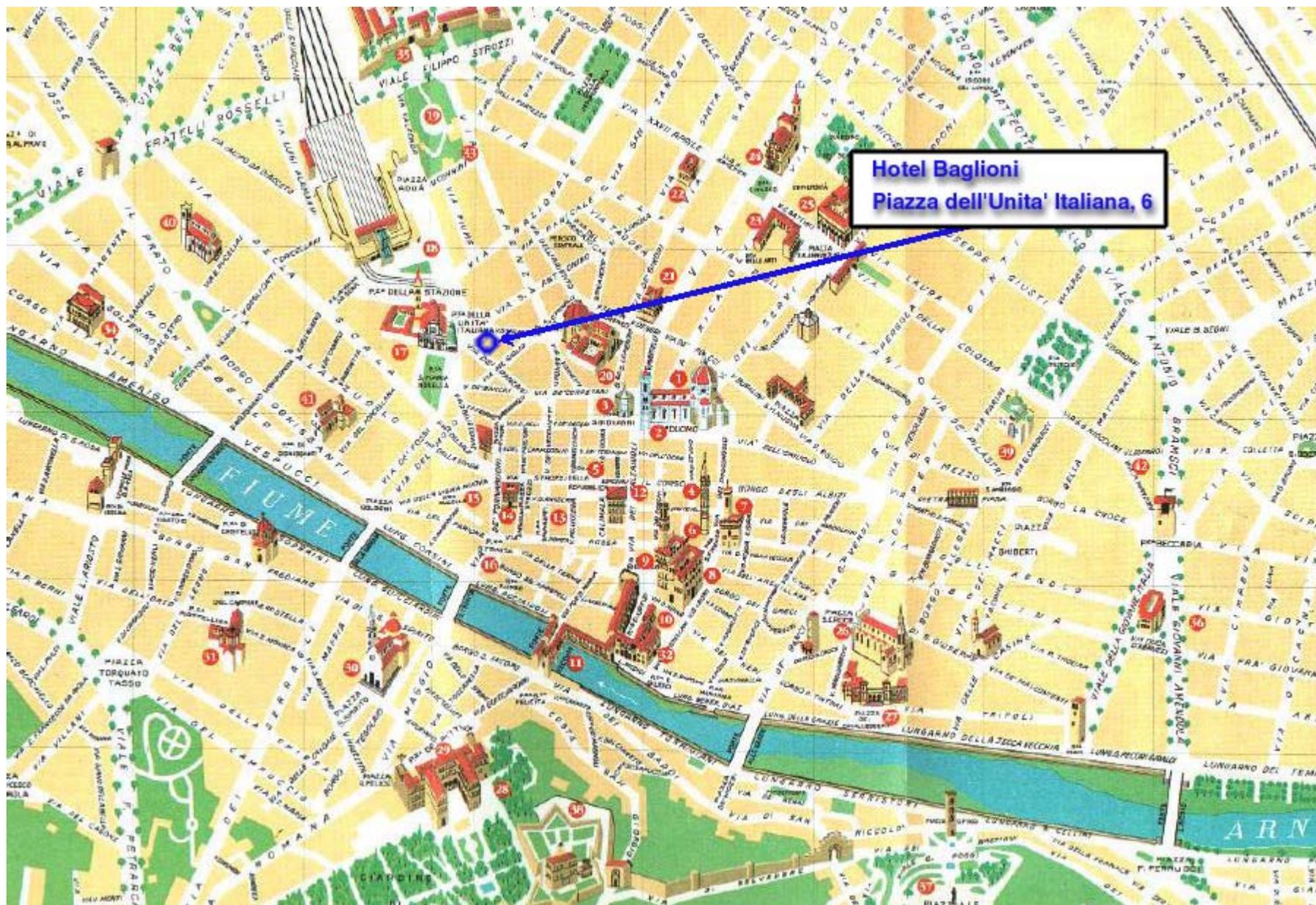
<http://www.dsi.unifi.it/icsm2001>

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[icsm2001@dsi.unifi.it](mailto:icsm2001@dsi.unifi.it)

Webmaster: [Marius Spinu](#)  
Contact me for any question or comment.





