Programme of ETAPS 2026

Turin, Italy

April 11–16, 2026

Monday, 13 April

ETAPS

08:45 **ETAPS 2026 Opening**

09:00 **Christel Baier: Verification of Infinite-horizon Properties of Dynamic Bayesian Networks**
Room:

10:00 **Coffee Break**

	TACAS: Proofs and Quantifier Elimination Room:	FASE: SE and AI Room:	FOSSACS: Logic, Model Checking, Formal Specifications Room:	RUST Chair: Room:
10:30	**Real-time Proof Checking for Distributed Incremental SAT Solving** Dominik Schreiber, Mathias Fleury, Katalin Fazekas and Armin Biere.	**Revisiting the Role of Natural Language Code Comments in Code Translation** Monika Gupta, Ajay Meena, Anamitra Roy Choudhury, Vijay Arya and Srikanta Bedathur.	**The Modal Logic of Abstraction Refinement** Jakob Piribauer and Vinzent Zschuppe.	
10:50	**Enumerating Choice Terms in Model-Based Quantifier Instantiation** Lydia Kondylidou, Andrew Reynolds, Jasmin Blanchette and Cesare Tinelli.	**From Words to Code: Do NLP Prompting Strategies Generalize to Code Generation?** Erin Woo, Sangyeop Yeo, Hyungkook Jun, Sangcheol Kim, Seung-won Hwang and Yu-Seung Ma.	**Complete FSM Testing Using Strong Separability** Robert Hierons and Mohammad Reza Mousavi.	
11:10	**Hint-Based SMT Proof Reconstruction** Joshua Clune, Haniel Barbosa and Jeremy Avigad.	**LusGen: Leveraging LLMs for Safety-Critical Lustre Design and Requirements Traceability** Yili Jiang, Zhuoran Yan, Ning Ge, Yuan Wang, Jiahao Weng and Chunming Hu.	**Synthesising Asynchronous Automata from Fair Specifications** Béatrice Bérard, Benjamin Monmege, B Srivathsan and Arnab Sur.	
11:30	**Incremental Forward Reasoning for White-Box Proof Search** Xavier Généreux and Jannis Limperg.	**Quantifying Privacy Risks in Synthetic Data: A Study on Black-Box Membership Inference** Giacomo Fantino, Marco Rondina, Antonio Vetro' and Juan Carlos De Martin.	**From Trees to Tree-Like: Distribution and Synthesis for Asynchronous Automata** Mathieu Lehaut, Anca Muscholl and Nir Piterman	
11:50	**QSOLE: Automatic QBF Equivalence Checking** Peter Pfeiffer, Mark Peyrer, Daniel Grosse and Martina Seidl.	**Formally correct search for interpretable DNFs** Imane Bousdira, Martin Cooper and Aurélie Hurault.	**Inquisitive team semantics of LTL** Laura Bozzelli, Tadeusz Litak, Munyque Mittelmann and Aniello Murano.	

12:00 **Fast Ramsey Quantifier Elimination in LIRA (with applications to liveness checking)**
Kilian Lichtner, Pascal Bergsträßer, Moses Ganardi, Anthony W. Lin and Georg Zetzsche.

12:10 **Quantifier Elimination Meets Treewidth**
Hao Wu, Jiyu Zhu, Amir Goharshady, Jie An, Bican Xia and Naijun Zhan.

DivKC: A Divide-and-Conquer Approach to Knowledge Compilation
Olivier Zeyen, Karim Tit, Maxime Cordy and Gilles Perrouin.

Complexity of Model Checking Second-Order Hyperproperties on Finite Structures
Bernd Finkbeiner, Hadar Frenkel and Tim Rohde.

