

ICSSEA 2004
17th International Conference

SOFTWARE & SYSTEMS ENGINEERING
and their APPLICATIONS

November 30, December 1 & 2, 2004
CNAM — Paris, France



CiGREF

System Variability and Recomposition

Whether dealing with information systems or embedded systems, software vendors as well as users share a common preoccupation: product adaptability. The former look for ease in adapting products to users' needs, the latter for ease in configuring products according to hardware and environmental constraints. This concern for adaptability entails postponing to the utmost design decisions and transferring configuration flexibility from the hardware level to the software level. As a result, the concept of software variability becomes apparent today, i.e. the capacity to be changed, tailored, and configured according to a specific context. Variability is essential for increasing reuse rate, for reducing maintenance effort, and for keeping up unavoidable fluctuating requirements.

Introducing variability in systems and software results in increasing complexity, as a large number of variability points must be adjusted. Moreover, it has an impact on the various processes, such as development, assessment, evolution, and testing. Variability has two facets: space, due to multiple contexts, and time, due to changing requirements. Consequently, new concepts are required for specifying, modeling, and implementing systems and software products, which have to meet variability requirements.

Organized by the Center for Mastering Systems & Software (CMSL) of CNAM (Conservatoire National des Arts et Métiers), under the sponsorship of CIGREF (IT Club of Large French Enterprises) and with the cooperation of SQS Software Quality Systems AG (Cologne, Germany), the 17th edition of the ICSSEA Conference will be held in Paris from November 30 to December 2, 2004. It aims at providing a critical survey of the current status of tools, methods, and processes for elaborating software and systems. However, lectures and discussions will be conducted with software variability as a leitmotiv.

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INTERNATIONAL PROGRAM COMMITTEE

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Axel Rennoch – Fraunhofer Fokus (D)
Thilo Schwinn – DaimlerChrysler AG (D)
Nino Silverio – Centre Universitaire du Luxembourg (L)
Nicolas Trèves – CNAM (F)
Rudolf van Megen – SQS Software Quality Systems AG (D)
Jeffrey Voas – Cigital (USA)

General Chair

Jean-Claude Rault – Génie Logiciel & CNAM/CMSL (F)

PROGRAM

TUESDAY, NOVEMBER 30

9:30 **Session 1: INAUGURAL LECTURES**

12:30

A point of view from Large Enterprises

Maryvonne Cronier – Member of the board, CIGREF, and CIO of CNAM-TS (F)

A best practice approach to systems and software process engineering:
Strategies and technologies

Paul R. Croll – Computer Sciences Corporation (USA)

SLA-based routing for middleware: A step toward self-optimizing business
process orchestration

Yves Caseau – Bouygues Telecom (F)

Testing key methodology for critical embedded space software

Michel Turin – EADS (F)

14:00 **Session 2: TESTING**

17:30

Session organized in cooperation with SQS Software Quality Systems AG (Cologne, Germany),

Part 1: Testing and V&V in Automotive

Embedded software coverage rate improvement

Ludovic Augusto – Johnson Control (F)

Processes and their KPI's using integrated reporting

Thomas Albert – method park Software AG (D)

Provably correct automotive

Leonid Kof & Katharina Spies – TU München (D)

Part 2: Test Coverage

Potential context coverage strategy for efficient program testing

Boris Cogan, Tamara Matveeva – London Metropolitan University (GB), & Natalya Nikiforova – IACP (RU)

Test execution logging and visualization techniques

George Din, Justyna Zander – Fraunhofer FOKUS (D), & Stephan Pietsch – Testing Technologies IST GmbH (D)

14:00 **Session 3: PROJECT ESTIMATION**

15:30

Estimating all the way through project life cycle

Didier Barrault – Forecast (F)

Choosing a development life cycle: Comparing project and product measures
Oddur Benediktsson – University of Iceland (IS), Darren Dalcher – Middlesex University (GB), & Helgi Thorbergsson – University of Iceland (IS)

A method for extracting concept instances from UML specifications for software function points measurement

Lucson Vilus & Ghislain Lévesque – Université du Québec à Montréal (CDN)

