

Publication List

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18 peer-reviewed publications. Author order follows the alphabetical conventions of mathematics and theoretical computer science; conference proceedings are primary peer-reviewed venues in computer science.

- 1. The Bounded Treedepth of Programs and Treedepth-guided CDCL**
Mohsen Alambardar Meybodi, Amir Kafshdar Goharshady, Kerim Kochekov, and **Harshit Jitendra Motwani**
12th International Symposium on Dependable Software Engineering: Theories, Tools and Applications (SETTA 2026); accepted SETTA 2026
- 2. Randomized Satisfiability Checking for Non-Linear Arithmetic over Finite Fields**
Amir Kafshdar Goharshady, Thomas Hader, Laura Kovács, and **Harshit Jitendra Motwani**
Proceedings of the 26th Conference on Formal Methods in Computer-Aided Design (FMCAD 2026), pp. 84–93
doi:10.34727/2026/isbn.978-3-85448-093-8_14 | HAL: hal-05708451
- 3. On Certificates for Almost Sure Reachability in Stochastic Systems**
Arash Bahari Kordabad, Rupak Majumdar, **Harshit Jitendra Motwani**, and Sadegh Soudjani
IEEE Transactions on Automatic Control, 2026, pp. 1–8
doi:10.1109/TAC.2026.3719559
- 4. Parallel Abstract Interpretation for Polynomial Programs with Range Bound Assertions**
S. Akshay, Supratik Chakraborty, Soroush Farokhnia, Amir Goharshady, **Harshit Jitendra Motwani**, and Đorđe Žikelić
Computer Aided Verification (CAV 2026), LNCS 16684, pp. 146–168
doi:10.1007/978-3-032-32537-2_7
- 5. Verifying Almost-Sure Termination for Randomized Distributed Algorithms**
Constantin Enea, Rupak Majumdar, **Harshit Jitendra Motwani**, and V. R. Sathiyararayanan
Proceedings of the ACM on Programming Languages, 10 (POPL 2026), pp. 1412–1441
doi:10.1145/3776691
- 6. LP-Based Weighted Model Integration over Non-Linear Real Arithmetic**
S. Akshay, Supratik Chakraborty, Soroush Farokhnia, Amir Goharshady, **Harshit Jitendra Motwani**, and Đorđe Žikelić
Proceedings of the Thirty-Fourth International Joint Conference on Artificial Intelligence (IJCAI 2025), pp. 9040–9048
doi:10.24963/ijcai.2025/1005
- 7. Quantified Linear and Polynomial Arithmetic Satisfiability via Template-Based Skolemization**
Krishnendu Chatterjee, Ehsan Kafshdar Goharshady, Mehrdad Karrabi, **Harshit Jitendra Motwani**, Maximilian Seeliger, and Đorđe Žikelić
Proceedings of the AAAI Conference on Artificial Intelligence, 39(11), 2025, pp. 11158–11166; selected for oral presentation
doi:10.1609/aaai.v39i11.33213
- 8. Combinatorial Parameterized Algorithms for Chemical Descriptors Based on Molecular Graph Sparsity**
Giovanna Kobus Conrado, Amir Kafshdar Goharshady, **Harshit Jitendra Motwani**, and Sergei Novozhilov
Procedia Computer Science, 273, 2025, pp. 247–254; LAGOS 2025
doi:10.1016/j.procs.2025.10.305
- 9. Practical Approximate Quantifier Elimination for Non-Linear Real Arithmetic**
S. Akshay, Supratik Chakraborty, Amir Kafshdar Goharshady, R. Govind, **Harshit Jitendra Motwani**, and Sai Teja Varanasi
Formal Methods (FM 2024), LNCS 14933, pp. 111–130
doi:10.1007/978-3-031-71162-6_6

- 10. Faster Treewidth-Based Approximations for Wiener Index**
Giovanna Kobus Conrado, Amir Kafshdar Goharshady, Pavel Hudec, Pingjiang Li, and **Harshit Jitendra Motwani**
22nd International Symposium on Experimental Algorithms (SEA 2024), LIPIcs 301, Article 6, pp. 1–19
doi:10.4230/LIPIcs.SEA.2024.6
- 11. Automated Synthesis of Decision Lists for Polynomial Specifications over Integers**
S. Akshay, Supratik Chakraborty, Amir Kafshdar Goharshady, R. Govind, **Harshit Jitendra Motwani**, and Sai Teja Varanasi
25th Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR 2024), EPIc Series in Computing 100, pp. 484–502
doi:10.29007/njph
- 12. Global Rigidity of Line Constrained Frameworks**
James Cruickshank, Fatemeh Mohammadi, **Harshit Jitendra Motwani**, Anthony Nixon, and Shin-ichi Tanigawa
SIAM Journal on Discrete Mathematics, 38(1), 2024, pp. 743–763
doi:10.1137/22M151707X
- 13. Algebro-Geometric Algorithms for Template-Based Synthesis of Polynomial Programs**
Amir Kafshdar Goharshady, S. Hitarth, Fatemeh Mohammadi, and **Harshit Jitendra Motwani**
Proceedings of the ACM on Programming Languages, 7 (OOPSLA1), Article 100, 2023, pp. 727–756; ACM SIGPLAN Distinguished Paper and IEEE Computer Society Larson Best Paper
doi:10.1145/3586052
- 14. Matroid Stratifications of Hypergraph Varieties, Their Realization Spaces, and Discrete Conditional Independence Models**
Oliver Clarke, Kevin Grace, Fatemeh Mohammadi, and **Harshit Jitendra Motwani**
International Mathematics Research Notices, 2023(22), pp. 18958–19019
doi:10.1093/imrn/rnac268
- 15. The Leading Coefficient of Lascoux Polynomials**
Alessio Borzi, Xiangying Chen, **Harshit Jitendra Motwani**, Lorenzo Venturello, and Martin Vodička
Discrete Mathematics, 346(2), 2023, Article 113217
doi:10.1016/j.disc.2022.113217
- 16. The Linear Span of Uniform Matrix Product States**
Claudia De Lazzari, **Harshit Jitendra Motwani**, and Tim Seynnaeve
Symmetry, Integrability and Geometry: Methods and Applications (SIGMA), 18, 2022, Paper 099
doi:10.3842/SIGMA.2022.099
- 17. Computing Maximum Likelihood Estimates for Gaussian Graphical Models with Macaulay2**
Carlos Amendola, Luis David García Puente, Roser Homs, Olga Kuznetsova, and **Harshit Jitendra Motwani**
Journal of Software for Algebra and Geometry, 12, 2022, pp. 1–10
doi:10.2140/jsag.2022.12.1
- 18. Conditional Probabilities via Line Arrangements and Point Configurations**
Oliver Clarke, Fatemeh Mohammadi, and **Harshit Jitendra Motwani**
Linear and Multilinear Algebra, 70(20), 2022, pp. 5268–5300
doi:10.1080/03081087.2021.1912693