Hotel Baglioni  
Piazza dell'Unita' Italiana, 6

## Gala Dinner, history and some hints.

Portions of this text is courtesy of [FlorenceArt.net](http://www.florenceart.net).

### FLORENCE

Inspiration, so essential to artistic work, is something to be nurtured. What better place for this than Florence, the jewel city of the Italian Renaissance? Many people come to Florence to seek inspiration. The beauty of the works of art, the villas and palazzi, the food, the light, the fragrances of Tuscany all combine to make this a unique place. This is not all mere romanticism. Florence really is snugly couched between low and gentle hills upon the River Arno in Tuscany. Generations of artists have painted it from the high ground around and given the impression that it is a small, idyllic settlement clustered around the covered Ponte Vecchio, surveyed by the grand dome and campanile of the Cathedral, and by the castellated tower of the Palazzo Vecchio.

Florence is the resulting marriage between the very old and the very new : it is a bustling metropolis that has managed to preserve its predominantly medieval street plan and predominantly renaissance infrastructure while adapting to the demands of 20th century life. Visitors who wish to live a short period as if they were in the medieval and renaissance age should come to Florence and enjoy its magic ancient atmosphere.

Florence was founded as a colony of the Etruscan city of Fiesole in about 200 BC, later becoming the Roman Florentia, a garrison town controlling the Via Flaminia. In the early 12th century the city became a free comune and by 1138 it was ruled by 12 consuls, assisted by the Council of One Hundred, a bunch of rich merchants. In 1207, due to intractable problems with faction fighting, the council was replaced by a foreign (and thus allegedly unbiased) governor, the podestà.

In the 13th century the pro-papal Guelphs and pro-imperial Ghibellines started a century-long bout of bickering, which wound up with the Guelphs forming their own government in the 1250s. By 1292 Florence had had it with the obstreperous nobles, excluding them from government. The city became increasingly democratised, eventually becoming a commercial republic controlled by the Guelph-heavy merchant class.

In the latter part of the 14th century the Medicis began consolidating power, eventually becoming bankers to the papacy. Cosimo Medici - patron of artists such as Donatello, Brunelleschi, Fra Angelico and Filippo Lippi - became ruler of Florence. Perhaps the most famous Medici was Lorenzo, grandson of Cosimo, who took power in 1469. His court fostered a great flowering of art, music and poetry, and Lorenzo sponsored philosophers and artists such as Botticelli, da Vinci and Michelangelo.

In 1494 the Medicis went broke and lost their hold on power. The city fell under the control of Girolamo Savonarola, a Dominican monk who led a puritanical republic until he fell from public favour and was burned as a heretic in 1498. The Medicis returned to Florence in the 16th century, having united themselves by marriage with Emperor Charles V, and ruled for the next 200 years. In 1737 the Grand Duchy of Tuscany passed to the House of Lorraine, which was incorporated into the Kingdom of Italy in 1860. Florence became capital of the

Kingdom, and remained so until Rome took over in 1875. Florence was badly damaged during WWII by the retreating Germans, who bombed all its bridges except the Ponte Vecchio. Devastating floods ravaged the city in 1966, causing inestimable damage to its building and artworks, some of which are still being restored. However, the salvage operation led to the widespread use of modern restoration techniques which have saved artworks throughout the country. A Mafia-related car-bomb explosion in 1993 near the Uffizi Gallery didn't exactly help these restoration efforts.

## Uffizi Gallery

The Gallery of the Uffizi was the first museum ever to be opened to the public: in fact the Grand Duke granted permission to visit it on request from the year 1591. Its four centuries of history make the Uffizi Gallery the oldest museum in the world.

