

Formal Methods Europe

le cnam

école sciences industrielles &
technologies de l'information

CONSERVATOIRE NATIONAL
DES ARTS ET MÉTIERS

FM 2012 Symposium Program
18th International Symposium
on Formal Methods
18^e colloque international
sur les méthodes formelles

Cnam, Paris, France
27th – 31st August
du 27 au 31 août
<http://fm2012.cnam.fr/>

Conservatoire national des arts et métiers

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Preface

Bonjour and welcome to Paris!

We are happy to present you this programme booklet of the 18th International Symposium on Formal Methods (FM 2012) and its satellite events, held at Conservatoire National des Arts et Métiers (Cnam Paris).

The events will start on Monday, August 27th, with INFINITY, TLA+ and UML&FM workshops, the Doctoral symposium, tutorial on Software Verification with VCC. On Tuesday, August 28th, FMDS, QFM and VDM workshops and tutorials on Theory of Domain Descriptions, CADP and Symbolic Analysis of GPU Programs will take place. Furthermore, the FHIES, FMICS, UTP and VECoS events will be held on both Monday and Tuesday.

From Wednesday, August 29th, to Friday, August 31st, the main conference, Industry Day (Thursday, August 30th) and Verification Competition (August 30th and 31st) will take place. On those days, the conference reception (Wednesday 29th) and conference dinner (Thursday 30th) will be held in selected locations in Paris.

This programme booklet contains all the information you need during the conferences and satellite events. Maps and directions to different locations and events are provided as well as detailed schedules of talks and sessions.

If you have any question regarding the conferences, workshops or the programme in general, feel free to ask any of our student volunteers or senior staff members present at the symposium. We will be happy to answer any questions and provide the information you require. The whole crew put a lot of effort into organizing this event and we hope that you will enjoy the conferences and your stay in Paris.

Explicitly, we want to thank all members of the various FM 2012 committees for their dedication and effort and a special thanks to our academic and corporate sponsors.

Kamel Barkaoui and Béatrice Bérard
General and Organizing Chairs

General Information

Arrival

The registration desk is located at CNAM, 2 rue Conté 75003 Paris (Salon d'honneur - Access 37 - Level 1). Our crew will be wearing red shirts with the Cnam Logo. If you have any questions feel free to ask any of the crew or organisers.

On-Site Registration

Up on first arrival we would like to ask you to check-in at our registration desk. Here, you will receive the conference bag containing proceedings, course material and further information. The registration desk is also the main contact point for any question regarding invoices and payment of fees. It is open from around 8 a.m. to 6 p.m. during the entire event and our crew members are happy to help you in any way they can.

If you should arrive late (e.g. during the conference opening or an invited talk) there is no problem to visit the lecture rooms first and check in during a break. In this case, follow the signs or ask one of our staff.

Internet and PC Access

A wireless Internet connection is available to all participants during the entire event. You will receive the username and password with your conference bag. You can find more detailed information in your conference bag.

If you possess an EDU-Roam account you can use your regular account and configuration with the wireless network *eduroam*.

We also provide a number of notebooks for use near the registration desk. Using these, you can access the Internet, if you don't bring your own notebook.

Locations

The conference and its satellite events take place in the rooms of the Cnam, 2 rue de Conté, 75003 Paris.

From Wednesday to Friday, the main conference will take place at the Amphi Georges Friedmann, access 33-level 2.

The Industry Day will be held at the Amphi Gaston Planté, access 35-level 1.

Tea/coffee will be served at 10:00 and 16:00 in the Galerie d'honneur, access 37-level 1.

From Monday to Tuesday, satellite events will take place in access 30-level -1 and access 31-level 2.

The exact locations of lecture rooms will be indicated at the conference site.

Tea/coffee will be served at 10:30 and 15:30 in the Galerie d'honneur, access 37-level 1.

Lunch from Monday 27th to Friday 31st will be served between 12:00 – 14:00 in the Cnam restaurant.

