

Curriculum Vitae

Martin Gebser

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Personal Data

Name: Martin Gebser

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Place of Birth: Berlin

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Education and Academic Degrees

February 2011: Dissertation as Dr. rer. nat. (\approx Ph.D.), University of Potsdam; Scientific Discipline: Knowledge Representation and Reasoning; Mark: with distinction (summa cum laude); Thesis Committee: Professor Torsten Schaub (supervisor), Professor Gerhard Brewka, Professor Tomi Janhunen

March 2005: Diploma in Informatics, University of Potsdam; Mark: 1.0 (excellent); Thesis Committee: Professor Torsten Schaub (supervisor), Professor Christoph Kreitz

October 1999 – March 2005: Study of Informatics, University of Potsdam

July 1998: Abitur (\approx Baccalaureate), Paulus-Praetorius-Gymnasium Bernau

Professional Career

October 2018 – present: Endowed Professor for Adaptive and Networked Production Systems, Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt, Austria

October 2015 – September 2018: Researcher, Institute for Informatics, University of Potsdam, Germany, with part-time occupation in industrial projects of Potassco Solutions Ltd.

October 2013 – September 2015: Researcher, Department of Information and Computer Science, Aalto University, Finland

April 2005 – September 2013: Researcher, Institute for Informatics, University of Potsdam, Germany

October 2000 – March 2005: Student Researcher, Institute for Informatics, University of Potsdam, Germany

September 1998 – September 1999: Civilian Service, Residential Care Home “Waldfrieden” Bernau, Germany

Contents

1	Teaching Experience	3
1.1	Courses	3
1.2	Tutorials	4
1.3	Supervised Theses	5
1.4	Additional Qualifications	6
2	Scientific Activities	8
2.1	Editor/Program Chair Positions	8
2.2	Program Committee Memberships at International Conferences	9
2.3	Program Committee Memberships at International Workshops	10
2.4	Reviewing Activities for International Journals	12
2.5	Reviewing Activities for International Conferences	12
2.6	Reviewing Activities for International Workshops	13
2.7	Reviewing Activities for Research Grant Agencies	14
2.8	Reviewing of Dissertations	14
3	Further Activities	15
3.1	Research Projects	15
3.2	Research Visits	16
3.3	Invited Talks	17
3.4	Awards	17
4	Publications	19
4.1	Refereed Journal Articles	19
4.2	Refereed Conference Articles	20
4.3	Refereed Workshop Articles	27
4.4	Invited Articles	28
4.5	Theses	30
4.6	Textbooks	30
4.7	Bibliographic Metrics	30

1 Teaching Experience

1.1 Courses

- Organization and conduction of tutorials and examinations, supervision of student projects and reports as well as occasional lecture readings in one-semester courses at the Institute for Informatics, University of Potsdam:
 - *Advanced Constraint Solving*: winter 2010/11, 2011/12
 - *Advanced Problem Solving Techniques*: winter 2005/06, 2006/07, 2007/08, 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2015/16, 2016/17, 2017/18
 - *Applied Logic*: summer 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013
 - *Automatic Problem Solving*: winter 2005/06, 2007/08, 2008/09; summer 2010, 2011, 2012, 2013
 - *Cognitive Robotics Project*: summer 2016, 2017
 - *Computational Intelligence*: winter 2005/06, 2006/07, 2007/08, 2008/09, 2010/11, 2011/12, 2012/13; summer 2016, 2017
 - *Declarative Problem Solving Project*: summer 2013; winter 2016/17, 2017/18
 - *Knowledge in Action*: summer 2007
 - *Knowledge Representation and Reasoning*: summer 2006, 2007, 2008, 2009, 2010, 2011, 2012
 - *Solver Construction Project*: 2006/07, 2007/08, 2008/09, 2009/10, 2010/11, 2011/12, 2012/13; two-semester projects
 - *Stable Model Semantics*: winter 2006/07
 - *Theoretical Informatics*: summer 2005
- Organization and conduction of one-semester courses:
 - *Advanced Topics in Artificial Intelligence*: winter 2019/20, 2020/21, 2021/22; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt
 - *Advanced Topics in Artificial Intelligence 2*: winter 2021/22; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt
 - *Answer Set Programming*: winter 2014; Department of Information and Computer Science, Aalto University
 - *Current Topics in Planning and Scheduling*: summer 2019, 2022; winter 2020/21; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt
 - *Declarative Modeling*: winter 2012/13, 2015/16, 2016/17, 2017/18; Institute for Informatics, University of Potsdam
 - *Introduction to Artificial Intelligence*: summer 2022; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt

- *Joint Doctoral Seminar on Modelling, Simulation, and Optimization in Business and Economics*: winter 2020/21, 2021/22; summer 2022; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt
- *Logic Programming*: winter 2019/20, 2020/21, 2021/22; summer 2020, 2021, 2022; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt
- *Seminar on Applied Informatics*: winter 2021/22; Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt

1.2 Tutorials

Part of the listed tutorials have been organized and given together with Torsten Schaub, Roland Kaminski, and Javier Romero at international conferences or on invitation, respectively.

