

teo Marescotti (USI), Edgar Pek (University of Illinois, Urbana-Champaign), Simone Fulvio Rollini (United Technologies Research Center), Parvin Sadigova (King’s College London), and Aliaksei Tsitovich (Sonova). The solver is being developed in Natasha Sharygina’s software verification group at USI.

3 Utilization

OpenSMT is being used in a range of projects as a back-end solver. It does interpolation for the Sally model checker [11] which won the transition systems category in the constrained horn clause competition 2019. OpenSMT also forms the basis of our own model checkers such as HiFrog [1]. OpenSMT is compatible with the parallelization engine SMTS [12].

4 Download

More information on the solver and downloads are available at

- <https://github.com/usi-verification-and-security/opensmt>
- <http://verify.inf.usi.ch/opensmt>

References

- [1] Leonardo Alt, Sepideh Asadi, Hana Chockler, Karine Even-Mendoza, Grigory Fedyukovich, Antti E. J. Hyvärinen, and Natasha Sharygina. HiFrog: SMT-based function summarization for software verification. In *Proc. TACAS 2017*, pages 207–213, 2017.
- [2] Leonardo Alt, Grigory Fedyukovich, Antti E. J. Hyvärinen, and Natasha Sharygina. A proof-sensitive approach for small propositional interpolants. In *Proc. VSTTE 2015*, volume 9593 of *LNCS*, pages 1–18. Springer, 2016.
- [3] Leonardo Alt, Antti Eero Johannes Hyvärinen, Sepideh Asadi, and Natasha Sharygina. Duality-based interpolation for quantifier-free equalities and uninterpreted functions. In *Proc. FMCAD 2017*, pages 39–46. IEEE, 2017.
- [4] Martin Blicha, Antti E. J. Hyvärinen, Jan Kofron, and Natasha Sharygina. Decomposing Farkas interpolants. In *Proc. TACAS 2019*, pages 3–20, 2019.
- [5] David Detlefs, Greg Nelson, and James B. Saxe. Simplify: a theorem prover for program checking. *J. ACM*, 52(3):365–473, 2005.
- [6] Bruno Dutertre and Leonardo Mendonça de Moura. A fast linear-arithmetic solver for DPLL(T). In *Proc. CAV 2006*, volume 4144 of *LNCS*, pages 81–94. Springer, 2006.

- [7] Niklas Eén and Niklas Sörensson. An extensible SAT-solver. In *Proc. SAT 2004*, volume 2919 of *LNCS*, pages 502–518. Springer, 2004.
- [8] Antti E. J. Hyvärinen, Matteo Marescotti, Leonardo Alt, and Natasha Sharygina. Opensmt2: An SMT solver for multi-core and cloud computing. In *Proc. SAT 2016*, pages 547–553, 2016.
- [9] Antti E. J. Hyvärinen, Matteo Marescotti, Parvin Sadigova, Hana Chockler, and Natasha Sharygina. Lookahead-based SMT solving. In *Proc. LPAR-22*, pages 418–434, 2018.
- [10] Antti E. J. Hyvärinen, Matteo Marescotti, and Natasha Sharygina. Search-space partitioning for parallelizing SMT solvers. In *Proc. SAT 2015*, pages 369–386, 2015.
- [11] Dejan Jovanovic and Bruno Dutertre. Property-directed k-induction. In *Proc. FMCAD 2016*, pages 85–92. IEEE, 2016.
- [12] Matteo Marescotti, Antti E. J. Hyvärinen, and Natasha Sharygina. SMTS: distributed, visualized constraint solving. In *Proc. LPAR-22*, pages 534–542, 2018.
- [13] Robert Nieuwenhuis, Albert Oliveras, and Cesare Tinelli. Solving SAT and SAT modulo theories: From an abstract Davis–Putnam–Logemann–Loveland procedure to DPLL(T). *Journal of the ACM*, 53(6):937 – 977, 2006.