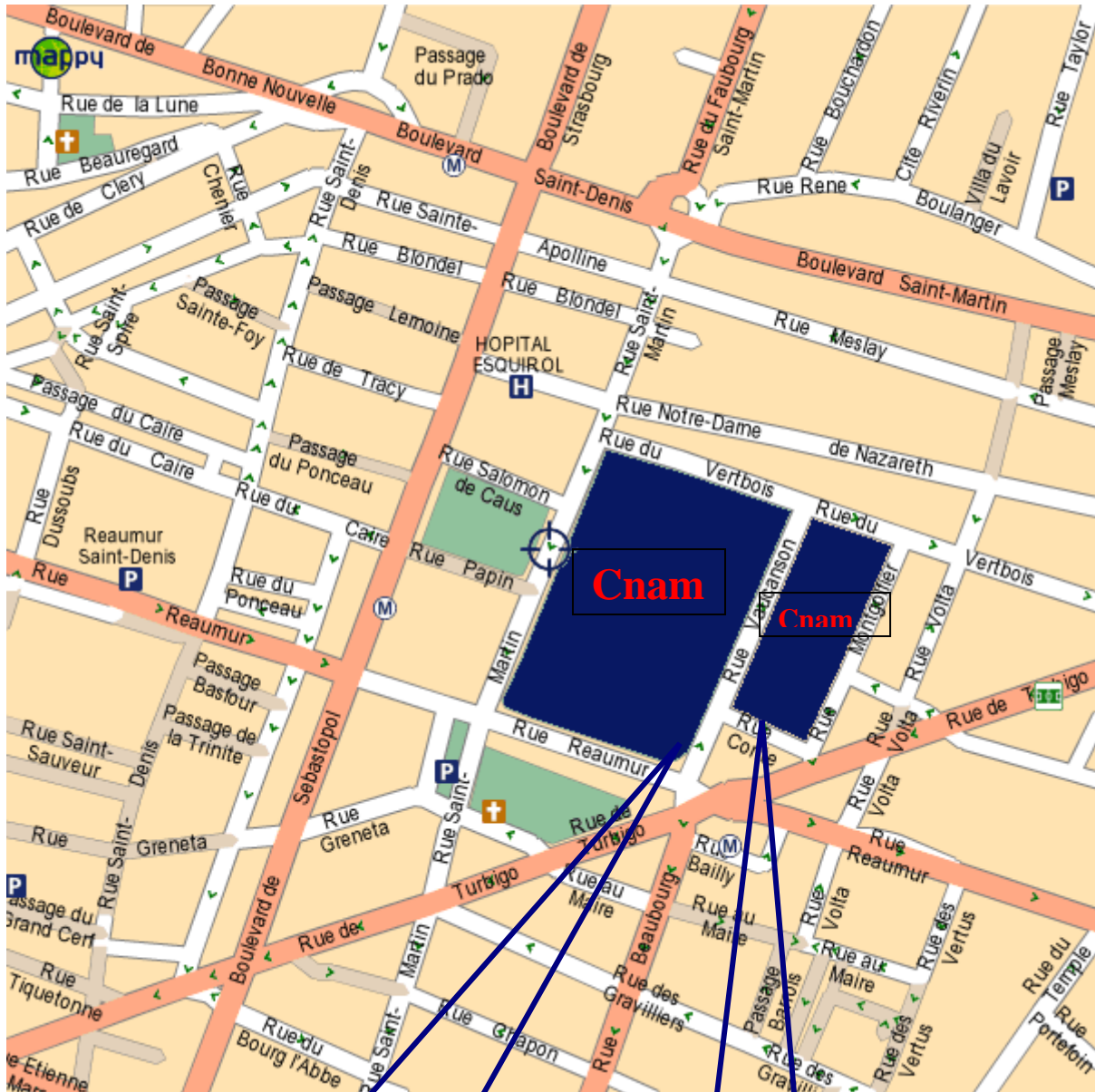
The symposium site is easily reached by public transportation:

Station « Arts et Métiers » (Metro 3, 11)

Station « Réaumur-Sébastopol » (Metro 4)

Station « République » (Metro 5, 8, 9)

Buses 20, 38, 39 and 47 also stop at Réaumur Sébastopol or Arts et Métiers.



Conference Reception
La chapelle du musée du Cnam

Conference Location
2 rue Conté

Social Programme

Conference Reception

The conference reception will take place in the Chapel **Saint-Martin-des-Champs** of "Arts et Métiers" Museum located in 60 Rue Réaumur 75003 Paris, near to conference location. The Foucault's pendulum which was exhibited during the International exhibition of Paris in 1855 is now in the chorus of this site.

The reception starts on Wednesday, August 29th at 19:00 and ends at 21:30.

Each participant will have a free access to the museum of "Arts et Métiers" during the conference. The Cnam museum is open from Tuesday to Sunday included, from 10:00 to 18:00. Night thursday to 21:30.

Conference Dinner

The conference Dinner will take place on Thursday, August 30th at 9pm in the bateau mouche "Capitaine Fracasse" located in "Ile aux Cygnes", at the middle of Bir-Hakeim bridge (Paris 15ème, near Tour Eiffel), which can be reached from « Champ de Mars Tour Eiffel » station RER C or from Bir-Hakeim station metro line 6.

Please note that embarkation is at 20:30 and departure at 21: 00 precisely.

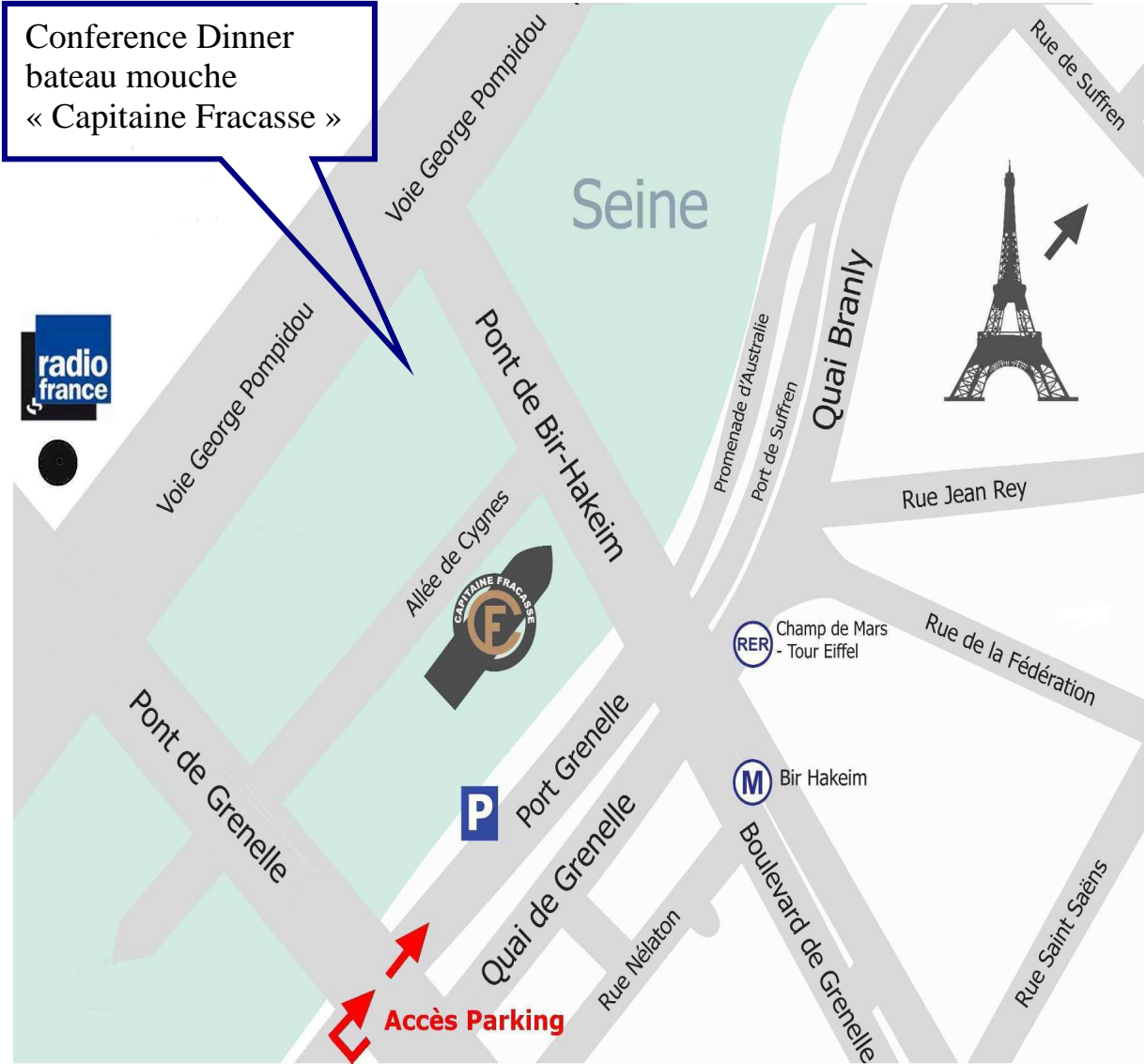
Coming from the conference location, the best ways are the following:

