

Programme, ATVA 2017

October 3, 2017

Tutorials by Invited Speakers

08:00 - 08:45	Registration
08:45 - 09:00	<i>Opening Remarks</i>
09:00 - 10:30	Tutorial - Helmut Seidl Generic Fixpoint Engines for Interprocedural Analyses with Widening and Narrowing (Chair: Deepak D'Souza)
10:30 - 11:00	<i>Tea/Coffee break</i>
11:00 - 12:30	Tutorial - Carla Ferreira Data types, tools, and techniques for building available and correct distributed applications (Chair: S P Suresh)
12:30 - 14:00	<i>Lunch break</i>
14:00 - 15:30	Tutorial - Gerwin Klein Isabelle Tutorial (Chair: Mandayam Srivas)
15:30 - 16:00	<i>Tea/Coffee break</i>
	Industry Session (Chair: R Venkatesh)
16:00 - 16:20	[Sponsor's Presentation] - Ravindra Metta (Tata Consultancy Services)
16:20 - 16:40	[Sponsor's Presentation] - Manoj Dixit Gangadhar (MathWorks)
16:40 - 16:55	[Industry Presentation] <i>Amol Wakankar, Paritosh K. Pandya, and Raj Mohan Mattheplackel</i> DCSynth: Guided Reactive Synthesis with Soft Requirements and Performance Measurement
16:55 - 17:10	[Industry Presentation] <i>Venkat M, and Sanjeev Kumar</i> Regression Test Automation of Embedded QT based GUI Application

08:00 - 09:00	Registration
09:00 - 10:00	Invited Talk - Gerwin Klein From Trustworthy Kernels to Trustworthy Systems (Chair: Deepak D'Souza)
10:00 - 10:30	<i>Tea/Coffee break</i>
	Session I: Model Checking (Chair: Sanjiva Prasad)
10:30 - 10:55	<i>Mohammad Torabi Dashti and David Basin</i> Tests and Refutation
10:55 - 11:20	<i>Kumar Madhukar, Peter Schrammel and Mandayam Srivas</i> Compositional Safety Refutation Techniques
11:20 - 11:45	<i>Elvio Gilberto Amparore, Marco Beccuti and Susanna Donatelli</i> Gradient-based variable ordering of Decision Diagrams for systems with structural units
11:45 - 12:05	[Tool Paper] <i>Sumanth Prabhu, Peter Schrammel, Mandayam Srivas Michael Tautschnig and Anand Yeolekar</i> Concurrent Program Verification With Invariant-guided Underapproximation
12:05 - 13:35	<i>Lunch break</i>
	Session II: Model Checking: Tools (Chair: Ravindra Metta)
13:35 - 13:55	[Tool Paper] <i>Antonio Bruto Da Costa and Pallab Dasgupta</i> ForFET: A Formal Feature Evaluation Tool for Hybrid Systems
13:55 - 14:15	[Tool Paper] <i>Fabrizio Biondi, Yusuke Kawamoto, Axel Legay and Louis-Marie Traonouez</i> HyLeak: Hybrid Analysis Tool for Information Leakage
14:15 - 14:35	[Tool Paper] <i>Zuzana Baranová, Jiri Barnat, Katarína Kejstová, Tadeáš Kučera, Henrich Lauko, Jan Mrázek, Petr Ročkai and Vladimír Štill</i> Model Checking of C and C++ with DIVINE 4
14:35 - 14:55	[Tool Paper] <i>Kunal Banerjee, Chittaranjan Mandal and Dipankar Sarkar</i> An Equivalence Checking Framework for Array-Intensive Programs

- 14:55 - 15:15 [Tool Paper] *Soumyadip Bandyopadhyay, Santonu Sarkar, Dipankar Sarkar and Chittaranjan Mandal*
SamaTulyata: An Efficient Path Based Equivalence Checking Tool
- 15:15 - 15:45 *Tea/Coffee break*
- Session III: Neural Networks**
(Chair: *Susanna Donatelli*)
- 15:45 - 16:10 *Chih-Hong Cheng, Georg Nührenberg and Harald Ruess*
Maximum Resilience of Artificial Neural Networks
- 16:10 - 16:35 *Rüdiger Ehlers*
Formal Verification of Piece-Wise Linear Feed-Forward Neural Networks

