

45th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science

**FSTTCS 2025, December 17–19, 2025, BITS Pilani, K K Birla
Goa Campus, India**

Edited by

**C. Aiswarya
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Preface

This volume contains the proceedings of the 45th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2025). The conference was held as an in-person event during the period December 17–19, 2025, on the campus of BITS Pilani - K K Birla Goa Campus, in Goa, India.

The conference has two tracks: Track A focusing on algorithms, complexity, and related optimization questions, and Track B focusing on logic, automata and other formal method aspects of computer science. Each track had its own Program Committee (PC) and chairs (Ruta Mehta for Track A and C. Aiswarya and Subhajit Roy for Track B). This volume constitutes the joint proceedings of the two tracks, published in the LIPIcs series under a Creative Commons license, with free online access for all.

The conference comprises of 6 invited talks, 29 contributed talks in Track A, and 21 contributed talks in Track B. This volume contains all the contributed papers from the two tracks, and two articles accompanying two of the invited talks. We thank all the authors who submitted their papers to FSTTCS 2025. We are especially grateful to the PC members for their tireless work, and all the external reviewers for their expert opinion in the form of timely reviews.

We thank all the invited speakers for accepting our invitation: Parosh Aziz Abdulla (Uppsala University & Mälardalen University), Bernd Finkbeiner (CISPA), Nicole Immorlica (Yale University & Microsoft Research New England), Pravesh K Kothari (Princeton University), Barna Saha (University of California San Diego), and Georg Zetsche (MPI-SWS, Kaiserslautern).

The main conference was co-located with eight workshops: Formal Verification and Learning for Quantitative Systems (organised by S. Akshay, Shibashis Guha, and Suguman Bansal), Workshop on Quantum Algorithms and Cryptography (organised by Akshay Bansal, Rajendra Kumar, and Rajat Mittal), Information in Games and Mechanisms (organised by Umang Bhaskar and Rohit Vaish), Workshop on Games and Automata for Synthesis (organised by Sougata Bose, Suman Sadhukhan, Thejaswini K. S.), 10th Indian SAT+SMT School (organised by Supratik Chakraborty, Priyanka Golia, Ashutosh Gupta, Saurabh Joshi, Kumar Madhukar, Kuldeep Meel, and Aalok Thakkar), Mentoring Workshop for senior undergrad and early PhD students (organised by Neeldhara Misra, KC Sivaramakrishnan, and Aalok Thakkar), Compilers-oriented Software Security (organised by Awanish Pandey and Raghvendra Singh Rohit), and Research Highlights in Programming Languages (organised by Abhisekh Sankaran, Divyesh Unadkat, Deepak D’Souza, Uday Khedker, Kumar Madhukar, Kartik Nagar, Sumanth Prabhu, Ganesan Ramalingam, and Abhik Roychoudhury).

We are indebted to the organizing committee from BITS Pilani, K K Birla Goa Campus, namely, Yasmeen Akhtar, Siddharth Gupta (chair), Mukesh Kumar Nagar, Gargi Sanket Prabhu, Hemant Rathore, Aniket Basu Roy, Tarkeshwar Singh, and Subhadip Singha, as well as to A. Baskar (BITS Pilani, K K Birla Goa Campus) for making all the necessary arrangements for the conference. We are thankful to the past organizing chair, Neeldhara Misra (IIT-Gandhinagar), for knowledge transfer.

We thank S.P. Suresh (Chennai Mathematical Institute) for maintaining the conference web page as well as the publicity chairs Neeldhara Misra (IIT Gandhinagar), Shibashis Guha (TIFR Mumbai), and Aalok Thakkar (Asoka University, Sonapat). We are grateful to the friendly staff at Dagstuhl LIPIcs for helping us put together the proceedings, in

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particular to Michael Didas and Michael Wagner. Finally, we thank the members of the Steering Committee, especially Deepak D’Souza (IISc), and the PC Chairs from FSTTCS 2024 (Siddharth Barman (IISc) and Sławomir Lasota (University of Warsaw)), for providing pertinent information and valuable advice about various aspects of the conference.

C. Aiswarya, Ruta Mehta, and Subhajit Roy
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