First way

1. Take line 4, from Reaumur-Sebastopol station, to Saint-Michel station, where you change to RER C,
2. Take RER C from Saint-Michel Notre Dame, to Champ de Mars-Tour Eiffel,
3. Champ de Mars-Tour Eiffel is only a short walk to the "Ile aux Cygnes".

Second way

1. Take line 8, from République station, to La Motte-Picquet-Grenelle station, where you change to line 6,
2. Take line 6 from La Motte-Picquet-Grenelle station, to Bir-Hakeim station,
3. Bir-Hakeim station is only a short walk to the "Ile aux Cygnes".



FM 2012 Week Schedule

Formal Methods 2012 Symposium

Chairs: Dimitra Giannakopoulou and Dominique Mery

Wednesday, August 29th

08:30 - Opening session

09:00 - Invited talk by *Martin Abadi* - Software Security: A Formal Perspective

10:00 - Coffee break

10:30 - Verification

Matthieu Carlier, Catherine Dubois and Arnaud Gotlieb - A certified constraint solver over finite domains

Hossein Hojjat, Filip Konecny, Florent Garnier, Radu Iosif, Viktor Kuncak and Philipp Ruemmer - A Verification Toolkit for Numerical Transition Systems (tool paper)

Sam Owre, Indranil Saha and Natarajan Shankar - Automatic Dimensional Analysis of Cyber-Physical Systems

Mathieu Giorgino and Martin Strecker - Correctness of pointer manipulating algorithms illustrated by a verified BDD construction

Maurice H. Ter Beek, Franco Mazzanti and Aldi Sulova - VMC: A Tool for Product Variability Analysis (tool paper)

12:30 - Lunch

14:00 - Learning and control

Fides Aarts, Faranak Heidarian, Harco Kuppens, Petur Olsen - Automata Learning Through Counterexample-Guided Abstraction Refinement

Shang-Wei Lin, Yang Liu, Jun Sun, Jin Song Dong and Étienne André - Automatic Compositional Verification of Timed Systems (tool paper)

Ammar Osaiweran, Tom Fransen, Jan Friso Groote and Bart van Rijnsoever - Experience Report on Designing and Developing Control Components using Formal Methods

Étienne André, Laurent Fribourg, Ulrich Kühne and Romain Soulat - IMITATOR 2.5: A Tool for Analyzing Robustness in Scheduling Problems (tool paper)

Nicolas D'Ippolito, Victor Braberman, Nir Piterman and Sebastian Uchitel - The Modal Transition System Control Problem

16:00 - Coffee break

16:30 - Analysis and Debugging

Andreas Bauer and Ylies Falcone - Decentralised LTL monitoring without central observer

Evren Ermis, Martin Schäf and Thomas Wies - Error Invariants

Virginia Aponte, Pierre Courtieu, Yannick Moy and Marc Sango - Maximal and Compositional Pattern-Based Loop Invariants

Howard Barringer, Yliès Falcone, Klaus Havelund, Giles Reger and David Rydeheard - Quantified Event Automata: Towards Expressive and Efficient Runtime Monitors

19:00 - Welcome Reception - Chapel Saint-Martin-des-Champs of "Arts et Métiers" Museum

Thursday, August 30th

09:00 - Invited talk by *Asaf Degani* - Formal Methods in the Wild: Trains, Planes, & Automobiles

10:00 - Coffee break

10:30 - Modeling and Model Checking

James Heather and Steve Schneider - A Formal Framework for Modelling Coercion Resistance and Receipt Freeness

Yael Meller, Orna Grumberg and Karen Yorav - Applying Software Model Checking Techniques for Behavioral UML Models

Fu Song and Tayssir Touili - Efficient Malware Detection Using Model-Checking

Truong Khanh Nguyen, Jun Sun, Yang Liu, Jin Song Dong and Yan Liu - Improved BDD-based Discrete Analysis of Timed Systems

12:30 - Lunch

14:00 - Proofs and Synthesis

Grigore Rosu and Andrei Stefanescu - From Hoare Logic to Matching Logic

María Alpuente, Demis Ballis, Francisco Frechina and Daniel Romero - Julienne: a Trace Slicer for Conditional Rewrite Theories

