

# Alexey S. Ignatiev

Optimisation group, FIT@Monash  
Email: [alexey.ignatiev@monash.edu](mailto:alexey.ignatiev@monash.edu)  
URL: <https://alexeyignatiev.github.io/>

Born: October 27, 1983 — Irkutsk, Russia  
Nationality: Russian

## Current position

*Senior Lecturer*, [Optimisation group](#), [Faculty of IT](#), Monash University, Australia

## Research interests

Decision procedures and discrete optimization algorithms: Boolean satisfiability (SAT) and its extensions including MaxSAT, MinSAT, QBF, QMaxSAT, SMT/MaxSMT. Formal methods in software/hardware synthesis/verification/repair and artificial intelligence.

## Appointments held

2019–date	<i>Senior Lecturer</i> , Faculty of IT, Monash University, Australia
2019–2019	<i>Researcher</i> , Faculty of Sciences, University of Lisbon, Portugal
2016–2019	<i>Postdoctoral researcher</i> , Faculty of Sciences, University of Lisbon, Portugal
2012–2016	<i>Postdoctoral researcher</i> , INESC-ID, IST, University of Lisbon, Portugal
2009–2012	<i>Researcher</i> , Institute for System Dynamics and Control Theory SB RAS, Irkutsk, Russia
2007–2008	<i>Software engineer</i> , Delcam plc., Irkutsk, Russia

## Education

2010	PhD in Computer Science, Institute for System Dynamics and Control Theory SB RAS Title: “ <i>Methods of inverting discrete functions with the use of binary decision diagrams</i> ” Advisor: <i>Alexander A. Semenov</i>
2006	MSC in Applied Mathematics, Irkutsk State University Title: “ <i>Solving sets of logical equations with BDDs</i> ” Advisor: <i>Alexander A. Semenov</i>

## Awards

- 2020a [RC2 MaxSAT solver](#) won *gold* in both unweighted and weighted categories of the Top-*k* track of [MaxSAT Evaluation 2020](#)
- 2020b Our paper “*Computing Optimal Decision Sets with SAT*” is recognised as the best paper in the *CP/ML Track* of [CP 2020](#).  
[RC2 MaxSAT solver](#) won *gold* in both unweighted and weighted categories of the Top-*k* track of [MaxSAT Evaluation 2020](#)
- 2019 [RC2 MaxSAT solver](#) won *gold* in both complete categories (unweighted and weighted) of the main track of [MaxSAT Evaluation 2019](#)
- 2018 [RC2 MaxSAT solver](#) won *gold* in both complete categories (unweighted and weighted) of the main track of [MaxSAT Evaluation 2018](#)
- 2016 [MSCG MaxSAT solver](#) is one of the best overall MaxSAT solvers in the industrial category of the [Eleventh Evaluation of MaxSAT solvers](#) (*1st* and *2nd* place in plain industrial and weighted industrial categories, resp.)
- 2015 [MSCG MaxSAT solver](#) is one of the best overall MaxSAT solvers in the industrial category of the [Tenth Evaluation of MaxSAT solvers](#) (*1st*, *2nd*, and *1st* place in plain industrial, partial crafted, and weighted industrial categories, resp.)
- 2014 [MSCG MaxSAT solver](#) is one of the best overall MaxSAT solvers in the industrial category of the [Ninth Evaluation of MaxSAT solvers](#) among non-portfolio solvers (*4th*, *3rd*, and *2nd* place in plain, partial, and weighted industrial categories, resp.)

## Grants

- 2019–2022 FCT researcher grant SAMPLE (CEECIND/04549/2017)
- 2018–2021 FCT grant FaultLocker (*co-PI*) (PTDC/CCI-COM/29300/2017)
- 2017–2020 FCT postdoctoral grant SAFETY (SFRH/BPD/120315/2016)

## Project participation

- 2018–2021 FCT grant ABSOLV (LISBOA-01-0145-FEDER-028986)
- 2013–2015 FCT grant POLARIS (PTDC/EIA-CCO/123051/2010)
- 2012–2013 FCT grant ATTEST (CMU-PT/ELE/0009/2009)
- 2011–2012 Grant 11-07-00377-a of Russian Foundation for Basic Research
- 2007–2009 Grant 07-01-00400-a of Russian Foundation for Basic Research

