Sarah Alice Gaggl – Résumé

Address	Institute of Artificial Intelligence
	Computational Logic Group
	Technische Universität Dresden
	Nöthnitzerstraße 46
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	Germany
Date of Birth	22nd February 1980
Nationality	Austrian
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Email	sarah.gaggl@tu-dresden.de
Parental leaves:	full-time 10/2017 –12/2018;
	part-time (75 % contract) 03/2019–06/2019

Research Interests

- **Abstract Argumentation**
- **Answer Set Programming**
- **Knowledge Representation and Reasoning**

Education

2009-2013 PhD in Computer Science at the Vienna University of Technology; graduation as Doctor in *Technical Sciences* with distinction.
Thesis: *A Comprehensive Analysis of the cf2 Argumentation Semantics:
From Characterization to Implementation*;
Supervisors: Prof.Dr. Woltran and Ao.Univ.Prof.Dr. Uwe Egly.

08/2010 22nd European Summer School in Logic, Language and Information (ESSLLI 2010), Denmark, Copenhagen, August 9-20, 2010.

08/2009 Advanced Course in Artificial Intelligence (ACAI 2009), GB, Belfast, August 23-29, 2009.

07/2009 21st European Summer School in Logic, Language and Information (ESSLLI 2009), France, Bordeaux, July 20-31, 2009.

2001–2009 Student of Computer Science at the Vienna University of Technology;
graduation as a Bachelor of Science (BSc) in *Medicine and Computer Science*, and graduation as Master of Science (MSc) in *Computational Intelligence* with distinction.
Thesis: *Solving Argumentation Frameworks using Answer Set Programming*;
Supervisor: Ao.Univ.Prof.Dr. Uwe Egly.

Academic Working Experience

**04/2013 -
present** Technische Universität Dresden
Research and Teaching Associate

Computational Logic Group of the *Institute of Artificial Intelligence*

**04/2009 -
09/2012** Vienna University of Technology
Research Assistant

Database and Artificial Intelligence Group of the *Institute of Information Systems*.
Project title: *New Methods for Analyzing, Comparing, and Solving Argumentation Problems*;
Supervisor: Prof. Dr. Stefan Woltran.
Supported by the WWTF under grant ICT 08-028.

Professional Activities

- Member of the ICCMA Steering Committee

- Organiser of the 2nd International Competition on Computational Models of Argumentation (ICCMA 2017)

- Guesteditor of the Special Issue on Argumentation and Logic Programming of Fundamenta Informaticae

- Program Chair and Organizer of the 1st International Workshops on Argumentation in Logic Programming and Non-Monotonic Reasoning (Arg-LPNMR 2016)

- Co-chair of the second Summer School on Argumentation: Computational and Linguistic Perspectives (SSA 2016)

- Program Chair and Organizer of the 1st International Workshops on Argumentation and Logic Programming (ArgLP 2015)

- **Program committee member of**

  - 2019: LPNMR 2019

  - 2017: APPARG 2017 at (IEA/AIE 2017), KRR track of (EPIA 2017), ICLP 2107, IULP 2017, TAFA 2017

  - 2016: AAAI 2016, COMMA 2016, ICAART 2016, SAFA 2016, TAASP 2017

  - 2015: ICAART 2015, IJCAI 2015, ICLP 2015, IULP 2015

  - 2013: AAA 2013, CLIMA XIV,

- **Reviewing for Journals**

  International Journal of Advanced Research (IJAR), Artificial Intelligence Journal (AIJ); Journal of Logic and Computation Special, Special Issue on Loops in Argumentation (JLCLoops13); Journal of Logic and Computation (JLC); Special Issue on 20 years of Argument-based Inference (JLCabi11);

- **Further Reviewing (not including PC membership)**

  Handbook on Formal Argumentation 2016, Essays Dedicated to Gerhard Brewka on the Occasion of His 60th Birthday (2015), TCCI 2015, TTL 2015, NMR 2014, ICLP 2013, ISWC2013, ECAI 2012, Reasoning Web Summer School 2012, ICAART 2012, AAAI 2011, LPNMR 2011, TAFA 2011, ECAI 2010, Tableaux 2011

- **Invited Talks and Presentations**

  - *Computational Aspects of the stage2 Argumentation Semantics.* Research talk at the EPCL-Basic Training Camp. TU-Dresden, November 13th, 2013.