Srinivas Nedunuri, William R Cook and Douglas Smith - Theory and Techniques for Synthesizing Efficient Breadth-First Search Algorithms

Denis Cousineau, Damien Doligez, Leslie Lamport, Stephan Merz, Daniel Ricketts and Hernán Vanzetto - TLA+ Proofs (tool paper)

Daniel Plagge and Michael Leuschel - Validating B, Z and TLA+ using ProB and Kodkod

16:00 - Coffee break

16:30 - Distribution and Refinement

Mikael Asplund, Atif Manzoor, Melanie Bouroche, Siobhan Clarke and Vinny Cahill - A Formal Approach to Autonomous Vehicle Coordination

German Sibay, Sebastian Uchitel, Victor Braberman and Jeff Kramer - Distribution of Modal Transition Systems

Mirko Spasic and Filip Maric - Formalization of Incremental Simplex Algorithm by Stepwise Refinement

Julien Dormoy, Olga Kouchnarenko and Arnaud Lanoix - When Structural Refinement of Components Keeps Temporal Properties over Reconfigurations

21:00 - Conference Dinner

Friday, August 31st

09:00 - Invited talk by *Alan Wassylng* - Who Are We, and What Are We Doing Here?

10:00 - Coffee break

10:30 - Testing

Maria Christakis, Peter Müller and Valentin Wüstholtz - Collaborative Verification and Testing with Explicit Assumptions

Yasuhiko Minamide and Shunsuke Mori - Reachability Analysis of the HTML5 Parser Specification and its Application to Compatibility Testing

Guowei Yang, Sarfraz Khurshid and Miryung Kim - Specification-based Test Repair Using a Lightweight Formal Method

Rob Hierons, Mercedes Merayo and Manuel Nuñez - Using Time to Add Order to Distributed Testing

12:30 - Lunch

14:00 - Applications

Hengjun Zhao, Naijun Zhan, Deepak Kapur and Kim G. Larsen - A "Hybrid" Approach for Synthesizing Optimal Controllers of Hybrid Systems: A Case Study of the Oil Pump Industrial Example

David Lazar, Andrei Arusoai, Traian Serbanuta, Chucky Ellison, Radu Mereuta, Dorel Lucanu and Grigore Rosu - Executing Formal Semantics with the K Tool (tool paper)

Soufiene Benkirane, Rachel Norman, Erin Scott and Carron Shankland - Measles Epidemics and PEPA: an exploration of historic disease dynamics using process algebra

Taylor T Johnson, Jeremy Green, Sayan Mitra, Rachel Dudley and Richard Scott Erwin - Satellite Rendezvous and Conjunction Avoidance: Case Studies in Verification of Nonlinear Hybrid Systems

16:00 - Coffee break

16:30 - Closing session

Industry Day

Chairs: Isabelle Perseil, Karim Djouani, Thierry Lecomte and Bruno Monsuez

Thursday, August 30th

08:30 - Opening session

09:00 - Invited talk by *Asaf Degani*, Formal Methods in the Wild: Trains, Planes, & Automobiles

10:00 - Coffee break

10:30 - Session 1

Jean-Raymond Abrial, Marseille, France, Formalizing hybrid systems with Event-B
Michael Leuschel, Formal Mind, Germany, ProB, ProR and Data Validation with B

12:30 - Lunch

14:00 - Session 2

Yannick Moy, AdaCore, France, The future of formal software verification in avionics
Viet Yen Nguyen, RWTH Aachen University/ESA, the Netherlands, Formal Modelling & Analysis of an European Satellite
Marcel Verhoef, Chess, the Netherlands, Embedding Formal Techniques into Industrial Product Development – Experiences with the DESTTECS Approach

15:30 - Coffee break

16:00 - Session 3

Alessandro Fantechi, Università di Firenze, Italy, Trends in formal verification in the railway signalling domain
Weiqliang Kong, Kyushu University, Japan, Garakabu2: formal verification for ZIPC
Marc Antoni, SNCF, France, Practical formal validation method for interlocking systems

17:00 - Closing session

21:00 - Conference Dinner

Workshops

FMICS 2012

Chairs: Ralf Pinger and Marielle Stoelinga

Monday, August 27th

08:30 - Opening session

09:00 - Invited talk by *Dimitria Giannakopoulou, NASA Ames, USA*

10:30 - Coffee break

11:00 - Real time 1

Vlad Popa and Wolfgang Schwitzer, Optimizing the Robustness of Software against Communication Latencies in Distributed Reactive Embedded Systems

Christel Baier, Marcus Daum, Benjamin Engel, Hermann Härtig, Joachim Klein, Sascha Klüppelholz, Steffen Märcker, Hendrik Tews and Marcus Völz, Waiting for locks: How long does it usually take?

Victor Bandur, Wolfram Kahl and Alan Wasssyng, Microcontroller Assembly Synthesis from Timed Automaton Task Specifications

12:30 - Lunch

14:00 - Tools

Jiri Slaby, Jan Strejcek and Marek Trtík, Checking Properties Described by State Machines: On Synergy of Instrumentation, Slicing, and Symbolic Execution

Konrad Siek and Paweł T. Wojciechowski, A Formal Design of a Tool for Static Analysis of Upper Bounds on Object Calls in Java

Jiri Barnat, Lubos Brim, Petr Rockai, Jan Beran and Tomas Kratochvila, Partial Tool Chain to support Automated Formal Verification of Avionics Simulink Designs

15:30 - Coffee break

16:00 - Case studies

Sjoerd Cranen, Model checking the FlexRay startup phase

Rainer Droste, Christoph Läsche, Cilli Sobiech, Eckard Böde and Axel Hahn, Model-based Risk Assessment Supporting Development of HSE Plans for Safe Offshore Operations