14:00 **Session 4: EVOLUTION & VARIABILITY**

16:00

Managing service variants in SOA architectures

Pierre Bonnet – Orchestra Networks (F)

Product line analysis for applications in the virtual office of the future
Christian Denger, Michael Eisenbarth, Dirk Muthig – Fraunhofer IESE (D), Takeshi Suzuki, Hideharu Teranishi & Kazuyuki Yamauchi – Ricoh Company Ltd (J)

The multimedia Park Project

Roberto De Lotto & Antonio Barili – Università degli Studi di Pavia (I)

The MAGE ontogenetic model: Towards autonomously-developed software

Djamel Meslati, Saïd Ghoul, Fadila Atil, & Nora Bounour – Université d'Annaba (DZ)

16:00 **Session 5: PROJECT RISK MANAGEMENT**

17:30

Managing project risks through software quality in automotive embedded systems

Julien Tessier & François Dufay – Ligeron SA (F)

RIR (Recensement et Identification des Risques): An approach to identifying risks in project management

Frédéric Benaben, Didier Gourc, Carmen Villarreal, Benalisoa Ravalison, & Henri Pingaud – ENSTIMAC (F)

Identifying software project risks with the process model

Jakub Miler & Janusz Górski – Gdansk University of Technology (PL)

16:30 **Session 6: SYSTEMS ENGINEERING**

17:30

Using patterns to share best results from systems engineering

Cecilia Haskins – TSS Consulting (N)

Tool-based requirements management

Isabelle Defarge – CORTIM (F) & Christine Bailleul STNA/DGAC (F)

9:00 **Session 2 cont'd: TESTING**

17:30

Part 3: Test preparation

Test metrics and root cause analysis in large software projects

Claudio Ravizza – Siemens Mobile Communications SpA (I), Gualtierio

Bazzana & Ioana Ene – Onion SpA (I)

Requirements-based test cases at Airbus

Paul Keese – SQS (D)

Test case and test driver generation for embedded software

Bruno Legeard – LEIRIOS Technologies & Université de Franche-Comté (F)

Part 4: Testing Safety Critical Systems

A smart development process for safety-related software

Andreas Gerstinger & Sabine Knöbl – Frequentis GmbH (A)

Independent software verification and validation – The approach adopted for ESA's GOCE Mission

Mike Rennie – Deimos Space (E), Bernd Seitz – ESA/ESTEC & Marco Barrera – Alenia Spazio (I)

Process improvement in safety critical system development using SPICE or CMMI

Jörg Klein & Sven Nordhoff – SQS (D)

Part 5: Test Management

Automated testing framework for model-driven development of embedded and real-time systems

Pierre-Henri Stanek – IBM Software France (F)

ISTQB certification for testers: Why and how?

Robert Treffny – ISTQB (D)

Publications of CMSL Members

Jean-Pierre Meinadier : *Ingénierie et intégration des systèmes* ; Lavoisier, 1998, 544 pages – ISBN 2-86601-720-X

Jean-Pierre Meinadier : *Le métier d'intégration de systèmes* ; Lavoisier, 2002, 540 pages

Jacques Printz : *Puissance et limites des systèmes informatisés* ; Lavoisier, 1998, 352 pages – ISBN 2-86601-703-3

Jacques Printz : *Productivité des programmeurs* ; Lavoisier, 2001, 216 pages – ISBN 2-7462-0284-0

Jacques Printz, Nicolas Trèves, Christiane Deh et Bernard Mesdon : *Coûts et durée des projets informatiques – Pratique des modèles d'estimation* ; Lavoisier, 2001, 168 pages, – ISBN 2-7462-0272-7

René Chevance : *Serveurs multiprocesseurs, clusters et architectures parallèles* ; Éditions Eyrolles, avril 2001, 540 pages – ISBN 2-212-09114-1

9:00 **Session 7: SOFTWARE ARCHITECTURE**

16:00

Interoperability impacts on monitoring and control system engineering: A case study

Ivan Maffezzini – UQAM (CDN), Pierre Martin & Nguyen Van Thich – Hydro-Québec (CDN)