## Publications & talks

### JOURNAL PAPERS

- J2022 Y. Izza, A. Ignatiev, J. Marques-Silva. “On Tackling Explanation Redundancy in Decision Trees”. In *Journal of Artificial Intelligence Research*, vol. 75, pp. 261–321 (2022)

- J2021a M. L. Bonet, S. Buss, A. Ignatiev, A. Morgado, and J. Marques-Silva. “Propositional Proof Systems Based on Maximum Satisfiability”. In *Artificial Intelligence*, vol. 300, pp. xx–xx (2021)
- J2021b J. Yu, A. Ignatiev, P. J. Stuckey, P. Le Bodic. “Learning Optimal Decision Sets and Lists with SAT”. In *Journal of Artificial Intelligence Research*, vol. 72, pp. 1251–1279 (2021)
- J2019 A. Ignatiev, A. Morgado, and J. Marques-Silva. “RC2: An Efficient MaxSAT Solver”. In *Journal on Satisfiability, Boolean Modeling and Computation*, vol. 11, pp. 53–64 (2019)
- J2016a A. Ignatiev, M. Janota, and J. Marques-Silva. “Quantified Maximum Satisfiability”. In *Constraints*, vol. 21(2), pp. 277–302 (2016)
- J2016b A. Ignatiev, A. Morgado, J. Planes, and J. Marques-Silva. “Maximal Falsifiability: Definitions, Algorithms, and Applications”. In *AI Communications*, vol. 29(2), pp. 351–370 (2016)
- J2015 A. Morgado, A. Ignatiev, and J. Marques-Silva. “MSCG: Robust Core-Guided MaxSAT Solving. System Description”. In *Journal on Satisfiability, Boolean Modeling and Computation*, vol. 9, pp. 129–134 (2015)

#### CONFERENCE PAPERS

- C2022a J. Marques-Silva, A. Ignatiev. “Delivering Trustworthy AI through Formal XAI”. In *Proc. 36th AAAI Conference on Artificial Intelligence (AAAI’22)*. pp. 12342–12350 (2022)
- C2022b A. Ignatiev, Y. Izza, P. J. Stuckey, J. Marques-Silva. “Using MaxSAT for Efficient Explanations of Tree Ensembles”. In *Proc. 36th AAAI Conference on Artificial Intelligence (AAAI’22)*. pp. 3776–3785 (2022)
- C2022c X. Huang, Y. Izza, A. Ignatiev, M. C. Cooper, N. Asher, J. Marques-Silva. “Tractable Explanations for d-DNNF Classifiers”. In *Proc. 36th AAAI Conference on Artificial Intelligence (AAAI’22)*. pp. 5719–5728 (2022)
- C2022d A. Shrotri, N. Narodytska, A. Ignatiev, K. S. Meel, J. Marques-Silva, M. Vardi. “Constraint-Driven Explanations of Black-Box ML Models”. In *Proc. 36th AAAI Conference on Artificial Intelligence (AAAI’22)*. pp. 8304–8314 (2022)
- C2021a A. Ignatiev, E. Lam, P. J. Stuckey, J. Marques-Silva. “A Scalable Two Stage Approach to Computing Optimal Decision Sets”. In *Proc. 35th AAAI Conference on Artificial Intelligence (AAAI’21)*. pp. 3806–3814 (2021)
- C2021b G. Cabodi, P. E. Camurati, A. Ignatiev, J. Marques-Silva, M. Palena, P. Pasini. “Optimizing Binary Decision Diagrams for Interpretable Machine Learning Classification”. In *Proc. Design, Automation & Test in Europe Conference & Exhibition (DATE’21)*. pp. 1122–1125 (2021)
- C2021c J. Marques-Silva, T. Gerspacher, M. C. Cooper, A. Ignatiev, N. Narodytska. “Explanations for Monotonic Classifiers”. In *Proc. 38th International Conference on Machine Learning (ICML’21)*. PMLR, vol. 139, pp. 7469–7479 (2021)
- C2021d A. Ignatiev, J. Marques Silva. “SAT-Based Rigorous Explanations for Decision Lists”. In *Proc. 24th International Conference on Theory and Applications of Satisfiability Testing (SAT’21)*. Lecture Notes in Computer Science, vol. 12831, pp. 251–269 (2021)