Tuesday, August 28th

09:00 - Invited talk by *Hubert Garavel, INRIA Grenoble Rhone-Alpes, France*

10:30 - Coffee break

11:00 - Software verification

Elvira Albert, Bjarte M. Østvold and José Miguel Rojas, Automated Extraction of Abstract Behavioural Models from JMS Applications

Edd Barrett and Andy King, Range Analysis of Binaries with Minimal Effort

Nicolas Ayache, Roberto Amadio and Yann Regis-Gianas, Certifying and reasoning on cost annotations in C programs

12:30 - Lunch

14:00 - **Software Verification / Real-time 2**

Loïc Correnson and Julien Signoles, Combining Analyses for C Program Verification

Nouha Abid, Silvano Dal Zilio and Didier Le Botlan, Real-Time Specification Patterns and Tools

Luca Ferrucci, Matteo Rossi, Dino Mandrioli and Angelo Morzenti, Modular Automated Verification of Flexible Manufacturing Systems with Metric Temporal Logic and Non-standard analysis

15:30 - Coffee break

16:00 - Closing session / ERCIM meeting

INFINITY 2012

Chairs: Mohamed Faouzi Atig and Ahmed Rezine

Monday, August 27th

08:30 - **Opening session**

09:00 - **Invited talk** by *Arnaud Gotlieb*

10:00 - *Lukasz Fronc, Effective Marking Equivalence Checking in Systems with Dynamic Process Creation*

10:30 - Coffee break

11:00 - **Invited talk** by *Ganesh Gopalakrishnan, Formal Correctness Methods at the Million CPU Scale*

12:00 - *Aurel Randolph, Hanifa Boucheneb, Abdessamad Imine and Alejandro Quintero, On Consistency of Operational Transformation Approach*

12:30 - Lunch

14:00 - **Invited talk** by *Parosh Aziz Abdulla*

15:00 - *Gilles Geeraerts, Alexander Heußner and Jean-Francois Raskin, Queue-Dispatch Asynchronous Systems*

15:30 - Coffee break

16:00 - **Invited talk** by *Peter Habermehl*

17:00 - *Anjelika Votintseva, Andreas Ulrich and Stefanie Goetzfried, Overcoming Overall Analysis Complexity via Integrations*

17:30 - Closing session

Overture / VDM 2012

Chairs: Nico Plat, Claus Ballegard Nielsen and Steve Riddle

Tuesday, August 28th

08:30 - Opening session

09:00 - Session 1

Carl Gamble, Martin Mansfield, and John Fitzgerald, The Co-Simulation of a Cardiac Pacemaker using VDM and 20-sim

José Antonio Esparza Isasa, Peter Gorm Larsen and Kim Bjerge, Supporting the Partitioning Process in Hardware/Software Co-design with VDM-RT

Joey Coleman, Anders Kaels Malmos, Claus Ballegaard Nielsen and Peter Gorm Larsen, Evolution of the Overture Tool Platform

10:30 - Coffee break

11:00 - Session 2

Rasmus W. Lauritsen and Lasse Lorenzen, Towards an extensible core model for Digital Rights Management in VDM

Joey Coleman, Kenneth Lausdahl and Peter Gorm Larsen, Towards a Co-simulation Semantics of VDM-RT/Overture and 20-sim

Shigeru Kusakabe, Yoich Omori and Keijiro Araki, Initial Report of the Impact of Using Overture/VDM in a Development Process in an Architecture-Oriented Approach

12:30 - Lunch

14:00 - Session 3

Kenneth Lausdahl, The ASTGen tool, the common AST and working with the visitors

Nick Battle and Kenneth Lausdahl, The inner workings of the VDMJ core

Joey Coleman, The build process, using Git and the dependencies

15:30 - Coffee break

16:00 - Session 4

Hands-on experience with the Overture platform

QFM 2012

Chairs: Uli Fahrenberg, Axel Legay and Claus Thrane

Tuesday, August 28th

08:30 - Opening session

09:00 - Invited talk by *Parosh Abdulla*

10:00 - Session 1

J.Hölzl, T.Nipkow, Interactive verification of Markov chains: Two distributed protocol case studies

10:30 - Coffee break

11:00 - Invited talk by *Boudewijn Haverkort*

12:00 - Session 2

K.G.Larsen, R.Mardare, C.Thrane, Parameterized Metatheory for Continuous Markovian Logic

12:30 - Lunch

14:00 - **Invited talk** by *Goran Frehse*

15:00 - **Session 3**

H.Mao, Y.Chen, M.Jäger, T.D.Nielsen, K.G.Larsen, B.Nielsen, Learning Markov Decision Processes for Model Checking

15:30 - Coffee break

16:00 - **Invited talk** by *Olivier Serre*

17:00 - **Session 4**

I.Gazeau, D.Miller, C.Palamidessi, Non-local robustness analysis via rewriting techniques

TLA+ 2012

Chairs: Leslie Lamport and Stephan Merz

Monday, August 27th

08:30 - **Opening session**

09:00 - **TLA+ Tools**

Dominik Hansen, Michael Leuschel, TLA2B – A New Validation Tool for TLA+

Markus A. Kuppe, Current State of Distributed TLC

Stephan Merz, Hernán Vanzetto, Harnessing SMT Solvers for TLA+ Proofs

10:30 - Coffee break

11:00 - **Experience Using TLA+**

Chris Newcombe, Experience of Software Engineers Using TLA+, PlusCal and TLC

Tianxiang Lu, Stephan Merz, Christoph Weidenbach, Formal Verification of Pastry Using TLA+.