The construction of the Uffizi palace began in 1560, when the Duke Cosimo I dei Medici decided to build a special seat for the offices (hence the name "uffizi") of the thirteen magistracies, that is for the administrative center of the Florentine State. Cosimo I commissioned the project of the building to Giorgio Vasari, painter and architect at the Medici court, who realized one of the most famous architectural masterworks of Florentine Mannerism. Stretching from the Signoria Palace to the river Arno the construction posed difficult technical problems since the foundations were quite over the river; Vasari had to include into the building the ancient church of San Pier Scheraggio and the ancient Zecca (near the Orcagna Loggias). When in 1574 Vasari and Cosimo I died, the Uffizi were not yet completed: Francesco I, son of Cosimo I, succeeded his father, Bernardo Buontalenti succeeded Vasari in supervision of construction; in 1581 the building was terminated. Some years before at the first floor the offices of the thirteen magistracies had been installed: everyone of these had a beautiful entrance door in the portico at the ground floor. A man of peculiar intelligence, Francesco I (1541-1587) had a profound interest for science, alchemy and art; in 1581 he decided to give a nearly private arrangement to the second floor of the Uffizi. In the west wing he set laboratories where specialized artisans worked jewels and precious stones, perfumes were distilled, new medicines were experimented; in the east wing he placed ancient sculptures of medicean collection: shortly afterwards in this side of the building Buontalenti started to erect the Tribune. Francesco's successors increased more and more the medicean collection with new acquisitions of paintings, sculptures, precious and rare object in general; they were set not only at the Uffizi but also at Pitti Palace or in other medicean palaces. The continuing growth of the granducal collections in 17th century enriched the Uffizi: new rooms of the second floor were arranged to display masterworks as in a museum. In 1737, with the death of Gian Gastone (born in 1671) the Medici dynasty ended and the family of Lorraine ascended the throne of Tuscany. The last descendant of Medici family, the Palatine Electrix Anna Maria Luisa, sister of Gian Gastone, managed to prevent the artistic patrimony from being scattered with the famous "Family Pact" (1737, and reconfirmed in her will of 1743), which, instead of bequeathing everything to the successors of the House of Hapsburg-Lorraines, left the collections to the city of Florence itself "to be an ornament to the Government, useful to the public and to attract the curiosity of foreigners". This document proved to be vitally important when the time came to retrieve the art works that had been removed and taken to Paris in Napoleonic times.

The Lorraine family, from Pietro Leopoldo to Leopoldo II, enriched the whole collection, increasing it with important masterpieces: many paintings and several hundred of drawings were bought, many Florentine pictures were transferred to the Uffizi from Tuscan monasteries, after suppression of religious orders during the 19th century. In 1860 at the formation of the Kingdom of Italy the Medici-Lorraine collections became public property to all effects and purposes.

Altered and rearranged several times over the centuries, according to the cultural tastes of the various periods, the exhibition rooms are now composed of over 45 rooms containing about 1.700 paintings, 300 sculptures, 46 tapestries and 14 pieces of furniture and/or ceramics. In actual fact the Uffizi owns about 4.800 works, the remainder of which are either in storage or on loan to other museums.

In 1989 the State Archive that occupied the first floor of the Uffizi, has been transferred in the new seat of Piazza Beccaria: the first floor

will be indeed arranged to double the Gallery's area, as planned in the Nuovi Uffizi project. The first six rooms of this floor have been recently restored; all the other rooms soon will be added to them, to make way to the exhibition of many masterworks now conserved in the warehouses and realize new arrangements for all needs of a museum of such importance.

## Vasari Corridor

The Corridor was built in 1564 by Giorgio Vasari in only five months at the time of the wedding between Francesco I de' Medici and Giovanna of Austria; it served to link up the Pitti Palace, where the Grand Duke resided, with the Uffizi (or offices) where he worked. It is a covered walk, almost a kilometre in length, an overhead passageway that starts out from the West Corridor of the Gallery, heads towards the Arno and then, raised up by huge arches, follows the river as far as the Ponte Vecchio, which it crosses by passing on top of the shops. The meat market on the bridge was at this time transferred elsewhere, so as not to offend the Grand Duke's sensitive nose with unpleasant smells on his walk, and replaced (from 1593) with the goldsmiths who continue to work there today. On the other side of the Arno, the corridor passes through the interior of the church of Santa Felicita, over the tops of the houses and the gardens of the Guicciardini family until it finally reaches the Boboli gardens (one of the exits stands beside Buontalenti's Grotto) and the apartments in the Pitti Palace.

Vasari thus created a monumental urban "footpath" that took the absolute power of the ruler right into the historic heart of the city. In fact, a second corridor above Via della Ninna links the other side of the palace of the Uffizi with Palazzo Vecchio, the seat of Florentine government since the 13th century.