12:30 **Lunch Break**

14:00 **Leonardo de Moura: The Lean Programming Language and Theorem Prover (Invited Tutorial)**
Room:

15:30 **Tool Demos (with Coffee)**

16:00 **Coffee Break with Tool Demos**

	TACAS: Software Verification Room:	FASE: Advanced SW Development Room:	FOSSACS: Automata, Games, Concurrency Models Room:	SV-Comp Chair: Room:	RUST Chair: Room:
16:30	**Efficient Verification of Lingua Franca Programs** Kyungmin Bae, Mircea Marin, Peter Csaba Ölveczky, Mario Reja and Mikheil Rukhaia.	**Towards Decentralised Dynamic Reconfiguration of Software Systems** Mina Yavari and Damian Arellanes.	**Well-quasi-orderings on word languages** Aliaume Lopez, Nathan Lhote and Lia Schuetze		
16:50	**Verifying Floating-Point Programs in Stainless** Andrea Gilot, Axel Bergström and Eva Darulova.	**Analyses as First-Class Citizens in Model-Driven Development** Tianhai Liu, Shmuel Tyszberowicz and Bernhard Beckert.	**The Complexity of Games with Randomised Control** Sarvin Bahmani, Rasmus Ibsen-Jensen, Soumyajit Paul, Sven Schewe, Friedrich Slivovsky, Qiyi Tang, Dominik Wojtczak and Shufang Zhu.		

17:10	**A Case Study in Firmware Verification: Applying Formal Methods to Intel TDX Module** Dirk Beyer, Po-Chun Chien, Bo-Yuan Huang, Nian-Ze Lee and Thomas Lemberger.	**Don't go MAD with Anomalies! Design-time Microservice Anomaly Detection in Migration to Microservices** Valentim Romão, Rafael Soares, Luis Rodrigues and Vasco Manquinho.	**The Value Problem for Weighted Timed Games with Two Clocks is Undecidable** Isa Vialard, Joël Ouaknine and Quentin Guilmant.
17:30	**VeriStruct: AI-assisted Automated Verification of Data-Structure Modules in Verus** Chuyue Sun, Yican Sun, Daneshvar Amrollahi, Ethan Zhang, Shuvendu Lahiri, Shan Lu, David Dill and Clark Barrett.	**EasyRPL - A web-based tool for modelling and analysis of cross-organisational workflows** Muhammad Rizwan Ali, Violet Ka I Pun and Guillermo Román-Díez.	**Active Learning Techniques for Pomset Recognizers** Adrien Pommellet, Amazigh Amrane, Edgar Delaporte, Geoffroy Du Prey and Oscar Peyron.
17:50	**When One Message Tells the Whole Story: Deciding Serializability in Network Systems** Guy Amir, Mark Barbone, Nicolas Amat and Jules Jacobs.	**ForumSeeker: Fusion Retrieval of Online Technical Forums for Effective Troubleshooting** Youyang Kim, Yaoping Ruan, Young-Kyoon Suh, Liqiang Wang and Byungchul Tak.	**On Reversibility in Petri Nets** Hernán Melgratti, Claudio Antares Mezzina and G. Michele Pinna.
18:10	**Extending FRET with SLEEC Rules: Formalization, Obligation Inference, and Monitoring** Mahrokh Mirani, Paola Inverardi, Patrizio Pelliccione, Franco Raimondi and Nicolas Troquard.		**Bridging the Gap Between Plain VASS and Branching VASS** Clotilde Bizière, Jérôme Leroux and Grégoire Sutre.

19:00 **ETAPS Reception**

Tuesday, 14 April

ETAPS

09:00 **Einar Broch Johnsen: Formal Methods meet Digital Twins: Challenges and Opportunities**
Room:

10:00 **Coffee Break**

	TACAS: Probabilistic Model Checking & Software Testing Room:	ESOP: Concurrency Room:	FASE: Autonomous Systems/ Applications Room:	FOSSACS: Kleene Algebra, Expressions, String Diagrams, Categorical Logic Room:	RUST Chair: Room:
10:30	**Multiple Long-Run and omega-Regular Objectives in MDPs** Julius Ide, Joost-Pieter Katoen, Hannah Mertens and Tim Quatmann.	**Denotational reasoning for asynchronous multiparty session types** Dylan McDermott and Nobuko Yoshida.	**Failure Modes and Effects Analysis: An Experience from the E-Bike Domain** Andrea Bombarda, Federico Conti, Marcello Minervini, Aurora Francesca Zanenga and Claudio Menghi.	**Partial Reductions for Kleene Algebra with Single-Word Hypotheses** Liam Chung and Tobias Kappé.	
10:50	**Robust Verification of Concurrent Stochastic Games** Angel He and David Parker.	**Practical Refinement Session Type Inference** Toby Ueno and Ankush Das.	**Causal Liability in Autonomous Systems** Kaveh Aryan, Hana Chockler and Mohammad Reza Mousavi.	**A Complete Propositional Dynamic Logic for Regular Expressions with Lookahead** Yoshiki Nakamura.	
11:10	**Computing Fixpoints of Learned Functions: Chaotic Iteration and Simple Stochastic Games** Paolo Baldan, Sebastian Gurke, Barbara König and Florian Wittbold.	**Recursive Logical Relations for Intuitionistic Linear Logic Session Types** Stephanie Balzer, Farzaneh Derakhshan, Robert Harper and Yue Yao.	**Search-based Software Testing for Drone Applications: An Experience with the Simulink Environment** Annalisa Sergi, Yousef Ahmed Abdel Rahman Shoeib, Andrea Bombarda, Nunzio Marco Bisceglia and	**Tapes as Stochastic Matrices of String Diagrams** Filippo Bonchi and Cipriano Junior Cioffo.	
11:30	**DeGAS: Gradient-Based Optimization of Probabilistic Programs without Sampling** Francesca Randone, Romina Doz, Mirco Tribastone and Luca Bortolussi.	**A Formal Interface for Concurrent Search Structure Templates** Duc Than Nguyen and William Mansky.	**Modeling and Analyzing Planning-Aware Distributed Cyber-Physical Systems with Timed Graph Transformation Systems** Mustafa Ghani and Holger Giese.	**Diagrammatic Reasoning with Control as a Constructor, Applications to Quantum Circuits** Noé Delorme and Simon Perdrix.	

11:50	**AKR: A Model Checker for an Adaptative Probabilistic Knowing-How Logic** Valentin Cassano, Pablo Castro, Raul Fervari and Pedro R. D'Argenio.	**Reduction for Structured Concurrent Programs** Namratha Gangamreddypalli, Constantin Enea and Shaz Qadeer.	**Composing Clinical Activity Guidance for Multimorbidity via Bounded Relational Analysis** Artur Boronat.	**Quantum Coherence Spaces Revisited: A von Neumann (Co)Algebraic Approach** Thea Li and Vladimir Zamdzhiev.	
12:00	**Demonstrating ARG-V's Generation of Realistic Java Benchmarks for SV-COMP** Charles Moloney, Robert Dyer and Elena Sherman.				
12:10	**jMT: Testing Correctness of Java Memory Models** Lukas Panneke and Heike Wehrheim.	**Rely-Guarantee Is Coinductive: A Proof-Centered Investigation of Inductively Approximated Coinduction** John Derrick, Chelsea Edmonds, Andrei Popescu and Jamie Wright.		**Realization of relational presheaves** Yorgo Chamoun and Samuel Mimram.	
12:30	**Lunch Break**				
14:00	**Ask-Me-Anything Session** **Room:**				
15:00	**ETAPS Awards Talks** **Room:**				
16:00	**Coffee Break**				
	TACAS: SAT/ SMT I Room:	**ESOP: Semantics & Compilation** Room:	**FASE: Testing and Verification** Room:	**FOSSACS: Category Theory, Coalgebra, Metric Systems** Room:	**RUST** Chair: Room:

16:30

Syntactically Convex Model-Based Projection for Linear Rational Arithmetic
Anna Becchi, Grigory Fedyukovich, Arie Gurfinkel and Lev Nachmanson.

Causal-Broadcast Memory
Amir Karniel and Ori Lahav.

Abstract Symbolic Finite Automata for Algorithmic Game Semantics
Aleksandar S. Dimovski.

Quantitative Algebras Presented via Monads
Jiri Adamek.

16:50

Bit-Precise Interpolation in Bitwuzla
Aina Niemetz and Mathias Preiner.

Specifying and Verifying RDMA Synchronisation
Guillaume Ambal, Max Stupple, Brijesh Dongol and Azalea Raad.

Timed Contract Automata
Bernhard Beckert, Andreas Bremer and Alexander Weigl.

Generalized Kantorovich-Rubinstein Duality beyond Hausdorff and Kantorovich
Paul Wild, Lutz Schröder, Karla Messing, Barbara König and Jonas Forster.

17:10

Orbitopal Fixing in SAT
Markus Anders, Cayden Codel and Marijn Heule.

A Formally Verified Procedure for Width Inference in FIRRTL
Keyin Wang, Xiaomu Shi, Jiaxiang Liu, Zhilin Wu, Taolve Chen, Fu Song and David N. Jansen.