  - *Incorporating the Stage Semantics in the SCC-recursive Schema for Argumentation Semantics.* London Argumentation Forum (LAF). King's College, London, April 20, 2012.

  - *Making Use of Advances in Answer-Set Programming for Abstract Argumentation Systems.* Computational Logic and Knowledge Representation Workshop. Invited Talk. UPS University, IRIT, Toulouse, France, October 21-22, 2011.

  - *Strong Equivalence for Argumentation Semantics based on Conflict-free Sets.* Argumentation Christmas Meeting. Presentation. Vienna University of Technology, Austria, December 7-8, 2010.

- **Research Visits**

  - Prof. Ken Satoh, National Institute of Informatics (NII), Tokyo, Japan, March 2011 .

  - Group of Prof. Gerd Brewka, Univ. Leipzig, Germany, December 2009.

- **Awards**

  - Nominated for *Hannspeter Winter-Preis*, 2013.

  - *Best Student Paper Prize* at the 14th International Workshop on Non-Monotonic Reasoning (NMR 2012) for the article *Incorporating Stage Semantics in the SCC-recursive Schema for Argumentation Semantics*, joint work with Wolfgang Dvořák, 2012.

  - *Best Student Paper Award* at the International Conference on Computational Models of Argument (COMMA 2010) for the paper *cf2 Semantics Revisited*, 2010.

Teaching Experience

International:

- Lecturer at the ICCL Summer School in Dresden, Germany 2017

- Lecturer at the ICCL Summer School in Rayong, Thailand 2016

- Lecturer at the ICCL Summer School in Dresden, Germany 2015

TU-Dresden:

- Problem Solving and Search in Artificial Intelligence, TU-Dresden, summer term 2014 – 2017.

- Seminar Abstract Argumentation, TU-Dresden, winter term 2013 – 2016.

- Exercises for "Foundations of Logic Programming", TU-Dresden, winter term 2013.

- Exercises for "Foundations of Constraint Programming", TU-Dresden, winter term 2013.

- Project Group Computational Logic, TU-Dresden.

TU-Wien:

- Seminar "Logic Seminar", TU Wien, summer term 2012.

- Exercises for "Introduction to Knowledge-based Systems", TU Wien, summer term 2012.

- Exercises for "Introduction to Artificial Intelligence", TU Wien, summer term 2012.

- Abstract Argumentation, (4.5 ECTS), TU Wien, winter term 2011/12.

- Teaching Assistant for "Introduction to Knowledge-based Systems", TU Wien, winter term 2008/09.

- Teaching Assistant for "Logic-oriented Programming", TU Wien, summer term 2008.

- Teaching Assistant for "Fundamentals of Computer Science", TU Wien, summer term 2002–2008, winter term 2005/06–2008/09.

- **Supervised Master's Theses**

  - Encoding Belief Revision Operators in Abstract Dialectical Frameworks, Umer Mushtaq, 2016

  - On the Computation of Naive-based Argumentation Semantics, Javanshir Alammadli, 2016

  - Navigation Approaches for Answer Sets, Asmaa Afeefi, 2015

  - Co-supervised: Argumentation and Answer-Set Programming Modelling the Resolution-Based Grounded Semantics, Christian Weichselbaum 2013.

- **Supervised Project Theses**
    - Solving Angry Birds with Reinforcement Learning, Richard Kwasnicki and Julius Gonsior, 2017
    - Visualization of Solutions in Abstract Argumentation Frameworks, Rajwardhan Kumar, 2016
    - Intertranslatability of Labeling-Based Argumentation Semantics, Umer Mushtaq, 2015
    - Implementing a Labeling-based Algorithm for the cf2 Argumentation Semantics, Javanshir Alammadli, 2015
    - Solving Product Configuration Problems using Non-standard Reasoning Services, Lukas Schweizer, 2014

Grants and Internships

- COST Travel Grant for attending the Doctoral Consortium at KR 2012.
- COST Travel Award for attending the London Argumentation Forum (LAF) in April 2012.
- IJCAI Travel Grant for attending IJCAI 2011.
- International Internship at National Institute of Informatics (NII), Tokyo, Japan, 2011.
- ECCAI Travel Award for attending ACAI 2009.