The Corridor was restored in 1973 and again after the bomb explosion in the near Via dei Georgofili in 1993. Reopened to the public it can only be visited by appointment or to groups (the entrance is between rooms 25 and 34). Apart from the fact that the visitor can enjoy some magnificent and little-known views over the city from its round windows, the passageway contains over 700 paintings, all dating from the 17th and 18th centuries, as well as the important collection of Self-portraits by some of the most famous masters of painting of the 16th to the 20th century. This collection, unique in the world, was created by Cardinal Leopoldo de' Medici in the mid 17th century, a golden century for collections, and receives regular additions to this day. It displays self-portraits by Andrea del Sarto, Beccafumi, Bernini, Annibale Carracci, Guido Reni, Salvator Rosa, Rubens, Canova, Hayez, Corot, Ingres, Delacroix, Ensor and many others.

## Pitti Palace

The sloping frontage that forms the Piazza de' Pitti is closed on three sides by the circling wings of the Palace, which the Florentines have always been reluctant to call the Royal Palace because of their innate tendency for understatement, in spite of the fact that the building has hosted all the ruling dynasties (the Medicis, the Lorraines, the Bourbons, the Bonapartes, the Savoys) ever since Cosimo I's wife, the beautiful and rich Duchess Eleonora of Toledo, bought it from Buonaccorso Pitti in 1550 to turn it into the new home of the Medici family. The merchant Luca Pitti, first the friend and later the rival of Cosimo "the Elder", commissioned Filippo Brunelleschi to carry out the design of the building in around 1440. Cosimo "the Elder" had meanwhile commissioned Michelozzo carry out Palazzo Medici in Via Larga, turning down an earlier project by Brunelleschi, which he thought was too ostentatious and likely to arouse the jealousy of his fellow citizens. This thought apparently did not worry Pitti at all, and he decided to employ the most brilliant architect of the times, whom he apparently, or so the legend goes, ordered to make the windows as big as the doors of the Medici residence and create an internal courtyard that was large enough to contain the whole of the palace in Via Larga.

Brunelleschi's structure reflects his idea of what a Renaissance palace should look like: a cube equal in both height and depth, and covered with the typical Florentine "rustic stone-work" (faceted stones), quarried directly from the Boboli hill itself. The palace was built on three floors, with three entrance doors on the ground floor and seven windows on each side of the two upper floors. A balcony crossed the entire facade, linking up the windows, while a loggia was built beneath the roof to give it a finishing touch.

We can see what the palace looked like after the first stage in its construction in the well known map of Florence known as "the Catena", carried out in 1470. When Eleonora of Toledo bought the estate in 1550, construction work on the monument was intensified and can be divided into two historical stages: the Pitti Palace and the Medici family (until 1737) and the Pitti Palace after the Medici family.

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Contact me for any question or comment.



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The Conference will be held in conjunction with:

WESS -- the seventh Workshop on Empirical Studies of Software Maintenance.

SCAM -- Source Code Analysis and Manipulation

WSE -- Workshop on WEBSITE Evolution

Other workshops are welcome according to the limited available slots.

Topics of interest include but are not restricted to the following aspects of maintenance and evolution:

- Methods and theories
- Organizational frameworks
- Design for maintenance
- Internet and distributed systems
- User interface evolution
- Third party maintenance
- Program comprehension
- Knowledge based systems
- Impact of new software practices
- Software reusability
- Source code analysis and manipulation
- Processes and strategies
- Life cycle and process control
- Tools and environments
- Multimedia systems
- Commercial off-the-shelf (COTS)
- Freeware and open source applications
- Software and system visualization
- Formal methods
- Empirical studies
- Programming languages
- Testing and regression testing

- Models and methods for error prediction
- Maintenance and/or productivity metrics
- Personnel aspects of maintenance
- Version and configuration management
- Management and organization
- Measurement of software
- Preventive maintenance
- Reengineering and reverse engineering
- Legal aspects and standards
- Remote, tele-work, and co-operative applications

## RESEARCH PAPERS

Research papers should describe original and significant work in the research and practice of software maintenance. Research case studies, empirical research, and experiments are particularly welcome.

We also welcome papers that present leading edge and novel ideas in maintenance.

Papers should be 2000 - 5000 words in length, in English. Submit them in PDF or PostScript via email to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by 15 January 2001.