Inductive integration of data and processes for assisting closure of nuclear power plant

Marc Desreumaux, Patrick Préfol, Alain Bernier – EDF (F) & Radouane Oudrhiri – Systonomy Ltd (GB)

Towards inductive definition and evolution of architectural styles

Olivier Ratcliffe, Luigi Scibile – CERN (CH), Sorana Cîmpan, & Flavio Oquendo – Université de Savoie (F)

Autonomous agent-based system reconstruction technology in distributed database systems for timeliness

Carlos Perez Leguizamo & Kinji Mori – Tokyo Institute of Technology (J)

Consensus software: Robustness and social good via widespread multiagent development

Michael N. Huhns – University of South Carolina (USA)

Decentralized resource management for assurance according to heterogeneous service levels

Ivan Luque, Xiaodong Lu, Miho Kanda, Kinji Mori – Tokyo Institute of Technology (J), Yasushi Kuba & Ryuji Takamuki – Hitachi (J)

Patterns in SNMP-based network management

Jean-Philippe Martin-Flatin – CERN (CH), Paul E. Sevinç – ELCA (CH), & Rachid Guerraoui – EPFL (CH)

SfleX: A flexible software architecture for utility computing and information appliances

Gautam Shroff – Tata Consultancy Services (IND)

An organizational approach to business urbanization

Jacques Simonin & Francis Alizon – France Télécom (F)

SAUSI: System aspects for uniformity in software infrastructure

Celina Gibbs & Yvonne Coady – University of Victoria (CDN)

9:00 **Session 8: VERIFICATION & VALIDATION**

11:00

Analysis of small and large post-mortem review methods

Mauri Myllyaho – University of Oulu (SF), Jukka Kääriäinen, Outi Salo – VTT (SF), Jarkko Hyysalo – University of Oulu (SF), & Juha Koskela – VTT (SF)

Verification of UML models

Ingo Schinz – Offis e.V (D), Tobe Toben, & Bernd Westphal – Carl von Ossietzky Universität (D)

Slicing concurrent programs using the Quasar tool

Pierre Rousseau – CNAM/CEDRIC (F)

Describing and modeling formally risks

Jean-Louis Boulanger – UTC (F)

11:30 **Session 9: MODELING**

12:30

A method and tools for modeling and handling data (interfaces) shared by several systems

OASIS & EAST

Agusti Canals – CS (F), Béatrice Larzul, & Denis Minguillon – CNES (F)

Instrumenting a UML method based on OCL

Thierry Millan, Christian Percebois, Hervé Leblanc & Pierre Bazex – Université Paul Sabatier (F)

14:00 **Session 10: AGILE DEVELOPMENT**

16:00

The “P” in prototyping is for “Personality”

Steve Counsell – University of London (GB), Keith Phalp – University of Bournemouth (GB), & Emilia Mendes – University of Auckland (NZ)

Self-organize... it is mandatory

Laurent Bossavit – Exoftware (F) & Emmanuel Gaillot – Consultant (F)

Towards agile re-engineering of dependable grid applications

Richard Paige, Jovan Cakic, Xiaocheng Ge, & Howard Chivers – University of York (GB)

Experiences while using extreme programming to support the legacy system migration project

Juha Koskela – VTT Electronics (SF), Mauri Myllyaho – University of Oulu (SF), Jukka Kääriäinen – VTT Electronics (SF), Dan Bendas, & Jarkko Hyyalo – University of Oulu (SF)

16:30 **Session 11: BUSINESS PROCESSES**

17:30

Transformation - Beyond information technology re-engineering

Dolly M. Neumann – Boeing (USA)

Integrating mobile technologies in business processes

Daniel Lang – INT (F)

GÉNIE LOGICIEL

Le magazine de l'ingénierie du logiciel et des systèmes
Revue trimestrielle

Rédacteur en chef : Jean-Claude Rault
Rubrique Ingénierie du logiciel : Jacques Printz
Rubrique Ingénierie de systèmes : Jean-Pierre Meinadier

