An Update on the OpenSMT Solver

16th Alpine Verification Meeting (AVM'24)

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- Experimental *look-ahead* core
  - Alternative to CDCL(T)
  - Possibility of combined heuristic of CDCL(T) and look-ahead

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- Scatter or Lookahead OpenSMT core

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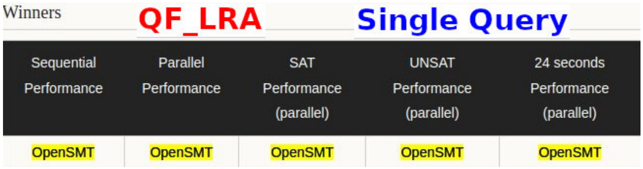

Winners QF_LRA Single Query

Sequential Performance	Parallel Performance	SAT Performance (parallel)	UNSAT Performance (parallel)	24 seconds Performance (parallel)
OpenSMT	OpenSMT	OpenSMT	OpenSMT	OpenSMT

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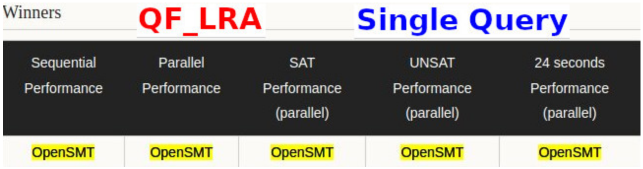

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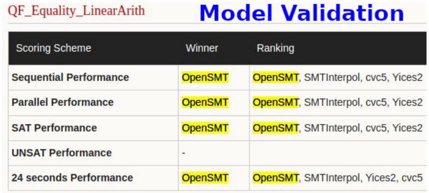

QF_Equality_LinearArith Model Validation

Scoring Scheme	Winner	Ranking
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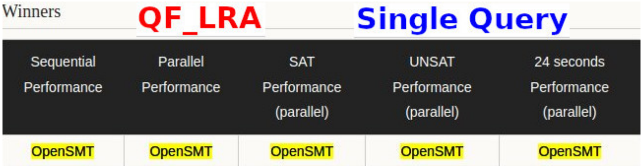

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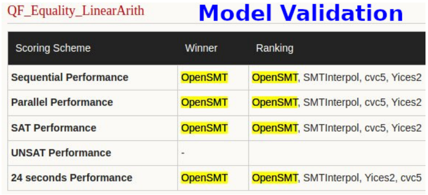

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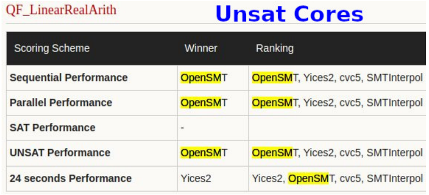

QF_LinearRealArith **Unsat Cores**

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- Fast computation of subset-minimal **unsat cores**
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- Theory-specific algorithms for **distributed solving**

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- In-house **model checking** software:
  - HiFrog, FunFrog, LoopFrog, eVolCheck, UpProver, Golem
  - Incremental verification of ANSI-C programs
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- **Automated test-generation** for Solidity programs
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- **Certification** production for **smart contracts** in Solidity

Promotion

We have open Ph.D. positions in Lugano!

Questions?

Websites:

verify.inf.usi.ch
github.com/usi-verification-and-security/opensmt

Contact:

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natasha.sharygina@usi.ch