- C2021e S. Kochemazov, A. Ignatiev, J. Marques-Silva. “Assessing Progress in SAT Solvers Through the Lens of Incremental SAT”. In *Proc. 24th International Conference on Theory and Applications of Satisfiability Testing (SAT’21)*. Lecture Notes in Computer Science, vol. 12831, pp. 280–298 (2021)
- C2021f A. Ignatiev, J. Marques-Silva, N. Narodytska, P. J. Stuckey. “Reasoning-Based Learning of Interpretable ML Models”. In *Proc. 30th International Joint Conference on Artificial Intelligence (IJCAI’21)*. pp. 4458–4465 (2021)
- C2021g X. Huang, Y. Izza, A. Ignatiev, and J. Marques-Silva. “On Efficiently Explaining Graph-Based Classifiers”. In *Proc. 18th Conference on Principles of Knowledge Representation and Reasoning (KR’21)*. (2021)
- c2021h A. Semenov, D. Chivilikhin, A. Pavlenko, I. Otpuschennikov, V. Ulyantsev, and A. Ignatiev. “Evaluating the Hardness of SAT Instances Using Evolutionary Optimization Algorithms”. In *Proc. 27th International Conference on Principles and Practice of Constraint Programming (CP’21)*. (2021)
- C2020a O. Zaikin, A. Ignatiev, J. Marques-Silva. “Branch Location Problems with Maximum Satisfiability”. In *Proc. 24th European Conference on Artificial Intelligence (ECAI’20)*. Frontiers in Artificial Intelligence and Applications, vol. 325, pp. 379–386 (2020)
- C2020b A. Ignatiev. “Towards Trustable Explainable AI”. In *Proc. 29th International Joint Conference on Artificial Intelligence (IJCAI’20)*. pp. 5154–5158 (2020)
- C2020c A. Ignatiev, M. Cooper, M. Siala, E. Hebrard, and J. Marques-Silva. “Towards Formal Fairness in Machine Learning”. In *Proc. 26th International Conference on Principles and Practice of Constraint Programming (CP’20)*. Lecture Notes in Computer Science, vol. 12333, pp. 952–970 (2020)
- C2020d J. Yu, A. Ignatiev, P. J. Stuckey, and P. Le Bodic. “Computing Optimal Decision Sets with SAT”. In *Proc. 26th International Conference on Principles and Practice of Constraint Programming (CP’20)*. Lecture Notes in Computer Science, vol. 12333, pp. 846–867 (2020)
- C2020e J. Marques-Silva, T. Gerspacher, M. Cooper, A. Ignatiev, N. Narodytska “Explaining Naive Bayes and Other Linear Classifiers with Polynomial Time and Delay”. In *Proc. 34th Conference on Neural Information Processing Systems (NeurIPS’20)*. (2020)
- C2020f A. Ignatiev, N. Narodytska, N. Asher, J. Marques-Silva. “From Contrastive to Abductive Explanations and Back Again”. In *Proc. 19th Conference on Advances in Artificial Intelligence (AI\*IA’20)*. Lecture Notes in Computer Science, vol. 12414, pp. 335–355 (2020)
- C2019a A. Ignatiev, N. Narodytska, J. Marques-Silva. “Abduction-Based Explanations for Machine Learning Models”. In *Proc. 33rd AAAI Conference on Artificial Intelligence (AAAI’19)*. pp. 1511–1519 (2019)
- C2019b A. Morgado, A. Ignatiev, M. L. Bonet, J. Marques-Silva, S. Buss. “DRMaxSAT with MaxHS: First Contact”. In *Proc. 22nd International Conference on Theory and Applications of Satisfiability Testing (SAT’19)*. Lecture Notes in Computer Science, vol. 11628, pp. 239–249 (2019)
- C2019c N. Narodytska, A. Shrotri, K. Meel, A. Ignatiev, J. Marques-Silva. “Assessing Heuristic Machine Learning Explanations with Model Counting”. In *Proc. 22nd International Conference on Theory and Applications of Satisfiability Testing (SAT’19)*. Lecture Notes in Computer Science, vol. 11628, pp. 267–278 (2019)