Abonnement pour quatre numéros : France : 185 €– Étranger : 205 €

GL & IS – 8, rue du Parc – 92190 Meudon
Renseignements : genie-logiciel@wanadoo.fr

THURSDAY, DECEMBER 2

9:00 **Session 12: PROCESS IMPROVEMENT**

12:30

Software quality management at CMM level 5

Jean-Yves Chauvière – Motorola (F)

Coverage analysis and improvement of the role definitions of the Bombardier software engineering process

Pierre Bourque, Youssef Belkebir, Claude Yvon Laporte – ETS (CDN), Mikel Doucet – Bombardier Transportation (CDN), & Edgardo Palza V. – ETS (CDN)

Impact of application knowledge on perfective maintenance outsourcing: A case study

Baru S. Rao – Capgemini (IND) & N. L. Sarda – Indian Institute of Technology (IND)

Process maturity for software project outsourcing

Anjum Ashiq – CERN (CH), Ali Arshad, Tarar Tallat Hussain, Nazir Fawad, Ali Shah Umair, & Abbas Burki Hamid – NUST (PK)

Modeling software process using roles

Fadila Atil – Université d'Annaba (DZ), Saïd Ghoul – University of Philadelphia (JO), Djamel Meslati & Nora Bounour – Université d'Annaba (DZ)

Techniques for the development of a software factory: Case CEPEIN

José Augusto Fabri – FEMA (BR), André Luiz Presende Trindade – Universidade de São Paulo (BR), Alexandre L'Erário, Luiz Ricardo Begosso, Fabio L. Fuji – FEMA (BR), & Marcelo S. de Paula Bessou – Universidade de São Paulo (BR)

9:00 **Session 13: WEB & INFORMATION SYSTEMS**

12:30

xPortal: An XML view based Web portal design

William Gardner, R. Rajugan – University of Technology, Sydney (AUS), Elizabeth Chang – Curtin University of Technology (AUS), & Tharam S. Dillon – University of Technology, Sydney (AUS)

A survey of semantic web languages and tools

Mohamed Ben Ahmed & Olfa Dridi – ENSI (TN)

A platform for assessing the performance tools used for filtering Internet contents

Bruno Grilhères & Sylvie Brunessaux – EADS (F)

Dialogue act-oriented conceptual modeling for Web-based information systems

Ying Liang – University of Paisley (GB)

Model-driven design of the Win platform

Jan B. deMeer & Rolf Kraemer – IHP Microelectronics GmbH (D)

A cultural heritage information system (I-MASS) with a Virtual Reference Room as an agent-based open service architecture

Peter J. Braspenning, Gabriel Hopmans & Peter-Paul Kruijssen – University of Maastricht (NL)

14:00 **Session 14: REUSE & COMPONENTS**

15:30

OSAGAIA: A model for components used for transporting and handling synchronous information flows

Emmanuel Bouix, Marc Dalmau & Philippe Roose – IUT de Bayonne (F)

A framework for components used in software radio

Stéphane Ménoret – Thalès Communications (F) & Eric Gressier-Soudan – CNAM/CEDRIC (F)

Function unit specification in a timed multitasking environment

Christo K. Angelov, J. Berthing, K. Sierszecki & Nicolae Marian – University of Southern Denmark (DK)

14:00 **Session 15: REQUIREMENTS ENGINEERING**

16:00

Software requirements implementation and management

Juho Jaalinoja – VTT & Markku Oivo – University of Oulu (SF)

Requirements and research in computing science: May an idea in research be translated as a set of requirements?

Cécile d'Anterrosches – France Télécom (F)

Requirements specification for RE-tool evaluation: Towards a specification exemplar

Raimundas Matulevičius & Guttorm Sindre – NTNU (N)

Linguistic analysis of unstructured text by chunk-parsing, tagging, and semantic interpretation

Günther Fliedl, Christian. Kop, Heirich-C. Mayr – Universität Klagenfurt (A), Georg Weber – Infineon (A), & Christian Winkler – Universität Klagenfurt (A)

SV04: THIRD WORKSHOP “SYSTEMS TESTING & VALIDATION”

Organizers:

Juan Garbajosa – UPM (E) Patricia Rodriguez-Dapena – Software (E)
Jorgen Bøgh – Delta (DK) Axel Rennoch – Fraunhofer FOKUS (D)

The objective of this one-day workshop is to bring together industry and academy to debate on different approaches and methodologies to system validation. Issues to be dealt with are:

- Innovative approaches to validate different types of requirements: functional and non-functional (reliability, safety, maintainability, etc.);
- Automation and tool support;
- Validation of systems comprising pre-validated components;
- Validation in the context of different lifecycle process models (e.g. conventional and agile development);
- Validation and certification.