- *Effective Modeling in Answer Set Programming modulo Theories*, 2 hours:
 - Thirty-eighth International Conference on Logic Programming (ICLP'22) School on Logic Programming, Haifa, Israel, July 2022
- *Applications of Answer Set Programming*, 4 hours:
 - Sixteenth Logic Programming Doctoral Consortium (ICLP-DC'20) Autumn School on Logic and Constraint Programming, Rende, Italy, September 2020
- *Answer Set Solving in Practice: Advanced techniques*, 8 hours:
 - Twenty-fourth International Joint Conference on Artificial Intelligence (IJCAI'15), Buenos Aires, Argentina, July 2015
- *Answer Set Programming*, 4 hours:
 - Association for Logic Programming Summer School on Computational Logic, Vienna, Austria, July 2014
- *Answer Set Solving in Practice*, 4 hours:
 - Twenty-seventh AAAI Conference on Artificial Intelligence (AAAI'13), Bellevue, Washington, USA, July 2013
 - Twenty-third International Joint Conference on Artificial Intelligence (IJCAI'13), Beijing, China, August 2013
- *Modeling and Solving in Answer Set Programming*, 3 hours:
 - Thirteenth International Conference on Principles of Knowledge Representation and Reasoning (KR'12), Rome, Italy, June 2012
- *Answer Set Solving in Practice*, 8 hours:
 - Twenty-second International Joint Conference on Artificial Intelligence (IJCAI'11), Barcelona, Spain, July 2011
 - SIEMENS AG, Vienna, Austria, September 2011

1.3 Supervised Theses

- [1] J. Hölzl. *Multi-Agent Path Finding: Algorithms and Extensions*. M.Sc. thesis, Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt, 2021.
- [2] E. Stellnberger. *Finding all Solutions to a CNF: The DualSat SAT Solver*. M.Sc. thesis, Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt, 2020.
- [3] A. Toncetti. *New Multishot Encodings for Automated Planning with Complex Parallel Actions*. M.Sc. thesis, Department of Mathematics, Computer Science and Physics, University of Udine, 2020.
- [4] F. Zindler. *robo-gym: A Reinforcement Learning Interface for Real and Simulated Robots*. M.Sc. thesis, Department of Artificial Intelligence and Cybersecurity, University of Klagenfurt, 2020.
- [5] J. Jantzen. *Using Domain Heuristics for Solving Industrial Problems in Clasp*. Diploma thesis, Institute for Informatics, University of Potsdam, 2019.
- [6] F. Brumm. *Boolesche Constraint-Lösungsverfahren für industrielle Car Sequencing Probleme*. M.Sc. thesis, Institute for Informatics, University of Potsdam, 2018.
- [7] O. Gühlke. *New Declarative Encodings for Sequential and Parallel Planning*. B.Sc. thesis, Institute for Informatics, University of Potsdam, 2017.
- [8] M. Ratsch-Heitmann. *Deklarative Steuerung fahrerloser Transportsysteme*. M.Sc. thesis, Institute for Informatics, University of Potsdam, 2017.
- [9] S. Schellhorn. *A New Translation of Bound Founded Answer Set Programming*. M.Sc. thesis, Institute for Informatics, University of Potsdam, 2016.
- [10] N. Illenseer. *Präferenzbehandlung beim Booleschen Constraint Lösen*. Diploma thesis, Institute for Informatics, University of Potsdam, 2015.
- [11] J. Bomanson. *Developing Efficient Encodings for Weighted Expressions in Answer Set Programs*. M.Sc. thesis, Department of Information and Computer Science, Aalto University, 2014.
- [12] S. Schellhorn. *Cardinality and Weight Constraint Transformations*. B.Sc. thesis, Institute for Informatics, University of Potsdam, 2014.
- [13] B. Fürll. *Moderne Verfahren zur logistischen Tourenoptimierung*. M.Sc. thesis, Institute for Informatics, University of Potsdam, 2013.
- [14] T. Grave. *Anfrageoptimierungsstrategien für deduktive Datenbanken*. Diploma thesis, Institute for Informatics, University of Potsdam, 2013.
- [15] A. Häusler. *Reasoning Techniques for Maximum Satisfiability Solving*. B.Sc. thesis, Institute for Informatics, University of Potsdam, 2013.
- [16] M. Weise. *Effiziente Kodierungen komplexer Constraints*. B.Sc. thesis, Institute for Informatics, University of Potsdam, 2012.
- [17] K. Alrifai. *Deklarative Programmierung komplexer Optimierungsprobleme*. Diploma thesis, Institute for Informatics, University of Potsdam, 2011.