- C2019d C. Mencía, O. Kullmann, A. Ignatiev, J. Marques-Silva. “On Computing the Union of MUSes”. In *Proc. 22nd International Conference on Theory and Applications of Satisfiability Testing (SAT’19)*. Lecture Notes in Computer Science, vol. 11628, pp. 211–221 (2019)
- C2019e A. Ignatiev, A. Morgado, G. Weissenbacher, J. Marques-Silva. “Model-Based Diagnosis with Multiple Observations”. In *Proc. 28th International Joint Conference on Artificial Intelligence (IJCAI’19)*. pp. 1108–1115 (2019)
- C2019f I. Zakirzyanov, A. Morgado, A. Ignatiev, V. Ulyantsev, J. Marques-Silva. “Efficient Symmetry Breaking for SAT-Based Minimum DFA Inference”. In *Proc. 13th International Conference on Language and Automata Theory and Applications (LATA’19)*. Lecture Notes in Computer Science, vol. 11417, pp. 159–173 (2019)
- C2019g A. Ignatiev, N. Narodytska, J. Marques-Silva. “On Relating Explanations and Adversarial Examples”. In *Proc. 33rd Conference on Neural Information Processing Systems (NeurIPS’19)*. pp. 15857–15867 (2019)
- C2018a M. L. Bonet, S. Buss, A. Ignatiev, J. Marques-Silva, A. Morgado. “MaxSAT Resolution with the Dual Rail Encoding”. In *Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI’18)*. pp. 6565–6572 (2018)
- C2018b A. Semenov, O. Zaikin, I. Otpuschennikov, S. Kochemazov, A. Ignatiev. “On Cryptographic Attacks Using Backdoors for SAT”. In *Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI’18)*. pp. 6641–6648 (2018)
- C2018c A. Ignatiev, A. Morgado, J. Marques-Silva. “PySAT: A Python Toolkit for Prototyping with SAT Oracles”. In *Proc. 21st International Conference on Theory and Applications of Satisfiability Testing (SAT’18)*. Lecture Notes in Computer Science, vol. 10929, pp. 428–437 (2018)
- C2018d A. Ignatiev, F. Pereira, N. Narodytska, J. Marques-Silva. “A SAT-Based Approach to Learn Explainable Decision Sets”. In *Proc. 9th International Joint Conference on Automated Reasoning (IJCAR’18)*. Lecture Notes in Artificial Intelligence, vol. 10900, pp. 627–645 (2018)
- C2018e N. Narodytska, A. Ignatiev, F. Pereira, J. Marques-Silva. “Learning Optimal Decision Trees with SAT”. In *Proc. 27th International Joint Conference on Artificial Intelligence (IJCAI’18)*. pp. 1362–1368 (2018)
- C2017a R. Peñaloza, C. Mencía, A. Ignatiev, J. Marques-Silva. “Lean Kernels in Description Logics”. In *Proc. 14th Extended Semantic Web Conference (ESWC’17)*. Lecture Notes in Computer Science, vol. 10249, pp. 518–533 (2017)
- C2017b A. Ignatiev, A. Morgado, J. Marques-Silva. “Cardinality Encodings for Graph Optimization Problems”. In *Proc. 26th International Joint Conference on Artificial Intelligence (IJCAI’17)*. pp. 652–658 (2017)
- C2017c A. Ignatiev, A. Morgado, J. Marques-Silva. “On Tackling the Limits of Resolution in SAT Solving”. In *Proc. 20th International Conference on Theory and Applications of Satisfiability Testing (SAT’17)*. Lecture Notes in Computer Science, vol. 10491, pp. 164–183 (2017)
- C2017d J. Marques-Silva, A. Ignatiev, A. Morgado. “Horn Maximum Satisfiability: Reductions, Algorithms & Applications”. In *Proc. 18th EPIA Conference on Artificial Intelligence (EPIA’17)*. Lecture Notes in Computer Science, vol. 10423, pp. 681–694 (2017)