A prize of the Journal of Software Maintenance will be assigned at the Best submitted Paper.

## INDUSTRIAL APPLICATIONS

We welcome proposals for presentations of Industrial Applications.

These can be experience reports from real projects, industrial practices and models, or tool demonstrations. Submit proposals for Industrial Application presentations via email to [icsm2001.industry@unisannio.it](mailto:icsm2001.industry@unisannio.it) by 12 March 2001.

Industrial Applications proposals will be reviewed by a dedicated sub-committee of the program committee and a 1 page summary of accepted proposals will be included in the conference proceedings.

## EXPOSITION AREA

An exposition area is present in which tools related to industrial applications can be shown. Please contact: [nesi@dsi.unifi.it](mailto:nesi@dsi.unifi.it)

1 page summary of accepted tools will be included in the conference proceedings.

## DISSERTATION FORUM

We welcome submissions of young researchers that have delivered their dissertation (degree, master or Ph.D.) in the last three years. Please submit the PDF of the dissertation to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by 15 January 2001. An Award and a full support to attend the conference will be given to the prize winner. Two other free registrations will be assigned at the second and third. 4 pages summary of accepted dissertations will be included in the conference proceedings and a special forum section will be organised at the conference.

## TUTORIALS

Tutorials should present software maintenance and evolution topics of

interest to practitioners. Tutorials may be full-day or half-day in length.

Submit tutorial proposals via email to

icsm2001.tutorial@unisannio.it by 12 February 2001.

1 page summary of accepted tutorial will be included in the conference proceedings.

#### IMPORTANT DATES, DEADLINES

Research Paper submission 15 January 2001, notification of acceptance 1 June 2001

Dissertation submission 15 January 2001

Industrial Application submission 12 March 2001

Tools request and submission 12 March 2001

Tutorial submission 12 February 2001

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#### General chair:

Paolo Nesi, University of Florence, Italy, nesi@dsi.unifi.it

#### Financial chair:

Vaclav Rajlich, Wayne State University, USA, vtr@cs.wayne.edu

#### Program co-chairs:

Gerardo Canfora, University of Sannio, Italy, gerardo.canfora@unisannio.it

Anneliese von Mayrhauser, Colorado State University, USA, avm@CS.ColoState.EDU

#### Tutorials co-chairs:

Lionel C. Briand, Carleton University, briand@sce.carleton.ca

Alessandro Fantechi, University of Florence, Italy, Fantechi@dsi.unifi.it

#### Industrial Applications co-chairs:

Panagiotis K. Linos, Butler University, Department of Computer Science and Software Engineering,  
Indianapolis USA, linos@butler.edu, www.butler.edu/~linos

Harry Sneed, Independent Consultant, Germany, Harry.Sneed@t-online.de

Chris Verhoef, Free University Amsterdam, NL, x@cs.vu.nl

#### Publicity co-chairs:

Nicholas Zvegintzov (General Co-chair), Software Management Network, USA,  
zvegint@attglobal.net

Malcolm Munro (Co-chair for Europe), University of Durham, UK,  
malcolm.munro@durham.ac.uk

William Cheng-Chung Chu (Co-chair for East), TungHai University, Taiwan,  
chu@cis.thu.edu.tw

Local Arrangements co-chairs:

Fabrizio Fioravanti, University of Florence, Italy, [fioravan@dsi.unifi.it](mailto:fioravan@dsi.unifi.it)

Pierfrancesco Bellini (Industrial Applications, and Demos),

University of Florence, Italy, [bellini@hpcn.dsi.unifi.it](mailto:bellini@hpcn.dsi.unifi.it)

Marius Bogdan Spinu, University of Florence, Italy, [spinu@hpcn.dsi.unifi.it](mailto:spinu@hpcn.dsi.unifi.it)

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## Call for Papers

*Theme: Systems and Software Evolution in the era of the Internet*

### General chair:

Paolo Nesi  
University of Florence, Italy  
[nesi@dsi.unifi.it](mailto:nesi@dsi.unifi.it)

### Financial chair:

Vaclav Rajlich  
Wayne State University, USA  
[vtr@cs.wayne.edu](mailto:vtr@cs.wayne.edu)