- [18] P. Nordmann. *Effiziente Kompilierung von Constraint-Sprachen*. Diploma thesis, Institute for Informatics, University of Potsdam, 2011.
- [19] J. Schwarz. *General Gambling – Non-deterministic General Game Playing with Incomplete Information*. Diploma thesis, Institute for Informatics, University of Potsdam, 2011.
- [20] S. Ziller. *Clasfolio: Ein System zum Portfolio-basierten ASP-Lösen*. Diploma thesis, Institute for Informatics, University of Potsdam, 2011.
- [21] T. Grote. *A Reactive System for Declarative Programming of Dynamic Applications*. Diploma thesis, Institute for Informatics, University of Potsdam, 2010.
- [22] T. Leupold. *Incremental Expansion of Applications with Infinite Horizons*. Diploma thesis, Institute for Informatics, University of Potsdam, 2010.
- [23] M. Schneider. *Autokonfiguration von Solvern: Automatisches Parameterrekonfigurieren von Boole'schen Constraint Solvern*. M.Sc. thesis, Institute for Informatics, University of Potsdam, 2010.
- [24] R. Kaminski. *Generic ASP: Logic Programs with Aggregates*. Diploma thesis, Institute for Informatics, University of Potsdam, 2009.
- [25] M. Knecht. *Efficient Domain-Independent Planning using Declarative Programming*. M.Sc. thesis, Institute for Informatics, University of Potsdam, 2009.
- [26] B. Lüpfert. *Asparagus: Eine webbasierte Support-Plattform für deklarative Programmiersysteme*. Diploma thesis, Institute for Informatics, University of Potsdam, 2009.
- [27] M. Ostrowski. *A Hybrid Approach for Integrated Boolean and Non-Boolean Constraint Processing*. Diploma thesis, Institute for Informatics, University of Potsdam, 2009.
- [28] C. Drescher. *Heuristics in Conflict Resolution*. B.Sc. thesis, Institute for Informatics, University of Potsdam, 2008.
- [29] E. Ellguth. *Parallele Antwortmengenberechnung – Entwurf und Implementierung eines parallelen Algorithmus*. Diploma thesis, Institute for Informatics, University of Potsdam, 2008.
- [30] A. Neumann. *Algorithmische Verfahren zur Zyklenbehandlung in logischen Programmen*. Diploma thesis, Institute for Informatics, University of Potsdam, 2008.
- [31] M. Ulrich. *Dynamische Heuristiken für die Antwortmengenberechnung*. Diploma thesis, Institute for Informatics, University of Potsdam, 2007.

1.4 Additional Qualifications

- *Senior Teaching Professionals* program of the Potsdam Graduate School (PoGS), including workshops on the following subjects, held March 2012 – April 2013:
 - Development of a didactic teaching concept
 - Didactic and methodical competences
 - E-Teaching
 - Competence-oriented examination and supervision

- Curricula development in the context of the Bologna process
- Leadership requirements in science
- Career planning and potential analysis
- *Appreciative Communication and Leadership* seminar of the University of Klagenfurt, held July 2019
- *Diversity and Gender* seminar of the University of Klagenfurt, held July 2020

2 Scientific Activities

2.1 Editor/Program Chair Positions

- Area Editor for “Implementation” of the online journal *Association for Logic Programming Newsletter*
 - since July 2014
- Editorial Board Member of the journal *Experimental Results*
 - since October 2019
- Editorial Board Member of the journal *Theory and Practice of Logic Programming*
 - since January 2021
- Associate Editor of the journal *Journal of Artificial Intelligence Research*
 - since November 2021
- Topical Advisory Panel Member of the online journal *Algorithms*
 - since March 2022
- Program Chair of the *International Conference on Logic Programming Doctoral Consortium (ICLP-DC)*
 - 2014
 - 2013
- Program Chair of the *International Workshop on Practical Aspects of Answer Set Programming (PAoASP)*
 - 2017
- Program Chair of the *Workshop on Trends and Applications of Answer Set Programming (TAASP)*
 - 2020
 - 2019
- Program Chair of the *European Conference on Logics in Artificial Intelligence (JELIA)*
 - 2021
- Program Chair of the *International Conference on Logic Programming and Non-monotonic Reasoning Doctoral Consortium (LPNMR-DC)*
 - 2022
- Track Chair for “Applications and Systems” at the *International Conference on Principles of Knowledge Representation and Reasoning (KR)*
 - 2021
- Track Chair for “Recently Published Research” at the *International Conference on Logic Programming (ICLP)*
 - 2022

- Workshop Chair of the *International Conference on Logic Programming (ICLP)*
 - 2020
 - 2019
- Organization Committee Member of the *Answer Set Programming Competition (ASPCOMP)*
 - 2017
 - 2015
 - 2014
 - 2009
 - 2007