- C2017e A. Previti, A. Ignatiev, M. Jarvisalo, J. Marques-Silva. “On Computing Generalized Backbones”. In *Proc. 29th International Conference on Tools with Artificial Intelligence (ICTAI’17)*. pp. 1050–1056 (2017)
- C2016a C. Mencía, A. Ignatiev, A. Previti, and J. Marques-Silva. “MCS Extraction with Sublinear Oracle Queries”. In *Proc. 19th International Conference on Theory and Applications of Satisfiability Testing (SAT’16)*. Lecture Notes in Computer Science, vol. 9710, pp. 342–360 (2016)
- C2016b M. F. Arif, C. Mencía, A. Ignatiev, N. Manthey, R. Peñaloza, and J. Marques-Silva. “BEACON: An Efficient SAT-Based Tool for Debugging EL+ Ontologies”. In *Proc. 19th International Conference on Theory and Applications of Satisfiability Testing (SAT’16)*. Lecture Notes in Computer Science, vol. 9710, pp. 521–530 (2016)
- C2016c A. Ignatiev, A. Morgado, and J. Marques-Silva. “Propositional Abduction with Implicit Hitting Sets”. In *Proc. 22nd European Conference on Artificial Intelligence (ECAI’16)*. Frontiers in Artificial Intelligence and Applications, vol. 285, pp. 1327–1335 (2016)
- C2016d A. Ignatiev, A. Previti, and J. Marques-Silva. “On Finding Minimum Satisfying Assignments”. In *Proc. 22nd International Conference on Principles and Practice of Constraint Programming (CP’16)*. Lecture Notes in Computer Science, vol. 9892, pp. 287–297 (2016)
- C2016e X. Si, X. Zhang, V. Manquinho, M. Janota, A. Ignatiev, and M. Naik. “On Incremental Core-Guided MaxSAT Solving”. In *Proc. 22nd International Conference on Principles and Practice of Constraint Programming (CP’16)*. Lecture Notes in Computer Science, vol. 9892, pp. 473–482 (2016)
- C2016f J. Marques-Silva, A. Ignatiev, C. Mencía, R. Peñaloza. “Efficient Reasoning for Inconsistent Horn Formulae”. In *Proc. 15th European Conference On Logics In Artificial Intelligence (JELIA’16)*. Lecture Notes in Computer Science, vol. 10021, pp. 336–352 (2016)
- C2015a A. Previti, A. Ignatiev, A. Morgado, and J. Marques-Silva. “Prime Compilation of Non-Clausal Formulae”. In *Proc. 24th International Joint Conference on Artificial Intelligence (IJCAI’15)*. pp. 1980–1987 (2015)
- C2015b J. Marques-Silva, M. Janota, A. Ignatiev, and A. Morgado. “Efficient Model Based Diagnosis with Maximum Satisfiability”. In *Proc. 24th International Joint Conference on Artificial Intelligence (IJCAI’15)*. pp. 1966–1972 (2015)
- C2015c A. Ignatiev, A. Previti, M. Liffiton, and J. Marques-Silva. “Smallest MUS Extraction with Minimal Hitting Set Dualization”. In *Proc. 21st International Conference on Principles and Practice of Constraint Programming (CP’15)*. Lecture Notes in Computer Science, vol. 9255, pp. 173–182 (2015)
- C2015d A. Ignatiev, A. Previti, and J. Marques-Silva. “SAT-Based Formula Simplification”. In *Proc. 18th International Conference on Theory and Applications of Satisfiability Testing (SAT’15)*. Lecture Notes in Computer Science, vol. 9340, pp. 287–298 (2015)
- C2014a A. Ignatiev, M. Janota, and J. Marques-Silva. “Towards Efficient Optimization in Package Management Systems”. In *Proc. 36th International Conference on Software Engineering (ICSE’14)*. pp. 745–755 (2014)