Information: <http://syst.eui.up.es/conference/sv04>

PRODUCTS FORUM

The 17th edition of the ICSSEA International Conference will host a forum dedicated to the current offer of tools and methods relating to software engineering and systems engineering. Vendors having subscribed to the forum will have available a one hour time slot, where they will present their new developments or report, possibly in collaboration with customers, on field experience.

Java standardisation for real time
Patricia Langle – Aonix

Attacking complexity and change through requirements, configuration, and change management
Bruno Pencolé – Borland France

Improving applications portfolio management practices, in-house or outsourced
G rard Karsenti – EVP - CAST Software

Risk-Based Testing: A test management methodology based on risk assessment
Jean-Luc Vegrinne – Compuware France

TBA
Esterel Technologies

Eclipse : the open source technological platform for developing and integrating applications
Michel Lara – IBM Software Group

Aligning business processes with information systems
Emmanuel M nager – IDS-Scheer

Contract-driven system design with UML2.0
Patrick Fafin – i-Logix

LEIRIOS Test Generator : Generating functional tests from UML models
Eric Torreborre – LEIRIOS

Deploying testing within enterprises
Herv  Dhelin – Mercury Interactive

Project Kit and PPM : a tool set for integrated process management
Thomas Albert – method park Software AG

MDA in practice: Making MDA accessible to the widest range of users and addressing the modeling methodology issue
Philippe Desfray – Softeam

Modeling and validating real-time architectures : The GALS model applied to an industrial case
Thierry Gueguen – TNI-Software

PRACTICAL INFORMATION

Dates

November 30, December 1 & 2, 2004

Hours

9:00-18:00

Venue

Conservatoire National des Arts et Métiers
292, rue Saint-Martin
75003 Paris
France

Public Transportation

Métro

Line 3: Réaumur – Sébastopol or Arts et Métiers

Line 4: Réaumur – Sébastopol or Strasbourg – Saint-Denis

Lines 8 & 9: Strasbourg – Saint-Denis

Buses: Lines 20, 38, 39, 47 and 75

Registration

To register for the Conference, please detach, complete, and return the enclosed registration form (see pages 15 & 16).

1) Registration for the ICSSEA 2004 Conference entitles the registrant to
• admission to all conference rooms during the period of the Conference for which the participant has registered • refreshments during breaks.

2) The university rate is available to full-time staff members of universities, colleges, and engineering schools. Those eligible for this rate must include a statement/proof of employment with their registration form.

3) Students born after January 1, 1979 are entitled to a special rate. This reduced rate entitles them to admission to the Conference. It does not include the proceedings. Students born before January 1, 1979 are entitled to the university rate (see §2 above). All students must return the registration form together with a photocopy of their valid 2004-2005 student card on which their date of birth should appear. The student card will be requested at the Welcome Desk.

Registration fees (incl. VAT)

<i>Incl. VAT</i>	Standard fee	University fee	Student fee
3 days	€ 735	€ 430	€ 110
2 days	€ 570	€ 325	€ 110
Proceedings	€ 73		
Lunches	€ 23 per lunch		

General conditions

1) Registration fees are payable in advance. Please see pages 15 and 16 for payment details. However, public organizations that cannot make payment in advance are requested to send a valid signed purchase order form with the registration form.

2) The invoice you receive from CNAM will serve as the acknowledgement of receipt to confirm registration. This receipt will allow participants to pick up their name-badge and folder at the Welcome Desk.