Funding Projects

2019–2022 DFG CRC/Transregio 248 "Foundations of Perspicuous Software Systems", principal investigator in sub-projects C2 and E3

Publications

Journal Articles

[j7] Sarah Alice Gaggl, Thomas Linsbichler, Marco Maratea, Stefan Woltran. Summary Report of the Second International Competition on Computational Models of Argumentation. In *AI Magazine*, 39(4):77-79, December 2018.

[j6] Federico Cerutti, Sarah Alice Gaggl, Matthias Thimm, Johannes Peter Wallner. Foundations of Implementations for Formal Argumentation. In *The IfCoLog Journal of Logics and their Applications*; Special Issue *Formal Argumentation*, 4:2623-2705, September 2017.

[j5] Wolfgang Dvořák, Sarah Alice Gaggl. Stage semantics and the SCC-recursive schema for argumentation semantics. In *Journal of Logic and Computation (JLC)* in the special issue on *Loops in Argumentation*, 26(4):1149-1202, August 2016.

[j4] Günther Charwat, Wolfgang Dvořák, Sarah Alice Gaggl, Johannes Peter Wallner, Stefan Woltran. Methods for Solving Reasoning Problems in Abstract Argumentation – A Survey. In *Artificial Intelligence Journal*, 220(0):28-63, March 2015.

[j3] Sarah Alice Gaggl, Norbert Manthey, Alessandro Ronca, Johannes Peter Wallner, Stefan Woltran. Improved Answer-Set Programming Encodings for Abstract Argumentation. In *Theory and Practice of Logic Programming (TPLP)*, 15(4-5):434-448, September 2015.

[j2] Sarah Alice Gaggl, Stefan Woltran. The cf2 Argumentation Semantics Revisited. In *Journal of Logic and Computation*, 23(5):925-949, 2013.

[j1] Uwe Egly, Sarah Alice Gaggl, Stefan Woltran. Answer-Set Programming Encodings for Argumentation Frameworks. In *Argument and Computation*, 1(2): 147–177 (2010).

Proceedings Articles

[c17] Sarah Alice Gaggl, Sebastian Rudolph, Lukas Schweizer. Practical Fixed-Domain Reasoning for Description Logics - Extended Abstract. In Juan L. Reutter, Divesh Srivastava, eds., *Proceedings of the 11th Alberto Mendelzon International Workshop on Foundations of Data Management and the Web*, volume 1912 of CEUR Workshop Proceedings, CEUR-WS.org, 2017.

[c16] Sarah Alice Gaggl, Sebastian Rudolph, Lukas Schweizer. Fixed-Domain Reasoning for Description Logics. In Maurizio Lenzerini, Rafael Peñaloza, eds., *Proceedings of the 29th International Workshop on Description Logics* (DL'16), volume 1577, CEUR Workshop Proceedings, 2016.

[c15] Sarah Alice Gaggl, Sebastian Rudolph, Lukas Schweizer. Fixed-Domain Reasoning for Description Logics. In Gal A. Kaminka, Maria Fox, Paolo Bouquet, Eyke Hüllermeier, Virginia Dignum, Frank Dignum, Frank van Harmelen, eds., *Proceedings of the 22nd European Conference on Artificial Intelligence* (ECAI 2016), volume 285 of Frontiers in Artificial Intelligence and Applications, pages 819–827, IOS Press, 2016.

[c14] Sarah Alice Gaggl, Umer Mushtaq. Intertranslatability of Labeling-based Argumentation Semantics. In Steven Schockaert, Pierre Senellart, eds., *Proceedings of the 10th International Conference on Scalable Uncertainty Management* (SUM 2016), volume 9858 of Lecture Notes in Computer Science, pages 155–169, Springer, 2016.

[c13] Sarah Alice Gaggl, Thomas Linsbichler, Marco Maratea, Stefan Woltran. Introducing the Second International Competition on Computational Models of Argumentation. In Matthias Thimm, Federico Cerutti, Hannes Strass, Mauro Vallati, eds., *Proceedings of the First International Workshop on Systems and Algorithms for Formal Argumentation* (SAFA 2016), volume 1672, pages 4–9, CEUR-WS, 2016.

[c12] Sarah Alice Gaggl, Sebastian Rudolph, Lukas Schweizer. Bound Your Models! How to Make OWL an ASP Modeling Language. In Stefan Ellmauthaler, Claudia Schulz, eds., *International Workshop on User-Oriented Logic Programming* (IULP), November 2015.