Unified Timing-Aware Program Verification
Dóra Cziborová, Mihály Dobos-Kovács, Kristóf Marussy and András Vörös.

Learning bottom-up tree automata valued in monoidal categories
Quentin Aristote and Daniela Petrisan.

17:30

Smt.ml: A Multi-Backend Frontend for SMT Solvers in OCaml
João Madeira Pereira, Filipe Marques, Pedro Adão, Hichem Rami Ait-El-Hara, Léo Andrès, Arthur Carcano, Pierre Chambart, Petar Maksimović, Nuno Santos and José

Relational Hoare Logic for High-Level Synthesis of Hardware Accelerators
Izumi Tanaka, Ken Sakayori, Shinya Takamaeda-Yamazaki and Naoki Kobayashi.

Testing in Formal Verification via Witness Generation (Empirical Evaluation)
Dirk Beyer, Thomas Lemberger and Henrik Wachowitz.

A Coalgebraic Approach to Infinite Games
Benjamin Plummer and Corina Cirstea.

17:50

Automatically Tightening Access Control Policies with Restricter
Ka Lok Wu, Christa Jenkins, Scott Stoller and Omar Chowdhury.

Linear Effects, Exceptions, and Resource Safety: A Curry-Howard Correspondence for Destructors
Sidney Congard, Guillaume Munch-Maccagnoni and Rémi Douence.

QEMI: A Quantum Software Stacks Testing Framework via Equivalence Module Inputs
Junjie Luo, Shangzhou Xia, Fuyuan Zhang and Jianjun Zhao.

A No-go Theorem for Coalgebraic Product Construction
Mayuko Kori and Kazuki Watanabe.

18:10

Robustness Verification of Graph Neural Networks Via Lightweight Satisfiability Testing
Chia-Hsuan Lu, Tony Tan and Michael Benedikt.

The Memorist Tale: Every Thunk Every Cost All At Once
Xing Li, Yao Li, Peter Schachte and Christine Rizkallah.

A 2-categorical approach to the semantics of dependent type theory with computation axioms
Matteo Spadetto.

09:00 **Monika Henzinger: Guarding Privacy Over Time: Challenges and Solutions in Continuous Data Observation**
Room:

10:00 **Coffee Break**

	TACAS: Automata Room:	ESOP: Verification Room:	FOSSACS: Lambda-Calculus, Program Semantics, Infinite Structures Room:	SPIN Chair: Room:	Industry Day Chair: Room:
10:30	**A Myhill-Nerode Characterization and Active Learning for One-Clock Timed Automata** Kyveli Doveri, Pierre Ganty and B Srivathsan.	**Validating Quantum State Preparation Programs** Liyi Li, Anshu Sharma, Zoukarneini Difaizi Tagba, Sean Frett and Alex Potanin.	**Interaction Improvement** Adrienne Lancelot, Giulio Manzonetto, Guy McCusker and Gabriele Vanoni.		
10:50	**Modular Attractor Acceleration in Infinite-State Games** Philippe Heim and Rayna Dimitrova.	**Outrunning Big KATs: Efficient Decision Procedures for Variants of GKAT** Cheng Zhang, Qiancheng Fu, Hang Ji, Ines Del Valle, Alexandra Silva and Marco Gaboardi.	**Lambda Galore** Mariangiola Dezani-Ciancaglini, Besik Dundua and Furio Honsell.		
11:10	**Concurrent Permissive Strategy Templates** Ashwani Anand, Christel Baier, Calvin Chau, Sascha Klüppelholz, Ali Mirzaei, Satya Prakash Nayak and Anne-Kathrin Schmuck.	**Generating Functions Meet Occupation Measures: Invariant Synthesis for Probabilistic Loops** Darion Haase, Kevin Batz, Adrian Gallus, Benjamin Lucien Kaminski, Joost-Pieter	**K Definitions as Matching Logic Theories, Formally** Xiaohong Chen, Horatiu Cheval, Dorel Lucanu and Grigore Rosu		
11:30	**LTLf Learning Meets Boolean Set Cover** Gabriel Bathie, Nathanaël Fijalkow, Théo Matricon, Baptiste Mouillon and Pierre Vandenhove.	**Error Localization, Certificates, and Hints for Probabilistic Program Verification via Slicing** Philipp Schröer, Darion Haase and Joost-Pieter Katoen.	**Abstract Lipschitz Continuity: Combining Semantic and Quantitative Approximations** Marco Campion, Isabella Mastroeni, Michele Pasqua and Caterina Urban.		