Thomas L. Rodeheffer, Ramakrishna Kotla, Inserting Intentional Bugs for Model Checking Assurance

12:30 - Lunch

14:00 - **Theory and Teaching**

Paul-David Brodmann, Hannes Lau, Uwe Nestmann, Automated Generation of Refinement Mappings

Philippe Mauran, Philippe Quéinnec, Xavier Thirioux, Teaching Transition Systems and Formal Specifications with TLA+

Paul Tavalato, Friedrich Vogt, Integrating Formal Methods into Computer Science Curricula at a University of Applied Sciences

15:30 - Coffee break

16:00 - Discussion: Current and Future State of TLA+

UML&FM 2012

Chair: Isabelle Perseil

Monday, August 27th

08:30 - Opening session

09:00 - UML diagrams formalization

Luciano Baresi, Angelo Morzenti, Alfredo Motta and Matteo Rossi, "A Logic-based Semantics for the Verification of Multi-diagram UML Models"

Kenro Yatake and Toshiaki Aoki, "SMT-based Enumeration of Object Graphs from UML class diagrams"

Étienne André, Christine Choppy and Kais Klai, "Formalizing Non-Concurrent UML State Machines Using Colored Petri Nets"

10:30 - Coffee break

11:00 - Dynamic and real-time modeling

Jan Olaf Blech and Bernhard Schätz, Towards a Formal Foundation of Behavioral Types for UML State-Machines

Yoriyuki Yamagata, Weiqiang Kong, Akira Fukuda, Van Tang Nguyen, Hitoshi Ohsaki and Kenji Taguchi, Formal Semantics of Extended Hierarchical State Transition Matrix by CSP

Ning Ge, Marc Pantel and Xavier Crégut, Time Properties Dedicated Transformation from UML-MARTE Activity to Time Transition System

12:30 - Lunch

14:00 - Transformations

Li Dan, Xiaoshan Li and Volker Stolz, Model Querying with Graphical Notation of QVT Relations

Juliana Küster Filipe Bowles and Dulani Meedeniya, Strongly Consistent Transformation of Partial Scenarios

Petra Brosch, Sebastian Gabmeyer, Martina Seidl and Gerti Kappel, On Formalizing EMF Modeling Operations with Graph Transformations

15:30 - Coffee break

16:00 - Patterns and blocks

Jérémy Milhau, Frederic Gervais, Regine Laleau and Marc Frappier, Refinement Patterns for ASTD

Oscar Carrillo, Samir Chouali and Hassan Mountassir, Formalizing and Verifying Compatibility and Consistency of SysML Blocks

17:00 - Conclusions / Preparation of UML&FM 2013

VECoS 2012

Chairs: Nejib Ben Hadj Alouane and Patrice Moreaux

Monday, August 27th

08:30 - Opening session

09:00 - Invited talk by *Francesco Flammini*, Model-Based Approaches for Railway Safety, Reliability and Security

10:30 - Coffee break

11:00 - Real time

Annie Choquet-Geniet and Gaëlle Largeteau-Skapin, Resource minimization for multiprocessor real-time applications

Nouha Abid, Silvano Dal Zilio and Didier Le Botlan, A Verified Approach for Checking Real-Time Specification Patterns

Frédéric Boniol, Claire Pagetti and Jérôme Brome Ermont, End-to-end latency analysis in networked realtime systems

12:30 - Lunch

14:00 - Invited talk by *Catuscia Palamidessi*, Quantitative aspects of Secrecy and Privacy

15:30 - Coffee break

16:00 - Networking

Tung Vu, Laurent Decreusefond and Philippe Martins, An analytical model for evaluating outage and handover probability of cellular wireless networks

Rémi Diana and Emmanuel Lochin, Analytical Model of TCP Relentless Congestion Control

Malika Bourenane and Larbi Sekhri, Service Differentiation Using Reinforcement Learning In Wireless Networks

Tuesday, August 28th

09:00 - Invited talk by *Giuliana Franceschinis*, Formalisms and tools for performability optimization

10:30 - Coffee break

11:00 - Dependability

Géraldine Vache, Vincent Nicomettte and Kaâniche Mohamed, A Model-based security assessment approach: Vulnerability life-cycle, attacker behavior and administrator profile

Escheikh Mohamed and Kamel Barkaoui, Survivability Analysis of VMIMO link in Multi-hop Wireless Network

Martin Riedl and Markus Siegle, A Language for Reconfigurable dependable Systems: Semantics & Dependability Model Transformation

12:30 - Lunch

14:00 - Verification and Control

Romain Richard, Karen Godary-Dejean, Gregory Angles and David Andreu, LPT - A Tool for Parametric TPN Validation

Hélène Leroux and Jean-Marc Roussel, Algebraic synthesis of logical controllers with optimization criteria

15:30 - Coffee break

16:00 - Conclusions / Preparation of VECoS 2013

WS-FMDS 2012

Chairs: César Andrés and Luis Llana

Monday, August 27th

08:30 - Opening session

09:00 - Invited talk by *Ana Cavalli*. From active to passive testing

10:30 - Coffee break

11:00 - Session 1

Andreas Bollin and Abdollah Tabareh, Predictive Software Measures based on Z Specifications - A Case Study.

Simona Nica and Franz Wotawa, Using Constraints for Equivalent Mutant Detection.

Jasen Markovski, Scalable Minimization Algorithm for Partial Bisimulation

12:30 - Lunch

14:00 - Session 2

Maria Spichkova, Florian Hölzl and David Trachtenherz, Verified System Development with the AutoFocus Tool Chain.

Raúl Pardo and Fernando L. Pelayo, ROSA Analyser: An automatized approach to analyse processes of ROSA.