### Program co-chairs:

Gerardo Canfora  
University of Sannio, Italy  
[gerardo.canfora@unisannio.it](mailto:gerardo.canfora@unisannio.it)

Anneliese Amschler Andrews  
(formerly von Mayrhauser)  
Colorado State University, USA  
[aaa@cs.colostate.edu](mailto:aaa@cs.colostate.edu)

### Tutorials co-chairs:

Lionel C. Briand  
Carleton University  
[briand@sce.carleton.ca](mailto:briand@sce.carleton.ca)

Alessandro Fantechi  
University of Florence, Italy  
[Fantechi@dsi.unifi.it](mailto:Fantechi@dsi.unifi.it)

### Industrial Applications co-chairs:

Panagiotis K. Linos  
Butler University, USA  
[Linus@butler.edu](mailto:Linus@butler.edu)

Harry Sneed  
Independent Consultant  
[Harry.Sneed@t-online.de](mailto:Harry.Sneed@t-online.de)

Chris Verhoef  
Free University Amsterdam, NL  
[x@cs.vu.nl](mailto:x@cs.vu.nl)

### Publicity co-chairs:

Nicholas Zvegintzov (General)  
Software Management Network,  
USA, [zvegint@attglobal.net](mailto:zvegint@attglobal.net)

Malcolm Munro (for Europe)  
University of Durham, UK  
[malcolm.munro@durham.ac.uk](mailto:malcolm.munro@durham.ac.uk)

William Cheng-Chung Chu (for East),  
TungHai University,  
Taiwan, [chu@cis.thu.edu.tw](mailto:chu@cis.thu.edu.tw)

### Local Arrangements co-chairs:

Fabrizio Fioravanti  
University of Florence, Italy  
[fioravan@dsi.unifi.it](mailto:fioravan@dsi.unifi.it)

Pierfrancesco Bellini  
University of Florence, Italy  
[bellini@hpcn.dsi.unifi.it](mailto:bellini@hpcn.dsi.unifi.it)

### WEB Master:

Marius Bogdan Spinu  
University of Florence, Italy  
[spinu@dsi.unifi.it](mailto:spinu@dsi.unifi.it)

### Secretary:

[icsm@dsi.unifi.it](mailto:icsm@dsi.unifi.it)  
tel: +39-055-4796-567, fax: 363

ICSM is the major international conference in the field of software and systems maintenance, evolution, and management. In the era of the Internet, businesses and end-users have invested in new technologies and small and large software organisations around the world are looking for Internet related solutions to evolve and maintain their new Internet software products. Internet technologies are strongly impacting system architectures and business processes and rules. In some cases businesses and end-users have been overwhelmed trying to keep up with software development and evolution processes and practices. In addition to novel solutions to enable the life-cycle of new web-based software systems, huge investments are necessary to migrate aging legacy applications to web-enabled contemporary systems.

ICSM 2001 will address these major changes in the software landscape and their impact on maintenance and evolution. The focus of the conference will be to explore the new challenges that the Internet, as a driver for business changes, poses for software maintenance, and the new opportunities it opens as infrastructure and enabling technology. The purpose of the conference is to promote discussion and interaction between researchers and practitioners. We are particularly interested in exchanging concepts, prototypes, research ideas, and other results which could contribute to the academic arena and also benefit business and the industrial community. ICSM 2001 will be participatory, with working collaborative sessions and presentations of industry projects. ICSM 2001 will bring together researchers, practitioners, developers and users of tools, technology transfer experts, and project managers.

The following event are held in conjunction with ICSM:

- WESS, seventh Workshop on Empirical Studies of Software Maintenance, <http://serg.ing.unisannio.it/~wess2001>
- SCAM, Source Code Analysis and Manipulation, <http://www.brunel.ac.uk/~csstmmh2/scam2001/>
- WSE, Workshop on WEB site Evolution, <http://mulford.cs.ucr.edu/stilley/wse2001/>

Outstanding Keynotes such as: Prof. David Lorge Parnas and Prof. Dieter Rombach.  
Supported by: European Commission-IST, University of Florence, O-Group.