2.2 Program Committee Memberships at International Conferences

- *AAAI Conference on Artificial Intelligence (AAAI)*
 - 2023
 - 2019
 - 2012
- *European Conference on Artificial Intelligence (ECAI)*
 - 2022
 - 2020
- *International Conference on Logic Programming (ICLP)*
 - 2021
 - 2020
 - 2019
 - 2018
 - 2017
 - 2016
 - 2013
 - 2011
- *International Joint Conference on Artificial Intelligence (IJCAI)*
 - 2022
 - 2021
 - 2020
 - 2018
 - 2017
 - 2016
 - 2015
 - 2013
- *International Symposium on Methodologies for Intelligent Systems (ISMIS)*
 - 2022
 - 2020

- *International Conference on Principles of Knowledge Representation and Reasoning (KR)*
 - 2022
 - 2020
 - 2018
 - 2014
 - 2012
- *International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR)*
 - 2022
 - 2019
 - 2017
 - 2015
 - 2013
 - 2011
- *International Symposium on Practical Aspects of Declarative Languages (PADL)*
 - 2023
 - 2022
 - 2021
 - 2020
 - 2019
 - 2018
 - 2017
- *International Symposium on Principles and Practice of Declarative Programming (PPDP)*
 - 2012
- *International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM)*
 - 2012

2.3 Program Committee Memberships at International Workshops

- *International Workshop on Answer Set Programming and Other Computing Paradigms (AS-POCP)*
 - 2022
 - 2021
 - 2019
 - 2015
 - 2013
 - 2012
 - 2011
 - 2010

- *Joint Workshop on Implementation of Constraint Logic Programming Systems and Logic-based Methods in Programming Environments (CICLOPS-WLPE)*
 - 2010
- *International Workshop on Grounding, Transforming, and Modularizing Theories with Variables (GTTV)*
 - 2015
- *International Conference on Logic Programming Doctoral Consortium (ICLP-DC)*
 - 2019
 - 2018
 - 2017
 - 2016
 - 2015
 - 2012
- *International Workshop on User-Oriented Logic Programming (IULP)*
 - 2020
 - 2017
 - 2015
- *International Conference on Logic Programming and Nonmonotonic Reasoning Doctoral Consortium (LPNMR-DC)*
 - 2019
- *Workshop on Logic and Practice of Programming (LPOP)*
 - 2020
- *International Workshop on Non-Monotonic Reasoning (NMR)*
 - 2020
 - 2018
 - 2016
 - 2014
 - 2012
 - 2010
 - 2008
- *Thirty Years of Nonmonotonic Reasoning (NonMon@30)*
 - 2010
- *International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA)*
 - 2016
- *International Workshop on Software Engineering for Answer Set Programming (SEA)*
 - 2009
- *International Workshop on Software Knowledge (SKY)*
 - 2011
- *Symposium in Honor of Vladimir Lifschitz' 65th Birthday (VL-65)*
 - 2012

2.4 Reviewing Activities for International Journals

- *ACM Transactions on Computational Logic*
- *AI Communications*
- *Algorithms*
- *Algorithms for Molecular Biology*
- *Annals of Mathematics and Artificial Intelligence*
- *Artificial Intelligence*
- *Constraints*
- *Electronics*
- *Engineering Applications of Artificial Intelligence*
- *Fundamenta Informaticae*
- *IEEE Transactions on Network Science and Engineering*
- *International Journal of Approximate Reasoning*
- *International Journal on Very Large Data Bases*
- *Journal of Artificial Intelligence Research*
- *Journal of Automated Reasoning*
- *Journal of Autonomous Agents and Multi-Agent Systems*
- *Journal of Computer and System Sciences*
- *Journal of Experimental Algorithmics*
- *Journal of Logic and Computation*
- *Journal of Logical and Algebraic Methods in Programming*
- *New Generation Computing*
- *Optimization Letters*
- *Theory and Practice of Logic Programming*

2.5 Reviewing Activities for International Conferences

- *AAAI Conference on Artificial Intelligence (AAAI)*
- *Australasian Joint Conference on Advances in Artificial Intelligence (AI)*
- *Conference on Computer Science Logic (CSL)*
- *European Conference on Artificial Intelligence (ECAI)*
- *European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU)*
- *International Conference on Logic Programming (ICLP)*
- *International Conference on Software Testing, Verification and Validation (ICST)*