[c11] Sarah Alice Gaggl, Sebastian Rudolph, Hannes Strass. On the Computational Complexity of Naive-based Semantics for Abstract Dialectical Frameworks. In Qiang Yang and Michael Wooldridge, eds., *Proceedings of the 24th International Joint Conference on Artificial Intelligence* (IJCAI 2015), AAAI Press, pages 2985–2991, AAAI Press, 2015.

[c10] Sarah Alice Gaggl, Norbert Manthey, Alessandro Ronca, Johannes Peter Wallner, Stefan Woltran. Improved Answer-Set Programming Encodings for Abstract Argumentation. To appear in *Theory and Practice of Logic Programming* (TPLP), *Proceedings of ICLP 2015*, August 2015. arXiv:1507.06689.

[c9] Sarah Alice Gaggl, Hannes Strass. Decomposing Abstract Dialectical Frameworks. In Simon Parsons, Nir Oren, Chris Reed, Federico Cerutti, eds., *Proceedings of the 5th International Conference on Computational Models of Argument* (COMMA 2014), volume 266 of Frontiers in Artificial Intelligence and Applications, 281-292, IOS Press, 2014.

[c8] Wolfgang Dvořák, Sarah Alice Gaggl, Johannes Peter Wallner, Stefan Woltran. Making Use of Advances in Answer-Set Programming for Abstract Argumentation Systems. In Hans Tompits, Salvador Abreu, Johannes Oetsch, Jörg Pührer, Dietmar Seipel, Masanobu Umeda, Armin Wolf, eds., *Proceedings of 19th International Conference on Applications of Declarative Programming and Knowledge Management* (INAP 2011), Vienna, Austria, Revised Selected Papers, volume 7773 of Lecture Notes in Computer Science, pages 114–133, Springer, 2013.

[c7] Wolfgang Dvořák, Sarah Alice Gaggl. Computational Aspects of cf2 and stage2 Argumentation Semantics. In Bart Verheij, Stefan Szeider, Stefan Woltran, eds., *Proceedings of the 4th International Conference on Computational Models of Argument* (COMMA 2012), 2012, volume 245 of Frontiers in Artificial Intelligence and Applications, pages 273–284. IOS Press, 2012.

[c6] Wolfgang Dvořák, Sarah Alice Gaggl. Incorporating Stage Semantics in the SCC-recursive Schema for Argumentation Semantics. In *Proceedings of the 14th International Workshop on Non-Monotonic Reasoning* (NMR 2012), June 8-10, 2012.

[c5] Sarah Alice Gaggl, Stefan Woltran. Strong Equivalence for Argumentation Semantics based on Conflict-free Sets. In Weiru Liu, eds., *Proceedings of 11th European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty* (ECSQARU 2011), volume 6717 of Lecture Notes in Computer Science, pages 38–49, Springer, 2011.

[c4] Sarah Alice Gaggl, Stefan Woltran. cf2 Semantics Revisited. In Pietro Baroni, Federico Cerutti, Massimiliano Giacomin, Guillermo Ricardo Simari, eds., *Proceedings of the Third International Conference on Computational Models of Argument* (COMMA 2010), volume 216 of *Frontiers in Artificial Intelligence and Applications*, pages 243–254. IOS Press, 2010.

[c3]   Sarah Alice Gaggl. Towards a General Argumentation System based on Answer-Set Programming. In Manuel V. Hermenegildo, Torsten Schaub, eds., *Technical Communications of the 26th International Conference on Logic Programming* (ICLP 2010), volume 7 of LIPIcs, 265–269, July 2010. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik.

[c2]   Uwe Egly, Sarah Alice Gaggl, Stefan Woltran. ASPARTIX: Implementing Argumentation Frameworks Using Answer-Set Programming. In Maria Garcia de la Banda, Enrico Pontelli, eds., *Proceedings of the 24th International Conference on Logic Programming*, (ICLP 2008), volume 5366 of Lecture Notes in Computer Science, 734-738, 2008. Springer.

[c1]   Uwe Egly, Sarah Alice Gaggl, Stefan Woltran. Answer-Set Programming Encodings for Argumentation Frameworks. In *1st Workshop on Answer Set Programming and other Computing Paradigms* (ASPOCP 2008), Udine, Italy, 2008.