Topics of interest include but are not restricted to the following aspects of maintenance and evolution:

- |   |  |
|---|--|
| - Methods and theories                    | - Processes and strategies                         |
| - Organizational frameworks               | - Life cycle and process control                   |
| - Design for maintenance                  | - Tools and environments                           |
| - Internet and distributed systems        | - Multimedia systems                               |
| - User interface evolution                | - Commercial off-the-shelf (COTS)                  |
| - Third party maintenance                 | - Freeware and open source applications            |
| - Program comprehension                   | - Software and system visualisation                |
| - Knowledge based systems                 | - Formal methods                                   |
| - Impact of new software practices        | - Empirical studies                                |
| - Software reusability                    | - Programming languages                            |
| - Source code analysis and manipulation   | - Testing and regression testing                   |
| - Models and methods for error prediction | - Measurement of software                          |
| - Maintenance and/or productivity metrics | - Preventive maintenance                           |
| - Personnel aspects of maintenance        | - Reengineering and reverse engineering            |
| - Version and configuration management    | - Legal aspects and standards                      |
| - Management and organisation             | - Remote, tele-work, and co-operative applications |

**RESEARCH PAPERS:** Research papers should describe original and significant work in the research and practice of software maintenance. Research case studies, empirical research, and experiments are particularly welcome. We also welcome papers that present leading edge and novel ideas in maintenance. Papers should be 2000 – 5000 words in length, in English. Submit them in PDF or PostScript via email to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by 15 January 2001. To encourage strong submissions a Prize will be awarded for the Best Paper as Submitted. This Prize is offered by John Wiley & Sons, the publishers of the *Journal of Software Maintenance and Evolution*. The winner will be selected by the Program Committee and a formal presentation of the Prize will be made in Florence at ICSM 2001.

**DISSERTATION FORUM:** We welcome submissions of young researchers that have delivered their dissertation (degree, master or Ph.D.) in the last three years. Please submit the PDF of the dissertation to [icsm2001@unisannio.it](mailto:icsm2001@unisannio.it) by 15 January 2001. An Award and a full support to attend the conference will be given to the prize winner. Two other free registrations will be assigned at the second and third. 4 pages summary of accepted dissertations will be included in the conference proceedings and a special forum section will be organised at the conference.

**INDUSTRIAL APPLICATIONS:** We welcome proposals for presentations of Industrial Applications. These can be experience reports from real projects, industrial practices and models, or tool demonstrations. Submit proposals for Industrial Application presentations via email to [icsm2001.industry@unisannio.it](mailto:icsm2001.industry@unisannio.it) by 12 March 2001. Industrial Applications proposals will be reviewed by a dedicated sub-committee of the program committee and a 1 page summary of accepted proposals will be included in the conference proceedings.

**TUTORIALS:** Tutorials should present software maintenance and evolution topics of interest to practitioners. Tutorials may be full-day or half-day in length. Submit tutorial proposals via email to [icsm2001.tutorial@unisannio.it](mailto:icsm2001.tutorial@unisannio.it) by 12 February 2001.

### IMPORTANT DATES

Research Paper submission 15 January 2001, notification of acceptance 1 June 2001  
Dissertation submission 15 January 2001  
Industrial Application submission 12 March 2001  
Tools request and submission 12 March 2001  
Tutorial submission 12 February 2001



## Florence Consulates

Country	Address	Telephone
Belgium	Via dei Servi, 28	Tel. 282094
Brazil	Via dei Serragli, 220/r	Tel. 222336
Cape Green Islands	Via Tornabuoni, 4	Tel. 216689
China	Via Fontana, 34	Tel. 357642
Chile	Via dei Servi, 13	Tel. 212732
Costa Rica	Via Giambologna, 10	Tel. 573603
Denmark	Via dei Servi, 13	Tel. 211007
Dominican Rep.	Via Milano, 23	Tel. 0574/607518
Finland	Via Strozzi, 6	Tel. 293228
France	P.za Ognissanti, 2	Tel. 2302556
Germany (Fed. Rep. of)	Lungarno Vespucci, 30	Tel. 294722
Great Britain	Lungarno Corsini, 2	Tel. 284133
Greece	Via delle Oche, 2	Tel. 2381482
Haiti	Via Cerretani, 2	Tel. 282683
Honduras	Via dei Bardi, 30	Tel. 2342519
Hungary	Via Belgio, 2	Tel. 6531817
Ivory Coast	Via S. Spirito, 9/r	Tel. 294837
Lettony	Via Suor M. Celeste, 1	Tel. 224597
Luxembourg	Via Bartolommei, 4	Tel. 473219
Malta	Via dei Servi, 13	Tel. 217875
Mexico	Via Arte della Lana,	Tel. 217831