- *International Conference on Tools with Artificial Intelligence (ICTAI)*
- *International Joint Conference on Artificial Intelligence (IJCAI)*
- *European Conference on Logics in Artificial Intelligence (JELIA)*
- *German Conference on Artificial Intelligence (KI)*
- *International Conference on Principles of Knowledge Representation and Reasoning (KR)*
- *International Conference on Knowledge Science, Engineering and Management (KSEM)*
- *International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*
- *International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR)*
- *International Symposium on Practical Aspects of Declarative Languages (PADL)*
- *International Symposium on Principles and Practice of Declarative Programming (PPDP)*
- *International Conference on Theory and Applications of Satisfiability Testing (SAT)*
- *International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM)*
- *International Conference on Automated Reasoning with Analytic Tableaux and Related Methods (TABLEAUX)*

2.6 Reviewing Activities for International Workshops

- *Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP)*
- *Joint Workshop on Implementation of Constraint Logic Programming Systems and Logic-based Methods in Programming Environments (CICLOPS-WLPE)*
- *Italian Convention on Computational Logic (CILC)*
- *European Summer School in Logic, Language, and Information (ESSLLI)*
- *International Conference on Logic Programming Doctoral Consortium (ICLP-DC)*
- *International Workshop on Search and Logic (LaSh)*
- *Symposium on Constructive Mathematics in Computer Science (MG-65)*
- *Essays in Honor of Marek J. Sergot's 60th Birthday (MS-60)*
- *International Workshop on Non-Monotonic Reasoning (NMR)*
- *Thirty Years of Nonmonotonic Reasoning (NonMon@30)*
- *International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA)*
- *International Workshop on Software Engineering for Answer Set Programming (SEA)*
- *International Workshop on Software Knowledge (SKY)*
- *Workshop of the Working Group "Types" (TYPES)*
- *Symposium in Honor of Vladimir Lifschitz' 65th Birthday (VL-65)*
- *Workshop on (Constraint) Logic Programming (WLP)*

2.7 Reviewing Activities for Research Grant Agencies

- *Deutsche Forschungsgemeinschaft (DFG)*
- *Istituto Nazionale di Alta Matematica (INdAM)*
- *Natural Sciences and Engineering Research Council of Canada (NSERC)*
- *Research Council of KU Leuven*

2.8 Reviewing of Dissertations

- Richard Comploi-Taupé: *Speeding Up Lazy-Grounding Answer Set Solving*, Ph.D. thesis, University of Klagenfurt, 2021
- Paul Saikko: *Implicit Hitting Set Algorithms for Constraint Optimization*, Ph.D. thesis, University of Helsinki, 2019
- Stefano Germano: *Logic Programming in Non-Conventional Environments*, Ph.D. thesis, University of Calabria, 2018
- Carmine Dodaro: *Computational Tasks in Answer Set Programming: Algorithms and Implementation*, Ph.D. thesis, University of Calabria, 2015
- Andrea Peano: *Solving Real-Life Hydroinformatics Problems with Operations Research and Artificial Intelligence*, Ph.D. thesis, University of Ferrara, 2015

3 Further Activities

3.1 Research Projects

- Research and innovation projects supported by the Austrian Research Promotion Agency (FFG)
 - *Swarm Intelligence and Combinatorial Optimization for Energy Efficient and Adaptive Industry 4.0*; Applicants: Lakeside Labs GmbH, Infineon Technologies Austria AG, Messfeld GmbH, Novunex GmbH, Vienna University of Economics and Business, and Martin Gebser, University of Klagenfurt; 1 position within the "Production of the Future" project consortium; Project period: 2022 – 2025
 - *Logic-based Sentiment Technology*; Applicant: Martin Gebser, University of Klagenfurt; 10.000 € funding volume; Project period: 2020 – 2021
- Research and innovation projects supported by the Carinthian Economy Promotion Fund (KWF)
 - *Veritas*; Applicant: Martin Gebser, University of Klagenfurt; 1 position for 9 months; Project period: 2019 – 2020
- International exchange programs supported by Austria's Agency for Education and Internationalisation (OeAD)
 - *General Reversibility of Deterministic and Non-deterministic Actions*; Applicants: Professor Lukáš Chrpa, Czech Technical University in Prague, and Martin Gebser, University of Klagenfurt; Exchange program period: 2022 – 2023
- Collaboration in the preparation of research project proposals and reports for the German Science Foundation (DFG)
 - *Development of High-Performance Systems for Model-based Problem Solving via Answer Set Programming*; Applicants: Professor Torsten Schaub and Professor Bettina Schnor, University of Potsdam; 2 positions (2008 – 2012) / 1 position (2013 – 2015); Project period: 2008 – 2015
 - *Advanced Solving Technology for Dynamic and Reactive Applications*; Applicants: Professor Torsten Schaub, University of Potsdam, and Professor Gerhard Brewka, University of Leipzig; 1 position within the research cluster "Hybrid Reasoning for Intelligent Systems" (HYBRIS); Project period: 2012 – 2018
 - *From Correlation to Causality: Reasoning Over Dynamic Protein Interaction Networks*; Applicants: Professor Torsten Schaub, University of Potsdam, Professor Gerhard Brewka, University of Leipzig, and Professor Michael Schröder, Technical University Dresden; 1 position within the research cluster "Hybrid Reasoning for Intelligent Systems" (HYBRIS); Project period: 2012 – 2018
- Collaboration in the preparation of applications and reports for international exchange programs
 - *Methods for Distributed Answer Set Solving*; Applicants: Professor Marina de Vos, University of Bath, and Professor Torsten Schaub, University of Potsdam; funded by the Royal Academy; Exchange program period: 2007 – 2009