3) Registrations cancelled by letter or fax will be honored if received by November 19, 2004. After this date, all registrations will be considered final and the corresponding fees owing in full. The organizer cannot take responsibility for cancellations made after this date, and reimbursement will not be possible.

Proceedings

The Conference proceedings are not included in the registration fee. They may be purchased on site or with the registration form (see page 15).

Working language

English will be the official working language.

Meals

Meals are not included in Conference registration fee. They may be purchased separately with the registration form (see page 15).

Lodging

A list of convenient hotels appears on the Web site of the conference:
www.cnam.fr/CMSL

Messages

The Welcome Desk may take incoming telephone messages

Tel.: +(331) 40 27 22 58

Fax: +(331) 40 27 23 77

Secretariat & Information

CNAM-CMSL

c/o Chaire d'Intégration de Systèmes

292, rue Saint-Martin

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Fax: +(331) 40 27 23 77

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Individual Registration Form

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<i>Incl. VAT</i>	Industrial fee	University fee	Student fee
3 days	<input type="checkbox"/> € 735	<input type="checkbox"/> € 430	<input type="checkbox"/> € 110
2 days (check)			
<input type="checkbox"/> Nov. 30	<input type="checkbox"/> € 570	<input type="checkbox"/> € 325	<input type="checkbox"/> € 110
<input type="checkbox"/> Dec. 1			
<input type="checkbox"/> Dec. 2			
Proceedings	€ 73		
Lunches	November30 <input type="checkbox"/> € 23	December 1 <input type="checkbox"/> € 23	December 2 <input type="checkbox"/> € 23
TOTAL			

✂

I plan to attend the following sessions:

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10
<input type="checkbox"/> 11	<input type="checkbox"/> 12	<input type="checkbox"/> 13	<input type="checkbox"/> 14	<input type="checkbox"/> 15
<input type="checkbox"/> "Systems Testing & Validation" Workshop				
<input type="checkbox"/> "Products" Forum				

Transport discount

I would like to receive:

- The French Railways (SNCF) discount form
- The Air France discount form (Agreement number ???)
Logo Air France

PAYMENT

Only those applications received with payment enclosed will be honored

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TUESDAY, NOVEMBER 30

9:00	Registration			
	Session 1			
10:00	Inaugural Lectures			
	Maryvonne Cronier – CNAM-TS (F) : A point of view from Large Enterprises			
	Paul R. Croll – CSC (USA): A best practice approach to systems and software process engineering: Strategies and technologies			
11:00	Yves Caseau – Bouygues Telecom (F): SLA-based routing for middleware: A step toward self-optimizing business process orchestration			
	Michel Turin – EADS (F): Testing key methodology for critical embedded space systems			
12:00				
13:00	<i>Lunch</i>			
14:00	Session 2	Session 3	Session 4	
	Testing	Project Estimation	Evolution & Variability	Products Forum
15:00				
		<i>Break</i>		
16:00	<i>Break</i>	Session 5	<i>Break</i>	
	<i>Session 2 cont'd</i>	Project Risk Management	Session 6	
17:00			Systems Engineering	
18:00				

WEDNESDAY, DECEMBER 1st

9:00	<i>Session 2 cont'd</i>	Session 7	Session 8	
		Software Architecture	V&V	Products Forum
10:00				
	<i>Break</i>			
11:00	<i>Session 2 cont'd</i>	<i>Session 7 cont'd</i>	<i>Break</i>	
			Session 9	
12:00			Modeling	
13:00	<i>Lunch</i>			
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			Agile Development	Products Forum
15:00				
	<i>Break</i>			
16:00	<i>Session 2 cont'd</i>	<i>Break</i>		
		Session 11		
17:00		Business Processes		
18:00				

THURSDAY, DECEMBER 2

9:00	SV04: 3rd Workshop	Session 12	Session 13	
	Systems Testing & Validation	Process Improvement	Web & IS	Products Forum
10:00				
		<i>Break</i>		
11:00				
12:00				
13:00	<i>Lunch</i>			
14:00	<i>3rd Workshop cont'd</i>	Session 14	Session 15	Products Forum
		Reuse & Components	Requirements Engineering	
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16:00		<i>Closing</i>		

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