Monaco (Princ. of)	Via Cherubini, 18	Tel. 587897
Norway	Via G. Capponi, 81	Tel. 2479321
Panama	Via Mayer, 2	Tel. 473904
Paraguay	Via dell'Erta Canina, 66	Tel. 2345020
Peru	Via della Robbia, 38	Tel. 2343445
Romania	Borgo Pinti, 20	Tel. 240601
S. Marino (Republic of)	Via Roma, 3	Tel. 210864
Senegal	Borgo S. Lorenzo, 1	Tel. 289968
South Africa	P.za Saltarelli, 1	Tel. 281863
Spain	Via G. La Pira, 21	Tel. 217110
Sweden	Via B. Lupi, 14	Tel. 499536
Switzerland	P.le Galileo	Tel. 222434
The Netherlands	Via Cavour, 81	Tel. 475249
Turkey	Via Nazionale, 7	Tel. 294893
United States of America	L.no Vespucci, 38	Tel. 2398276
Venezuela	Via Giambologna, 10	Tel. 573603

Proposed Conference email and WWW site:

<http://www.dsi.unifi.it/icsm2001>

<http://www.dsi.unifi.it/ICSM2001>

[icsm2001@dsi.unifi.it](mailto:icsm2001@dsi.unifi.it)



Webmaster: [Marius Spinu](#)  
Contact me for any question or comment.



# Florence: Useful Information

## Telephone Prefixes

Italy +39

Florence district (0)55

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### Information Offices

**Piazza Stazione**

**Tel: +39 (0)55 212245**

**Chiasso Baroncelli 17/r**

**Tel: +39 (0)55 2302124**

**Via Cavour 1/r**

**Tel: +39 (0)55 2760381**

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### Florence Town Hall

**Tel: +39 (0)55 2768366**

### Chamber of Commerce

**Piazza dei Giudici 3, 50122 Firenze (FI)**

**Tel: +39 (0)55 2795301 Fax: 2795259**

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### Public Holidays

**1 January (Maria Madre di Dio), 6 January (Epifania), Easter Monday, 25 April (Liberation day), 1° May (Workers days), 15 August (Assunzione di Maria Vergine), 1° November (All Saints day), 8 December (Immaculate Conception), 25 December (Christmas Day), 26 December (Saint Stefano).**

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### Main Post Offices

**Via Pietrapiana 53/55, 50100 Firenze (FI)**

**Informations - Tel: +39 (0)55 214600**

**Via Pellicceria 3, 50100 Firenze (FI)**

**Informations - Tel: +39 (0)55 211147**

**Via Alamanni 1, 50100 Firenze (FI)**

**Informations - Tel: +39 (0)55 215045**

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### **Lost and Found**

**For information contact:**

#### **The Town Hall**

**Lost Property Office, Via Circondaria 19**

**Tel: +39 (0)55 367943**

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### **Emergency Numbers**

**Public Emergencies and Assistance - Tel: 113**

**Military Police (Carabinieri) - Tel: 112**

**Fire Brigade - Tel: 115**

**Ambulance and Emergency Medical Assistance - Tel: 118**

**Municipal Police (Station) - Tel: +39 (0)55 212290**

**Municipal Police (Emergency Calls) - Tel: +39 (0)55 36911**

**Police Headquarter and Stolen Car Service - Tel: +39 (0)55 49771**

**A.C.I - (Automobile Club Firenze) - Tel: +39 (0)55 61801 Fax: 611231**

**Roadside Assistance - Tel: 116**

**Highway Police - Tel: +39 (0)55 577777**

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*Proposed Conference email and WWW site:*

<http://www.dsi.unifi.it/icsm2001>

<http://www.dsi.unifi.it/ICSM2001>

[icsm2001@dsi.unifi.it](mailto:icsm2001@dsi.unifi.it)



Webmaster: [Marius Spinu](#)  
Contact me for any question or comment.