- *Querying Biological Systems with Answer Set Programming*; Applicants: Professor Torsten Schaub, University of Potsdam, Professor Anne Siegel and Professor Jacques Nicolas, IRISA/INRIA Rennes; funded by the German Academic Exchange Service; Exchange program period: 2011 – 2012
- *Declarative Programming for General Robotics*; Applicants: Professor Torsten Schaub, University of Potsdam, and Professor Michael Thielscher, University of New South Wales; funded by the German Academic Exchange Service; Exchange program period: 2012 – 2013
- *Expressive Methods for Knowledge Representation and Reasoning*; Applicants: Professor Torsten Schaub, University of Potsdam, and Professor Tomi Janhunen, Aalto University; funded by the German Academic Exchange Service; Exchange program period: 2014 – 2015
- *Bridging Theory and Practice: Update Semantics and Multi-shot ASP*; Applicants: Professor Torsten Schaub, University of Potsdam, and Professor João Leite, Universidade NOVA de Lisboa; funded by the German Academic Exchange Service; Exchange program period: 2017 – 2018

3.2 Research Visits

- Technical University of Helsinki, Finland (Professor Ilkka Niemelä and Professor Tomi Janhunen)
 - March 2005 (one week)
- University of Texas, USA (Professor Vladimir Lifschitz)
 - July 2006 (one week)
- University of Arizona, USA (Professor Joohyung Lee)
 - August 2006 (one week)
- University of British Columbia, Canada (Professor James Delgrande)
 - August 2006 (one week)
- University of Bath, UK (Professor Marina de Vos)
 - November 2007 (one week)
 - February 2009 (one week)
- Technical University Vienna, Austria (Professor Thomas Eiter, Professor Hans Tompits, and Professor Stefan Woltran)
 - June 2008 (one week)
- IRISA/INRIA Rennes, France (Professor Anne Siegel and Professor Jacques Nicolas)
 - July 2008 (one week)
 - September 2010 (one week)
 - October 2011 (one week)
 - May 2012 (one week)
 - March 2016 (one week)
 - September 2016 (one week)
- University of New South Wales and University of Western Sydney, Australia (Professor Michael Thielscher and Professor Yan Zhang)
 - September 2011 (one month)

3.3 Invited Talks

- *Answer Set Programming, the Solving Paradigm for Knowledge Representation and Reasoning*; Deduction at Scale Seminar, Tegernsee, Germany, March 2011
- *Answer Set Programs: Modelling and Solving*; Oxford Configuration Workshop, Oxford, UK, January 2012
- *Answer Set Programming and Other Acyclicity Constraint Paradigms*; Tenth Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP'17), Espoo, Finland, July 2017
- *Gearing up Knowledge Representation and Reasoning for the Real World*; Twenty-seventh International Joint Conference on Artificial Intelligence and Twenty-third European Conference on Artificial Intelligence (IJCAI-ECAI'18), Stockholm, Sweden, July 2018
- *Master or Servant of Mankind? The Rise of Artificial Intelligence*; UniDay 2020 @Infineon Austria, Villach, Austria, September 2020
- *Where Difference Logic Makes The Difference: Applications of ASP modulo DL*; Fourteenth Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP'21), Porto, Portugal, September 2021

3.4 Awards

- *Best Paper Award* of the Twenty-second International Conference on Logic Programming (ICLP'06) for the paper “Tableau Calculi for Answer Set Programming”; jointly with Torsten Schaub
- Delegation of the Twelfth European Conference on Logics in Artificial Intelligence (JELIA'10) paper “An Incremental Answer Set Programming Based System for Finite Model Computation” to the *Best Papers from Sister Conferences Track* of the Twenty-second International Joint Conference on Artificial Intelligence (IJCAI'11); jointly with Orkunt Sabuncu and Torsten Schaub
- Selection of the Artificial Intelligence (AIJ) article “Conflict-Driven Answer Set Solving: From Theory to Practice” for Computing Reviews’ *Notable Computing Books and Articles of 2012*; jointly with Benjamin Kaufmann and Torsten Schaub
- Winner of the *Twentieth Prolog Programming Contest* at the Twenty-ninth International Conference on Logic Programming (ICLP'13); jointly with Claudia Schulz and Stefan Ellmauthaler
- Delegation of the Thirty-first International Conference on Logic Programming (ICLP'15) paper “Rewriting Recursive Aggregates in Answer Set Programming: Back to Monotonicity” to the *Best Papers from Sister Conferences Track* of the Twenty-fifth International Joint Conference on Artificial Intelligence (IJCAI'16); jointly with Mario Alviano and Wolfgang Faber
- Winner of the *Second LP/CP Programming Contest* at the Thirty-second International Conference on Logic Programming (ICLP'16); jointly with Mario Alviano