15:30 - Coffee break

16:00 - Closing session

Co-located events

FHIES 2012

Chairs: Zhiming Liu, Isabelle Perseil, Alan Wassying and Jens Weber

Monday, August 27th

08:30 - Opening session

09:00 - Invited talk by *Jacques Grassi*

10:00 - *Neeraj Singh and Dominique Mery*, Closed-loop modeling of Cardiac Pacemaker and Heart

10:30 - Coffee break

11:00 - Session 1

Sara Bessling and Michaela Huhn, Enhancing Product Line Development by Safety Requirements and Verification

Nafees Qamar, Johannes Faber, Yves Ledru and Zhiming Liu, Automated Reviewing of Healthcare Security Policies

12:30 - Lunch

14:00 - Session 2

Anders S. Henriksen, Lasse Nielsen, Thomas Hildebrandt, Nobuko Yoshida and Fritz Henglein, Trustworthy Pervasive Healthcare Services via Multi-party Session Types

Cristiano Bertolini, Jiri Srba and Zhiming Liu, Verification of Timed Healthcare Workflows Using Component Timed-Arc Petri Nets

Rokan Uddin Faruqui and Wendy MacCaull, OwlOntDB: A Scalable Reasoning System for OWL 2 RL Ontologies

15:30 - Coffee break

16:00 - Session 3

Felipe Maia, Rafael Araujo, Luiz Carlos Muniz, Rayrone Zirtany, Luciano Coutinho, Samyr Vale, Francisco José Silva, Cincilla Pierpaolo, Ikram Chabbouh, Sébastien Monnet, Luciana Arantes and Marc Shapiro, A Grid Based Distributed Cooperative Environment for Health Care Research

16:20 - Panel discussion

19:00 – Social Event

Tuesday, August 28th

09:00 - Invited talk by *Gerry Douglas*

10:00 - Session 4

Ryan Crichton, Deshendran Moodley, Anban Pillay and Christopher Seebregts, An Interoperability Architecture for the Health Information Exchange in Rwanda

10:30 - Coffee break

11:00 - Panel Discussion on Global Health Care Challenges and the Impact of ICT

12:00 - Lunch

14:00 - Session 5

Oisín Cawley, Xiaofeng Wang and Ita Richardson, Regulated Software Development - an Onerous Transformation

Amel Ben Dhieb, Awatef Hicheur and Kamel Barkaoui, Modeling and Analysis of Flexible Healthcare Processes: “Breast Cancer Treatment Case Study

Adrian Rutle, Hao Wang and Wendy Maccaull, A Formal Diagrammatic Approach to Compensable Workflow Modelling

15:30 - Coffee break

16:00 - Session 6

Pieter Van Gorp, Irene Vanderfeesten, Willem Dalinghaus, Josh Mengerink, Bram van der Sanden and Pieter Kubben, MDE Support for Process-Oriented Health Information Systems: from Theory to Practice

Elthon Oliveira, Leandro Silva, Hyggo Almeida and Angelo Perkusich, An Approach For Controlling Human Physiology Based On The Supervisory Control Theory

Alessandro Carlini, Giuseppina Gini, Pierluigi Dalla Rosa, Bartolomeo Montrucchio, Ivan Cenci, Francesca Maria Claudio, Giovanni Luongo and Jacopo Spigaroli, Defining new structural and mobile support to improve hospital facilities access and usability

17:00 - Wrap up

UTP 2012

Chairs: Marie-Claude Gaudel and Burkhart Wolff

Monday, August 27th

09:30 - Registration

10:30 - Welcome coffee

11:00 - Invited talk by *Jim Woodcock*, A unifying theory of undefinedness

12:30 - Lunch

14:00 - Session 1

Steve Dunne, Conscriptions: a new relational model for sequential computations

Kun Wei, Jim Woodcock and Ana Cavalcanti, Circus Time with Reactive Designs

15:30 - Coffee break

16:00 - Session 2

Andrew Butterfield, The Logic of UTP2

Chengcheng Wu, Yongxin Zhao and Huibiao Zhu, Unifying Operational Semantics with Algebraic Semantics for Instantaneous Reactions

19:30 - UTP Symposium Dinner at Ambassade d’Auvergne, 22 Rue du Grenier Saint-Lazare, 75003 Paris

Tuesday, August 28th

09:00 - Session 3

Huibiao Zhu, Peng Liu, Jifeng He and Shengchao Qin, Mechanical Approach to Linking Operational Semantics and Algebraic Semantics for Verilog

Stephan Van Staden and Tony Hoare, Algebra Unifies Operational Calculi

10:30 - Coffee break

11:00 - **Invited talk** by *Jeremy Gibbons*, Unifying Theories of Programming with Monads

12:30 - Lunch

14:00 - Session 4

Frank Zeyda and Ana Cavalcanti, Higher-Order UTP in Theories of Object-Oriented

Riccardo Bresciani and Andrew Butterfield, A probabilistic theory of designs based on distributions

15:30 - Coffee break

16:00 - **Invited Lecture** by *Huibiao Zhu, Jeff W. Sanders, Jifeng He and Shengchao Qin*, Denotational Semantics for a Probability Timed Shared-Variable Language

17:00 - Discussion on the next symposium

Tutorials

Chairs: Serge Haddad and Fabrice Kordon

Monday, August 27th

Tutorial 1: Software Verification with VCC

Lecturer: *Ernie Cohen*, Microsoft Research, USA

Timeslots: 09:00 – 10:30, 11:00-12:30, 14:00-15:30 and 16:00-17:30

Tuesday, August 28th

Tutorial 2: Towards a Theory of Domain Descriptions

Lecturer: *Dines Bjorner*, DTU Informatics, Technical University of Denmark

Timeslots: 09:00 – 10:30, 11:00-12:30, 14:00-15:30 and 16:00-17:30

Tutorial 3: CADP: A Toolbox for the Construction and Analysis of Distributed Processes

Lecturer: *Radu Mateescu*, Inria Grenoble, France

Timeslots: 09:00 – 10:30 and 11:00-12:30

Tutorial 4: Symbolic Analysis of GPU Programs for Correctness and Performance

Lecturer: *Ganesh Gopalakrishnan*, University of Utah, USA

Timeslots: 14:00-15:30 and 16:00-17:30

Tea/coffee will be served at 10:30 and 15:30 in the Galerie d'honneur.