11:50

Faster Signature Refinement for Branching Bisimilarity Minimization
Jan J.M. Martens and Maurice Laveaux.

A Program Logic for Under-approximating Worst-case Resource Usage
Ziyue Jin and Di Wang.

Composition Theorems for f-Differential Privacy
Annabelle McIver, Natasha Fernandes and Parastoo Sadeghi.

12:10

MightyPPL : Model Checking MITL with Past and Pnueli Modalities
Hsi-Ming Ho, S Krishna, Khushraj Madnani, Rupak Majumdar and Paritosh Pandya.

Specification-Driven Generation of Summaries for Symbolic Execution
Rafael Gonçalves, Frederico Ramos, Pedro Adão and José Fragoso Santos.

Karp's NP-complete problems over first-order definable structures
Aidan Healy and Bartek Klin.

12:30 **Lunch Break**

13:00 **ETAPS General Assembly**
Room:

14:00 **Mieke Massink: Model Checking in Space with Applications to Medical Image Analysis (Invited Tutorial)**
Room:

15:30 **Tool Demos (with Coffee Break)**

16:00 **Coffee Break with Tool Demos**

ESOP: Types
Room:

TACAS: Static Analysis & Program Verification
Room:

AE Reports (30mins)
Chair:
Room:

Industry Day
Chair:
Room:

SPIN
Chair:
Room:

16:30

Lenses for Partially-Specified States
Kazutaka Matsuda, Minh Nguyen and Meng Wang.

ReCheck: Automated Contextual Improvement Verifier for Functional Calculi across User-Defined Operational Semantics
Makoto Hamana and

16:50

In Cantor Space No One Can Hear You Stream
Martin Baillon, Assia Mahboubi and Pierre-Marie Pédrot.

On Deciding Constant Runtime of Linear Loops
Florian Frohn, Jürgen Giesl, Peter Giesl and Nils Lommen.

17:10

Contextual Metaprogramming for Session Types
Pedro Ângelo, Atsushi Igarashi, Yuito Murase and Vasco T. Vasconcelos.

Data Structure Analysis for Binaries
Sadra Bayat Tork, Nicholas Coughlin, Alicia Michael, James Tobler and Kirsten Winter

17:30

Deciding not to Decide: Sound and Complete Effect Inference in the Presence of Higher-Rank Polymorphism
Patrycja Balik, Szymon Jędras and Piotr Polesiuk.

Integrating String Reasoning in Symbolic Execution of C Programs
Rachel Cleaveland and Clark Barrett.

17:50

Bidirectional Type Checking for Existential Types with Higher-Rank Polymorphism
Hasti Toossi and Ningning Xie.

Gillian Debugging: Swinging Through the (Compositional Symbolic Execution) Tree
Nat Karmios, Sacha-Elie Ayoun and Philippa Gardner.

18:10

Auditing Rust Crates Effectively
Lydia Zoghbi, David Thien, Ranjit Jhala, Deian Stefan and Caleb Stanford.

Same Engine, Multiple Gears: Parallelizing Fixpoint Iteration at Different Granularities
Ali Rasim Kocal, Michael Schwarz, Simmo Saan and Helmut Seidl

18:20 **Code Generation via Meta-programming in Dependently Typed Proof Assistants**
Mathis Bouverot-Dupuis and Yannick Forster.

19:00 **ETAPS Banquet**

09:00 **Guy Van Den Broeck: Symbolic Reasoning in the Age of Large Language Models**
Room:

10:00 **Coffee Break**

	TACAS: CPS & Quantum	ESOP: Analysis	SPIN
	Room:	Room:	Chair: Room:
10:30	**Driving by Disproof: A Practical Model Checking Approach to Fleet Coordination** Lukas König, Christian Schildwächter, Michaela Klauck and Christian Heinzemann.	**A Category-Theoretic Framework for Dependent Effect Systems** Satoshi Kura, Marco Gaboardi, Taro Sekiyama and Hiroshi Unno.	
10:50	**VeriLHyS: a Framework for LTL Specification and Verification of Hybrid Systems** Ludovico Battista, Stefano Tonetta and Gianni Zampedri.	**Dependently-Typed AARA: A Non-Affine Approach for Resource Analysis of Higher-Order Programs** Han Xu and Di Wang.	
11:10	**TEMPORA: Efficient Verification of Metric Temporal Properties with Past in Pointwise Semantics** S. Akshay, Prerak Contractor, Paul Gastin, R Govind and B Srivathsan.	**Max-Policy Iteration, Revisited** David Monniaux and Helmut Seidl.	
11:30	**Trace Repair Using Temporal Behavior Trees** Sebastian Schirmer, Philipp Schitz, Johann C. Dauer, Bernd Finkbeiner and Sriram Sankaranarayanan.	**Complete Abstractions for Verification of Polymorphic Functions with Equality** Malo Revel, Thomas Genet and Thomas Jensen.	
11:50	**Equivalence Checking of Quantum Circuits via Path-Sum and Weighted Model Counting** Wei-Jia Huang, Jingyi Mei, Alfons Laarman, Yu-Fang Chen, Christophe Chareton, Kai-Min Chung and Min-Hsiu Hsieh.	**Modular Automatic Complexity Analysis of Recursive Integer Programs** Nils Lommen and Jürgen Giesl.	
12:10	**Error-Tolerant Quantum State Discrimination: Optimization and Quantum Circuit Synthesis** Chien-Kai Ma, Bo-Hung Chen, Tian-Fu Chen, Dah-Wei Chiou and Jie-Hong Roland Jiang.	**Efficient Ranking Function-Based Termination Analysis via Bidirectional Decompositional Search** Yasmin Sarita, Avaljot Singh, Shaurya Gomber, Gagandeep Singh and Mahesh Viswanathan.	

12:30 **Lunch Break**

	TACAS: Model Checking & Hardware Verification	Diversity, Equity, and Inclusion	TEST-COMP	SPIN
	Room:	Chair: Room:	Chair: Room:	Chair: Room:

14:00 **CTL* Model Checking on Infinite Families of Finite-State Labeled Transition Systems**
Roberto Pettinau and Christoph Matheja.

14:20 **Verifying First-Order Temporal Properties of Infinite States Systems via Timers and Rankings**
Raz Lotan, Neta Elad, Oded Padon and Sharon Shoham.

14:40 **Revisiting Stateful Partial-Order Reduction**
Frédéric Herbreteau, Gérald Point and Igor Walukiewicz.

15:00 **Deconstructing Subset Construction: Reducing While Determinizing**
Markus Frohme and John Nicol.

15:20 **ReVEAL: GNN-Guided Reverse Engineering for Formal Verification of Optimized Multipliers**
Chen Chen, Daniela Kaufmann, Chenhui Deng, Zhan Song, Hongce Zhang and Cunxi Yu

15:40 **EvolveGen: Algorithmic Level Hardware Model Checking Benchmark Generation through Reinforcement Learning**
Guangyu Hu, Xiaofeng Zhou, Wei Zhang and Hongce Zhang.

16:00 **Coffee Break**

TACAS: SAT/SMT II
Room:

SV-Comp and Test-Comp Community Building
Chair:
Room:

SPIN
Chair:
Room:

16:30 **Parallel SMT Solving via Iterative Tree Partitioning**
Tomáš Kolárik, Antti E.J. Hyvärinen, Seyedmasoud Asadzadeh and Natasha Sharygina.

16:50 **Massively Parallel Bit-Precise Verification with Bitwuzla and Mallob**
Dominik Schreiber, Aina Niemetz and Mathias Preiner.

17:10 **Exploring the SMT-LIB Benchmark Library**
Hans-Jörg Schurr, François Bobot, Mathias Preiner, Aina Niemetz, Pascal Fontaine, Cesare Tinelli and Clark Barrett.

17:30 **SMT(LIA) Sampling with High Diversity**
Yong Lai, Junjie Li and Chuan Luo.

17:50 **BDD-Based Formula Approximations for Quantified Bit-Vector Satisfiability**
Jakub Horák and Martin Jonáš.

18:10 **SMTScope: Automated and Efficient Analysis of SMT Traces**
Jonáš Fiala and Peter Müller.