October 5, 2017

Conference, Day 2

- 09:00 - 10:00 **Invited Talk** - *Carla Ferreira*
Consistency made easy: Towards building correct by design cloud applications
(Chair: *Madhavan Mukund*)
- 10:00 - 10:30 *Tea/Coffee break*
- Session I: Temporal Logic/Automata**
(Chair: *David Basin*)
- 10:30 - 10:55 *Bernd Finkbeiner and Hazem Torfah*
The Density of Linear-time Properties
- 10:55 - 11:20 *Graeme Gange, Pierre Ganty and Peter J. Stuckey*
Fixing the State Budget: Approximation of Regular Languages with Small DFAs
- 11:20 - 11:45 *Marcio Diaz and Tayssir Touili*
Dealing with priorities and locks for concurrent programs
- 11:45 - 12:10 *Pierre Ganty, Boris Köpf and Pedro Valero*
A Language-theoretic View on Network Protocols
- 12:10 - 13:40 *Lunch break*
- Session II: Probabilistic Systems/Learning**
(Chair: *B Srivathsan*)
- 13:40 - 14:05 *Jan Kretinsky and Tobias Meggendorfer*
Efficient Strategy Iteration for Mean Payoff in Markov Decision Processes

- 14:05 - 14:30 *Yijun Feng, Lijun Zhang, David N. Jansen, Naijun Zhan and Bican Xia*
Finding Polynomial Loop Invariants for Probabilistic Programs
- 14:30 - 14:55 *Christel Baier, Clemens Dubslaff, Lubos Korenciak, Antonin Kucera and Vojtech Rehak*
Synthesis of Optimal Resilient Control Strategies
- 14:55 - 15:20 *Rajdeep Mukherjee, Peter Schrammel, Leopold Haller, Daniel Kroening and Tom Melham*
Lifting CDCL to Template-based Abstract Domains for Program Verification
- 15:20 - 16:20 *Tea/Coffee break + Tool Demonstrations (Informal)*
- 16:25 - 16:55 *Business Meeting*
- 17:00 - 18:30 **Cultural Programme**
- Banquet dinner** (7 PM onwards)
Venue: Radisson Blu, Hinjewadi

October 6, 2017

Conference, Day 3

- 09:00 - 10:00 **Invited Talk** - Helmut Seidl
Proving Absence of Starvation by Means of Abstract Interpretation and Model-checking
(Chair: K Narayan Kumar)
- 10:00 - 10:30 *Tea/Coffee break*
- Session I: Program Analysis**
(Chair: Ashutosh Gupta)
- 10:30 - 10:55 *Ankush Das and Akash Lal*
Precise Null Pointer Analysis Through Global Value Numbering
- 10:55 - 11:20 *Jean-Yves Moyen, Thomas Rubiano and Thomas Seiller*
Loop Quasi-Invariant Chunk Detection
- 11:20 - 11:45 *Elvira Albert, Samir Genaim and Pablo Gordillo*
May-Happen-in-Parallel Analysis with Returned Futures
- 11:45 - 12:05 [Tool Paper] *Krishnendu Chatterjee, Amir Kafshdar Goharshady and Andreas Pavlogiannis*
JTDec: A Tool for Tree Decompositions in Soot
- 12:05 - 13:35 *Lunch break*

Session II: Invariant Synthesis

(Chair: Peter Schrammel)

- 13:35 - 14:00 *Manuel Montenegro, Susana Nieva, Ricardo Peña and Clara Segura*
Liquid Types for Array Invariant Synthesis
- 14:00 - 14:25 *Steven De Oliveira, Saddek Bensalem and Virgile Prevosto*
Synthesizing invariants by solving solvable loops
- 14:25 - 14:50 *Nuno Macedo, Alcino Cunha and Eduardo Pessoa*
Exploiting Partial Knowledge for Efficient Model Analysis
- 14:50 - 15:20 *Tea/Coffee break*

Session III: Hybrid Systems/Security

(Chair: S Akshay)

- 15:20 - 15:45 *Abdullah Abdul Khadir, Madhavan Mukund and S P Suresh*
Knowledge transfer and information leakage in protocols
- 15:45 - 16:10 *Ashish Tiwari, Scott A. Smolka, Lukas Esterle, Anna Lukina, Junxing Yang and Radu Grosu*
Attacking the V: On the Resiliency of Adaptive-Horizon MPC
- 16:10 - 16:35 *Krishna S., Ashutosh Trivedi, Aviral Kumar, Fabio Somenzi and Behrouz Touri*
The Reach-Avoid Problem for Constant-Rate Multi-Mode Systems
- 16:35 - 16:45 *Closing Remarks*
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