- C2014b A. Ignatiev, A. Morgado, and J. Marques-Silva. “On Reducing Maximum Independent Set to Minimum Satisfiability”. In *Proc. 17th International Conference on Theory and Applications of Satisfiability Testing (SAT’14)*. Lecture Notes in Computer Science, vol. 8561, pp. 103–120 (2014)
- C2014c J. Marques-Silva, A. Ignatiev, A. Morgado, V. Manquinho, and I. Lynce. “Efficient Autarkies”. In *Proc. 21st European Conference on Artificial Intelligence (ECAI’14)*. Frontiers in Artificial Intelligence and Applications, vol. 264, pp. 603–608 (2014)
- C2014d A. Ignatiev, A. Morgado, V. Manquinho, I. Lynce, and J. Marques-Silva. “Progression in Maximum Satisfiability”. In *Proc. 21st European Conference on Artificial Intelligence (ECAI’14)*. Frontiers in Artificial Intelligence and Applications, vol. 264, pp. 453–458 (2014)
- C2013a A. Ignatiev, M. Janota, and J. Marques-Silva. “Quantified Maximum Satisfiability: A Core-Guided Approach”. In *Proc. 16th International Conference on Theory and Applications of Satisfiability Testing (SAT’13)*. Lecture Notes in Computer Science, vol. 7962, pp. 250–266 (2013)
- C2013b A. Ignatiev, A. Morgado, J. Planes, and J. Marques-Silva. “Maximal Falsifiability: Definitions, Algorithms, and Applications”. In *Proc. 19th International Conference on Logic for Programming Artificial Intelligence and Reasoning (LPAR’13)*. Lecture Notes in Computer Science, vol. 8312, pp. 439–456 (2013)
- C2011 A. Ignatiev and A. Semenov. “DPLL+ROBDD Derivation Applied to Inversion of Some Cryptographic Functions”. In *Proc. 14th International Conference on Theory and Applications of Satisfiability Testing (SAT’11)*. Lecture Notes in Computer Science, vol. 6695, pp. 76–89 (2011)
- C2009 A. Ignatiev, A. Semenov, and D. Bepalov. “Binary Decision Diagrams in Parallel Algorithms for Discrete Function Inversion” (in Russian). In *Proc. 3rd International Conference on Parallel Computing Technologies (PAVT’09)*. pp. 688–696 (2009)

#### REFEREED WORKSHOP PAPERS

- W2020a A. Ignatiev, N. Narodytska, and J. Marques-Silva. “On Formal Reasoning about Explanations”. In *Proc. 27th RCRA International Workshop on Experimental Evaluation of Algorithms for solving problems with combinatorial explosion* (2021)
- W2020b A. Ignatiev, N. Narodytska, N. Asher, and J. Marques-Silva. “On Relating “Why?” and “Why Not?” Explanations”. In *Proc. 27th RCRA International Workshop on Experimental Evaluation of Algorithms for solving problems with combinatorial explosion* (2021)
- W2017 A. Ignatiev, J. Marques-Silva, C. Mencía, R. Peñaloza. “Debugging  $EL^+$  Ontologies through Horn MUS Enumeration”. In *Proc. 30th International Workshop on Description Logics (DL’17)*.
- W2014 A. Ignatiev, A. Morgado, J. Planes, and J. Marques-Silva. “Maximal Falsifiability: Definitions, Algorithms, and Applications”. In *Proc. 21st RCRA International Workshop on Experimental Evaluation of Algorithms for solving problems with combinatorial explosion* (2014)

#### TALKS

- T2022a “Using MaxSAT for Efficient Explanations of Tree Ensembles”. AAI. Online. February 27, 2022.