- Delegation of the Fourteenth International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR'17) paper “plasp 3: Towards Effective ASP Planning” to the *Rapid Publications Track* of Theory and Practice of Logic Programming (TPLP); jointly with Yannis Dimopoulos, Patrick Lühne, Javier Romero, and Torsten Schaub
- *Best Student Paper Award* of the Thirty-fourth International Conference on Logic Programming (ICLP'18) for the paper “Routing Driverless Transport Vehicles in Car Assembly with Answer Set Programming”; jointly with Philipp Obermeier, Michel Ratsch-Heitmann, Mario Runge, and Torsten Schaub
- Winner of the *Declarative Programming Contest* at the Thirty-fifth International Conference on Logic Programming (ICLP'19); jointly with Mario Alviano
- *Alain Colmerauer 10 Year Test of Time Award* of the Thirty-fifth International Conference on Logic Programming (ICLP'19) for the paper “Constraint Answer Set Solving”; jointly with Max Ostrowski and Torsten Schaub
- *2022 AI 2000 Most Influential Scholar Honorable Mention in Knowledge Engineering* (Rank: 64)
- Runner-up Award of the *LP/CP Programming Contest* at the Thirty-eighth International Conference on Logic Programming (ICLP'22); jointly with Wolfgang Faber and Alice Tarzariol
- *Best Student Paper Award* of the Thirty-eighth International Conference on Logic Programming (ICLP'22) for the paper “Efficient Lifting of Symmetry Breaking Constraints for Complex Combinatorial Problems”; jointly with Mark Law, Konstantin Schekotihin, and Alice Tarzariol
- Prices for Potsdam Answer Set Solving Collection (Potassco) systems at *International Solver Competitions*, including the Answer Set Programming Competition, Pseudo-Boolean Competition, and SAT Competition; see:
<https://potassco.org/trophies/>

4 Publications

The publications are grouped by category and listed in the inverse chronological order of publication year. Co-authors are listed according to the order given by publications, in most cases alphabetically by last name. Publications that were orally presented by Martin Gebser in talks at international research conferences and workshops are marked by sequence numbers in boldface.

4.1 Refereed Journal Articles

- [1] M. Alviano, W. Faber, and M. Gebser. Aggregate semantics for propositional answer set programs. *Theory and Practice of Logic Programming*, to appear.
- [2] A. Tarzariol, M. Gebser, and K. Schekotihin. Lifting symmetry breaking constraints with inductive logic programming. *Machine Learning*, 111(4):1303–1326, 2022.
- [3] F. Calimeri, W. Faber, M. Gebser, G. Ianni, R. Kaminski, T. Krennwallner, N. Leone, M. Maratea, F. Ricca, and T. Schaub. ASP-Core-2 input language format. *Theory and Practice of Logic Programming*, 20(2):294–309, 2020.
- [4] M. Gebser, T. Janhunen, and J. Rintanen. Declarative encodings of acyclicity properties. *Journal of Logic and Computation*, 30(4):923–952, 2020.
- [5] M. Gebser, M. Maratea, and F. Ricca. The seventh answer set programming competition: Design and results. *Theory and Practice of Logic Programming*, 20(2):176–204, 2020.
- [6] Y. Dimopoulos, M. Gebser, P. Lühne, J. Romero, and T. Schaub. plasp 3: Towards effective ASP planning. *Theory and Practice of Logic Programming*, 19(3):477–504, 2019.
- [7] M. Gebser, R. Kaminski, B. Kaufmann, and T. Schaub. Multi-shot ASP solving with clingo. *Theory and Practice of Logic Programming*, 19(1):27–82, 2019.
- [8] C. Bobda, F. Yonga, M. Gebser, H. Ishebabi, and T. Schaub. High-level synthesis of on-chip multiprocessor architectures based on answer set programming. *Journal of Parallel and Distributed Computing*, 117:161–179, 2018.
- [9] M. Gebser, M. Maratea, and F. Ricca. The sixth answer set programming competition. *Journal of Artificial Intelligence Research*, 60:41–95, 2017.
- [10] T. Janhunen, M. Gebser, J. Rintanen, H. Nyman, J. Pensar, and J. Corander. Learning discrete decomposable graphical models via constraint optimization. *Statistics and Computing*, 27(1):115–130, 2017.
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- [12] J. Bomanson, M. Gebser, T. Janhunen, B. Kaufmann, and T. Schaub. Answer set programming modulo acyclicity. *Fundamenta Informaticae*, 147(1):63–91, 2016.
- [13] F. Calimeri, M. Gebser, M. Maratea, and F. Ricca. Design and results of the fifth answer set programming competition. *Artificial Intelligence*, 231:151–181, 2016.
- [14] S. Videla, C. Guziolowski, F. Eduati, S. Thiele, M. Gebser, J. Nicolas, J. Saez-Rodriguez, T. Schaub, and A. Siegel. Learning Boolean logic models of signaling networks with ASP. *Theoretical Computer Science*, 599:79–101, 2015.

