

FMICS 2024 Programme

Monday 9 September

09:00 – 10:20 Plenary keynote (invited by FACS)

- Ana Cavalcanti: *Comparing Reactive Models and Cyclic Components of Robotic Systems: The RoboStar Approach to Model-Based Testing*

10:20 – 10:50 Coffee Break

10:50 – 12:30 FMICS Welcome & Real-Time Systems / Robotics

Chair: Alessandro Cimatti

- *FMICS Welcome* by Anne Haxthausen and Wendelin Serwe
- Jan Steffen Becker:
Safe Linear Encoding of Vehicle Dynamics for the Instantiation of Abstract Scenarios
- Valentina Castiglioni, Ruggero Lanotte, Michele Loreti and Simone Tini:
Evaluating the Effectiveness of Digital Twins through Statistical Model Checking with Feedbacks and Perturbations
- Lukas Dust, Rong Gu, Cristina Seceleanu, Mikael Ekström and Saad Mubeen:
UPPAAL-based Modeling and Verification of ROS 2 Multi-Threaded Execution and Operating System Reservations

12:30 – 14:00 Lunch

14:00 – 15:20 Plenary keynote (invited by TAP)

- Rosemary Monahan: *Formalising Requirements for Systems Verification*

15:20 – 15:50 Coffee Break

15:50 – 17:20 Semantics and Verification

 Chair: Laura Titolo

- Jordi E. P. M. van Laarhoven, Olav Bunte, Louis C. M. van Gool, and Tim A. C. Willemse:
Formalising the Industrial Language SMMT in mCRL2
- Lisandro Arturo Jimenez-Roa, Nicolae Rusnac and Matthias Volk, and Marielle Stoelinga:
Fault Tree inference using Multi-Objective Evolutionary Algorithms and Confusion Matrix-based metrics
- Robby and John Hatcliff and Jason Belt:
Logika: The Sireum Verification Framework

Tuesday 10 September

09:00 – 10:20 Plenary keynote (invited by LOPSTR/PPDP)

- Ningning Xie: *Safe and Easy Compile-Time Generative Programming*

10:20 – 10:50 Coffee Break

10:50 – 12:20 Case Studies 1 Chair: Thierry Lecomte

- Eduard Baranov, Axel Legay and Martin Vivian:
Fuzzing an Industrial Proprietary Protocol
- Lise Bech Gehlert, Malthe Peter Højen Jørgensen, Christoffer Brejnholm Koch and Tobias Møller, Signe Kirstine Rusbjerg, Tobias Worm Bøgedal, Danny Bøgsted Poulsen, René Rydhof Hansen and Daniel Lu:
Model Checking DTLs Power Consumption under Active Attack
- Lars B. van den Haak, Anton Wijs, Marieke Huisman and Mark van den Brand:
Verifying a Radio Telescope Pipeline using HaliVer: Solving Nonlinear and Quantifier Challenges

12:30 – 14:00 Lunch

14:00 – 15:20 Plenary keynote (invited by FMICS)

- Thierry Lecomte:
B+ or How to Model System Properties in a Formal Software Model

15:20 – 15:50 Coffee Break

15:50 – 16:50 Case Studies 2 Chair: Alessandro Fantechi

- Roberto Cavada, Alessandro Cimatti, Alberto Griggio, Stefano Tonetta, Federico Bonafini, Matteo Campidelli, and Andrea Zasa
Reconstructing the high-level structure of legacy code via software model checking: an experience report
- Dalay Almeida and Florian Jamain and Thierry Lecomte
Formal analysis and monitoring of legacy safety-critical interlocking systems with the use of certified industrial tools

19:00-22:00 Reception Buffet

Wednesday 11 September

09:00 – 10:20 FM24 Opening

- FM Organizers: FM24 Opening
- Marta Kwiatkowska:
Adversarial Robustness Certification for Bayesian Neural Networks

10:20 – 10:50 Coffee Break

10:50 – 12:20 Neural Networks Chair: Maurice ter Beek

- Sanaa Siddiqui, Diganta Mukhopadhyay, Mohammad Afza, Hrishikesh Karmarkar, and Kumar Madhukar:
Unifying Syntactic and Semantic Abstractions for Deep Neural Networks.
- Alexis Aurandt, Phillip H. Jones, Kristin Yvonne Rozier and Tichakorn Wongpiromsarn:
Multimodal Model Predictive Runtime Verification for Safety of Autonomous Cyber-Physical Systems
- M'elanie Ducoffe, Guillaume Pov'eda and Audrey Galametz, Ryma Boumazouza, Marion-Cécile Martin, Julien Baris, Derk Daverschot, and Eugene O'Higgins:
Surrogate Neural Networks Local Stability for Aircraft Predictive Maintenance

12:30 – 14:00 Lunch

14:00 – 15:20 Plenary keynotes, invited by FMICS/FM I-day

- Byron Cook: *The Business of Proof*
- Industry Partners: *Industry partner pitches*

15:20 – 15:50 Coffee Break