- T2022b “Formal Explainable AI”. *CP Tutorial*. Haifa, Israel. August 4, 2022.
- T2021a “A Scalable Two Stage Approach to Computing Optimal Decision Sets”. *AAAI*. Online. February 5, 2021.
- T2021b “SAT-Based Rigorous Explanations for Decision Lists”. *SAT*. Online. July 7, 2021.
- T2021c “Reasoning-Based Learning of Interpretable ML Models”. *IJCAI*. Online. August 23, 2021.
- T2021d “Clauses and Beyond: On Fast Prototyping with SAT Oracles”. *Dagstuhl Seminar on “Extending the Synergies Between SAT and Description Logics”*. Online. September 8, 2021.
- T2021e “Logic-based Explainable AI”. *MIAO Video Seminars*. Online. October 15, 2021.
- T2021f “From Contrastive to Abductive Explanations and Back Again”. *KR*. Online. November 9, 2021.
- T2021g “Logic-based Explainable AI”. *AI-based OPTIMA Seminar*. Online. November 24, 2021.
- T2020a “Rigorous Verification and Explanation of ML Models”. *AAAI Tutorial (together with Joao Marques-Silva, Kuldeep Meel and Nina Narodytska)*. New York, USA. February 8, 2020.
- T2020b “Logic-Enabled Verification and Explanation of ML Models”. *IJCAI Tutorial (together with Joao Marques-Silva, Kuldeep Meel and Nina Narodytska)*. Online. January 8, 2021.
- T2020c “Towards Trustable Explainable AI”. *IJCAI Early-Career Spotlight*. Online. January 12, 2021.
- T2019a “Abduction-Based Explanations for Machine Learning Models”. *AAAI*. Honolulu, USA. January 30, 2019.
- T2019b “Computing With SAT Oracles”. *IJCAI Tutorial (together with Joao Marques-Silva and Antonio Morgado)*. Macau, China. August 12, 2019.
- T2019c “Model-Based Diagnosis with Multiple Observations”. *IJCAI*. Macau, China. August 14, 2019.
- T2018 “On Cryptographic Attacks Using Backdoors for SAT”. *AAAI*. New Orleans, USA. February 4, 2018.
- T2017a “Cardinality Encodings for Graph Optimization Problems”. *IJCAI*. Melbourne, Australia. August 23, 2017.
- T2017b “On Tackling the Limits of Resolution in SAT Solving”. *SAT*. Melbourne, Australia. August 29, 2017.
- T2016a “On Incremental Core-Guided MaxSAT Solving”. *CP*. Toulouse, France. September 6, 2016.
- T2016b “On Finding Minimum Satisfying Assignments”. *CP*. Toulouse, France. September 9, 2016.
- T2015a “Efficient Model Based Diagnosis with Maximum Satisfiability”. *IJCAI*. Buenos Aires, Argentina. July 31, 2015.
- T2015b “Efficient Model Based Diagnosis with Maximum Satisfiability”. *RiSE Seminar*. Vienna, Austria. August 14, 2015.
- T2014a “Towards Efficient Optimization in Package Management Systems”. *ICSE*. Hyderabad, India. June 5, 2014.
- T2014b “On Reducing Maximum Independent Set to Minimum Satisfiability”. *SAT*. Vienna, Austria. July 14, 2014.
- T2014c “Maximal Falsifiability: Definitions, Algorithms, and Applications”. *RCRA*. Vienna, Austria. July 17, 2014.



- T<sub>2013a</sub> “Quantified Maximum Satisfiability: A Core-Guided Approach”. *SAT*. Helsinki, Finland. July 11, 2013.
- T<sub>2013b</sub> “Maximal Falsifiability: Definitions, Algorithms, and Applications”. *LPAR*. Stellenbosch, South Africa. December 15, 2013.
- T<sub>2011</sub> “DPLL+ROBDD Derivation Applied to Inversion of Some Cryptographic Functions”. *SAT*. Ann Arbor, USA. June 19, 2011.

## Other activities

- Co-organizer of the Workshop on *Logic-based Methods in Machine Learning* (LMML) 2022
- Member of the Scientific Advisory Board of *Reasoning Web Summer School* (RW) 2022
- PC member of the *International Conference on Machine Learning* (ICML) 2022
- PC member of the *SIGKDD Conference on Knowledge Discovery and Data Mining* (KDD) 2022
- PC member of the *International Conference on Autonomous Agents and Multiagent Systems* (AAMAS) 2022
- PC member of the *International Conference on Learning Representations* (ICLR) 2022 and 2023
- SPC member of the *AAAI Conference on Artificial Intelligence* (AAAI) 2022
- PC member of the *Conference on Neural Information Processing Systems* (NeurIPS) 2021 and 2022
- Co-organizer of the CPAIOR 2021 Master Class Day
- Co-organizer of the SAT/SMT/AR Summer School 2019
- SPC member of the *International Joint Conference on Artificial Intelligence* (IJCAI) 2020 and 2021
- PC member of the *AAAI Conference on Artificial Intelligence* (AAAI) 2018–2021 and 2023
- PC member of the *International Joint Conference on Artificial Intelligence* (IJCAI) 2015, 2017–2019
- PC member of the *European Conference on Artificial Intelligence* (ECAI) 2020
- PC member of the *International Conference on Theory and Applications of Satisfiability Testing* (SAT) 2017 and 2019–2021
- PC member of the *International Conference on Principles and Practice of Constraint Programming* (CP) 2019 and 2022
- member of the Artifact Evaluation Committee of the *International Conference on Computer-Aided Verification* (CAV) 2019
- PC member of the *Workshop on Pragmatics of SAT* (POS) 2018–2021
- External reviewer for CAV 2014, CP 2018, FMCAD 2017, SAT 2013, SAT 2014, SAT 2015, SAT 2016, SAT 2018, and TACAS 2016