- [15] M. Gebser and T. Schaub. Tableau calculi for logic programs under answer set semantics. *ACM Transactions on Computational Logic*, 14(2):15:1–15:40, 2013.
- [16]¹ M. Gebser, B. Kaufmann, and T. Schaub. Conflict-driven answer set solving: From theory to practice. *Artificial Intelligence*, 187/188:52–89, 2012.
- [17] M. Gebser, R. Kaminski, B. Kaufmann, M. Ostrowski, T. Schaub, and M. Schneider. Potassco: The Potsdam answer set solving collection. *AI Communications*, 24(2):107–124, 2011.
- [18] M. Gebser, J. Lee, and Y. Lierler. On elementary loops of logic programs. *Theory and Practice of Logic Programming*, 11(6):953–988, 2011.
- [19] M. Gebser, O. Sabuncu, and T. Schaub. An incremental answer set programming based system for finite model computation. *AI Communications*, 24(2):195–212, 2011.
- [20] M. Gebser, T. Schaub, S. Thiele, and P. Veber. Detecting inconsistencies in large biological networks with answer set programming. *Theory and Practice of Logic Programming*, 11(2-3):323–360, 2011.
- [21] M. Gebser, M. Gharib, R. Mercer, and T. Schaub. Monotonic answer set programming. *Journal of Logic and Computation*, 19(4):539–564, 2009.
- [22] H. Ishebabi, P. Mahr, C. Bobda, M. Gebser, and T. Schaub. Answer set vs integer linear programming for automatic synthesis of multiprocessor systems from real-time parallel programs. *Journal of Reconfigurable Computing*, Article ID 863630, 2009.

4.2 Refereed Conference Articles

- [1] B. Kovács, P. Tassel, M. Gebser, and G. Seidel. A customizable reinforcement learning environment for semiconductor fab simulation. In *Proceedings of the 2022 Winter Simulation Conference (WSC'22)*, to appear.
- [2] A. Laber, M. Gebser, K. Schekotihin, and Y. Yang. Predicting ion beam tuning success in semiconductor manufacturing. In *Proceedings of the Fourteenth International Conference on Advanced Semiconductor Devices and Microsystems (ASDAM'22)*, to appear.
- [3] M. El-Kholany, M. Gebser, and K. Schekotihin. Problem decomposition and multi-shot ASP solving for job-shop scheduling. In *Proceedings of the Thirty-eighth International Conference on Logic Programming (ICLP'22) Special Issue of Theory and Practice of Logic Programming*, 22(4):623–639, 2022.
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- [5] B. Kovács, P. Tassel, R. Ali, M. El-Kholany, M. Gebser, and G. Seidel. A customizable simulator for artificial intelligence research to schedule semiconductor fabs. In *Proceedings of the Thirty-third Annual SEMI Advanced Semiconductor Manufacturing Conference (ASMC'22)*, pages 106–111. IEEE Computer Society, 2022.

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- [12]³ M. Gebser, P. Obermeier, T. Schaub, M. Ratsch-Heitmann, and M. Runge. Routing driverless transport vehicles in car assembly with answer set programming. In *Proceedings of the Thirty-fourth International Conference on Logic Programming (ICLP'18) Special Issue of Theory and Practice of Logic Programming*, 18(3-4):520–534, 2018.
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²received the *Best Student Paper Award* of ICLP'22

³received the *Best Student Paper Award* of ICLP'18

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- [29] M. Gebser, T. Janhunen, and J. Rintanen. Answer set programming as SAT modulo acyclicity. In *Proceedings of the Twenty-first European Conference on Artificial Intelligence (ECAI'14)*, pages 351–356. IOS Press, 2014.
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⁶delegated to the *Best Papers from Sister Conferences Track* of IJCAI'11

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4.3 Refereed Workshop Articles

- [1] P. Tassel, M. Gebser, and K. Schekotihin. A reinforcement learning environment for job-shop scheduling. In *Proceedings of the ICAPS 2021 Workshop on Planning and Reinforcement Learning (PRL'21)*. 2021.
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4.7 Bibliographic Metrics

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