



NFM 2010

Second NASA Formal Methods Symposium Washington, D.C., USA • April 13 - 15, 2010

DAY 1: April 13, 2010 (Tuesday)

8:00 - 8:45	Registration
8:45 - 9:00	Opening * John Kelly (NASA)
9:00 - 10:00	Invited Talk (Chair: Mike Hinchey) * Guillaume Brat (NASA). <i>Verification and Validation of Flight-Critical Systems</i>
10:00 - 10:30	<i>Break</i>
10:30 - 12:00	Model Checking Techniques and Applications (Chair: Kristin Rozier) * Sagar Chaki and Arie Gurfinkel. <i>Automated Assume-Guarantee Reasoning for Omega-Regular Systems and Specifications</i> * Sarah Thompson, Guillaume Brat and Arnaud Venet. <i>Software Model Checking of ARINC-653 Flight Code with MCP</i> * Xiaowan Huang, Anu Singh and Scott A. Smolka. <i>Using Integer Clocks to Verify the Timing-Sync Sensor Network Protocol</i>
12:00 - 2:00	<i>Lunch</i>
2:00 - 3:30	Models and Specifications (Chair: Radu Siminiceanu) * Paolo Arcaini, Angelo Gargantini and Elvinia Riccobene. <i>Automatic Review of Abstract State Machines by Meta Property Verification</i> * Andreas Bollin. <i>Slice-based Formal Specification Measures - Mapping Coupling and Cohesion Measures to Formal Z</i> * Xiang Fu and Chung-Chih Li. <i>Modeling Regular Replacement for String Constraint Solving</i>
3:30 - 4:00	<i>Break</i>
4:00 - 5:30	Requirements and Safety (Chair: Jeffrey Maddalon) * Eduardo Rafael López Ruiz and Michel Lemoine. <i>Can Regulatory Bodies Expect Efficient Help from Formal Methods?</i> * Petra Price and Greg Turgeon. <i>Phase Two Feasibility Study for Software Safety Requirements Analysis Using Model Checking</i> * Sanaz Yeganehfar, Michael Butler and Abdolbaghi Rezaadeh. <i>Evaluation of a Guideline by Formal Modelling of Cruise Control System in Event-B</i>

DAY 2: April 14, 2010 (Wednesday)

8:30 - 9:00	Registration
9:00 - 10:00	Invited Talk (Chair: Ricky Butler) * John Harrison (Intel). <i>Formal Methods at Intel - An Overview</i>
10:00 - 10:30	<i>Break</i>
10:30 - 12:00	Applied Theorem Proving (Chair: Natarajan Shankar) * Ricky Butler, George Hagen, Jeffrey Maddalon, César Muñoz, Anthony Narkawicz and Gilles Dowek. <i>How Formal Methods Impels Discovery: A Short History of an Air Traffic Management Project</i> * Concetta Pilotto and Jerome White. <i>Verification of Faulty Message Passing Systems with Continuous State Space in PVS</i> * Dominic Richards and David Lester. <i>A Prototype Embedding of Bluespec SystemVerilog in the PVS Theorem Prover</i>
12:00 - 2:00	<i>Lunch</i>
2:00 - 3:30	Issues in Software Verification (Chair: Paul Miner) * Pritam Roy and Natarajan Shankar. <i>SimCheck: An Expressive Type System for Simulink</i> * Sylvie Boldo and Thi Minh Tuyen Nguyen. <i>Hardware-independent Proofs of Numerical Programs</i> * Xiang Yin and John Knight. <i>Formal Verification of Large Software Systems</i>
3:30 - 4:00	<i>Break</i>
4:00 - 5:30	Symbolic Algorithms (Chair: Ben Di Vito) * Nestor Catano and Radu Siminiceanu. <i>A Machine-Checked Proof of A State-Space Construction Algorithm</i> * Srinivas Nedunuri, Douglas R. Smith and William R. Cook. <i>Synthesis of Greedy Algorithms Using Dominance Relations</i> * Yang Zhao and Gianfranco Ciardo. <i>Symbolic Computation of Strongly Connected Components Using Saturation</i>
7:30	Dinner (Fadó Irish Pub & Restaurant, 808 7th Street NW Washington, DC)

DAY 3: April 15, 2010 (Thursday)

9:00 - 10:00	Invited Talk (Chair: César Muñoz) * Nikolaj Bjørner (Microsoft). <i>Decision Engines for Software Analysis using Satisfiability Modulo Theories Solvers</i>
10:00 - 10:30	<i>Break</i>
10:30 - 11:30	Short Papers (Chair: Caroline Wang) * Erik Endres, Christian Müller, Andrey Shadrin and Sergey Tverdyshev. <i>Towards the Formal Verification of a Distributed Real-Time Automotive System</i> * Viet Yen Nguyen, Thomas Noll and Max Odenbrett. <i>Slicing AADL Specifications for Model Checking</i> * Pierre Roux and Radu Siminiceanu. <i>Model Checking with Edge-valued Decision Diagrams</i> * Christian Saad and Bernhard Bauer. <i>Data-flow Based Model Analysis</i>
11:30 - 12:30	Testing Techniques (Chair: Suzette Person) * Lehiton L. C. Pedrosa and Arnaldo V. Moura. <i>A New Method for Incremental Testing of Finite State Machines</i> * Matt Staats, Michael Whalen, Ajitha Rajan and Mats Heimdahl. <i>Coverage Metrics for Requirements-Based Testing: Evaluation of Effectiveness</i>
12:30	<i>Closing</i>