Lunch will be served between 12:00 – 14:00 in the Cnam restaurant.

Doctoral Symposium

Chairs: Christine Choppy, David Delayahe and Kais Klai

Monday, August 27th

08:30 - Opening session

09:00 - **Invited talk** by *Francesco Flammini*, Model-Based Approaches for Railway Safety, Reliability and Security

10:30 - Coffee break

11:00 - Session 1

Andrius Velykis, Inferring the Proof Process

Marion Guthmuller, State equality detection for implementation-level model-checking of distributed applications

Manel Tekaya, Mohamed Taha Bennani and Refka Fouzai, Fomal syntactic and semantic models verification in the aspect oriented design

12:30 - Lunch

14:00 - Session 2

Miloud Bennama and Thouraya Bouabana Tebibel, An analysis system for UML2 Interaction Overview Diagrams

Patrice Carle, Christine Choppy, Romain Kervarc and Ariane Piel, Handling Breakdowns in Unmanned Aircraft Systems

Nouha Abid and Silvano Dal Zilio, A Verified Approach to Checking Real-Time Patterns on Fiacre Programs

15:30 - Coffee break

16:00 - Closing session

Verification Competition

Chairs: Marieke Huisman, Vladimir Klebanov and Rosemary Monahan

Thursday 30th and Friday 30st August

VerifyThis Verification Competition, as event attached to the FM 2012 symposium, aims to evaluate the usability of (mostly deductive) verification tools in a controlled experiment that could be easily repeated by others. The competition will offer a number of challenges presented in natural language. Participants have to formalize the requirements, implement a solution, and formally verify the implementation for adherence to the specification. Solutions will be judged for correctness, completeness and elegance.

The Verification Competition presentation is scheduled for 11:30 – 11:45 on Thursday August 30th (Access 30 – level 1 – room 03).

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Bart Jacobs, The Netherlands	Michael Whalen, USA

Other informations

CONFERENCE AT A GLANCE

Monday August 27th	Tuesday August 28th	Wednesday August 29th	Thursday August 30th	Friday August 31st	
Registration Desk at Salon d'honneur Access 37-Level 1 : 08:00 – 17:00					
INFINITY	WS-FMDS	18th International Symposium on Formal Methods FM 2012 Amphi Georges Friedmann access 33-level 2 : 8:30-18:30			
TLA+	QFM				
UML-FM	VDM				
Doctoral Symposium	Tutorial 2	Industry Day Amphi Gaston Planté access 35 -level 1 8:30-18:00	Verification Competition access 30-level -1 – Room 03 8:30-16:00		
Tutorial 1	Tutorial 3 (9:00-12:00) Tutorial 4 (14:00-17:30)				
FHIES					
FMICS					
UTP					
VECoS					
Coffee break 10:30 and 15:30	Coffee break 10:00 and 16:00				
Tea/coffee will be served in the Galerie d'honneur access 37- level 1 Lunch will be served at 12.00 - 14.00 in the Cnam restaurant					
Rooms Access 30-Level -1 Access 31-Level 2 08:30-18:00		Welcome Reception 19:00 Cnam Museum	Conference Dinner 21:00 Bateau mouche	End of FM 2012 Week 18:00	

FM 2012 Symposium locations (Amphis)



Symposium Location (Access)



Restaurants near Cnam

Ambassade d'Auvergne	22 rue du Grenier Saint-Lazare	01 42 72 31 22
L'ami Louis	32 rue Vertbois	01 48 87 77 48
Le Bouledogue	20 rue Rambuteau	01 40 27 90 90
Terrasse des Archives	51 rue des Archives	01 42 72 17 57
Au Bascou	38 rue Réaumur	01 42 72 69 25
Hall 1900	113 bd Baumarchais	01 48 87 58 67
Le Taxi Jaune	13 rue Chapan	01 42 76 00 40
Le Soleil en Cave	21 rue Rambuteau	01 42 72 26 25
Station Rambuteau	20 rue Beaubourg	01 42 72 80 85
Le Potager du Marais	22 rue Rambuteau	01 42 74 24 66
Les Arts et Métier	51 rue de Turbigo	01 48 87 83 25
L'Absinthe Café	54 rue de Turbigo	01 48 87 79 30
Café Léonard	57 rue de Turbigo	01 48 04 07 55
Café de la Bourse	60 rue de Turbigo	01 42 78 45 22
Le Temple	87 rue de Turbigo	01 42 72 30 76
Auberge Nicolas Flamel	51 rue de Montmorency	01 42 71 77 78
Jean Bernard Aoc	157 rue Saint Martin	01 42 74 49 45
Au vieux Molière	12 passage Molière	01 42 78 37 87
Café de la Fusée	168 rue Saint-Martin	01 42 76 93 99
Pinard	13 rue du Vertbois	01 42 77 14 85
Duc De Montmorency	46 rue de Montmorency	01 42 72 18 10
Piaf Café	74 rue des Archives	01 42 78 00 87
Le Connectable	55 rue des Archives	01 42 72 17 57

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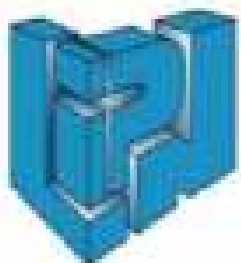
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