Book Chapters

[b4]   Federico Cerutti, Sarah Alice Gaggl, Matthias Thimm, Johannes Peter Wallner. Foundations of Implementations for Formal Argumentation. In Pietro Baroni; Dov Gabbay; Massimiliano Giacomin; Leendert van der Torre, eds., *Handbook on Formal Argumentation*, chapter *Foundations of implementations for formal argumentation*, pages 688–767. College Publications, February 2018.

[b3]   Wolfgang Dvořák, Sarah Alice Gaggl, Thomas Linsbichler, Johannes Peter Wallner. Reduction-Based Approaches to Implement Modgil's Extended Argumentation Frameworks. In Eiter, Thomas and Strass, Hannes and Truszczyński, Mirosław and Woltran, Stefan, eds., *Advances in Knowledge Representation, Logic Programming, and Abstract Argumentation - Essays Dedicated to Gerhard Brewka on the Occasion of His 60th Birthday*, volume 9060 of Lecture Notes in Computer Science, chapter Abstract Argumentation, pages 249–264. Springer International Publishing, 2015.

[b2]   Sarah Alice Gaggl, Sebastian Rudolph, Michaël Thomazo. What Is a Reasonable Argumentation Semantics? In Eiter, Thomas and Strass, Hannes and Truszczyński, Mirosław and Woltran, Stefan, eds., *Advances in Knowledge Representation, Logic Programming, and Abstract Argumentation - Essays Dedicated to Gerhard Brewka on the Occasion of His 60th Birthday*, volume 9060 of Lecture Notes in Computer Science, chapter *Abstract Argumentation*, pages 309–324. Springer International Publishing, 2015.

[b1]   Wolfgang Dvořák, Sarah Alice Gaggl, Stefan Szeider, Stefan Woltran. Benchmark libraries for argumentation. In Ossowski, Sascha, eds., *Agreement Technologies*, volume 8 of Law, Governance and Technology Series, chapter *The added value of argumentation*, pages 389–393. Springer, 2013.

Edited Proceedings

[p2]   Sarah Alice Gaggl, Matthias Thimm. Proceedings of the Second Summer School on Argumentation: Computational and Linguistic Perspectives (SSA'16). Volume abs/1608.02441, September 2016. CoRR

[p1]   Sarah Alice Gaggl, Juan Carlos Nieves, Hannes Strass. Proceedings of the First International Workshop on Argumentation in Logic Programming and Non-Monotonic Reasoning (Arg-LPNMR 2016). Volume abs/1611.02439, November 2016. CoRR

Doctoral Thesis

[a1]   Sarah Alice Gaggl. A Comprehensive Analysis of the cf2 Argumentation Semantics: From Characterization to Implementation. Phd thesis, TU Wien, 2013/03/04.

Technical Reports

[t6] Günther Charwat, Wolfgang Dvořák, Sarah Alice Gaggl, Johannes Peter Wallner and Stefan Woltran. Implementing Abstract Argumentation - A Survey. Technical Report DBAI-TR-2013-82, Technische Universität Wien, 2013.

[t5] Wolfgang Dvořák, Sarah Alice Gaggl. Incorporating Stage Semantics in the SCC-recursive Schema for Argumentation Semantics. Technical Report DBAI-TR-2012-78, Technische Universität Wien, 2012.

[t4] Sarah Alice Gaggl, Stefan Woltran. The cf2 Argumentation Semantics Revisited. Technical Report DBAI-TR-2012-77, Technische Universität Wien, 2012.

[t3] Wolfgang Dvořák, Sarah Alice Gaggl, Johannes Peter Wallner, Stefan Woltran. Making Use of Advances in Answer-Set Programming for Abstract Argumentation Systems. Technical Report DBAI-TR-2011-70, Technische Universität Wien, 2011.

[t2] Sarah Alice Gaggl, Stefan Woltran. Strong Equivalence for Argumentation Semantics based on Conflict-free Sets. Sarah Gaggl, and Stefan Woltran. Technical Report DBAI-TR-2011-68, Technische Universität Wien, 2011.

[t1] Uwe Egly, Sarah Alice Gaggl, Stefan Woltran. Answer-Set Programming Encodings for Argumentation Frameworks. Technical Report DBAI-TR-2008-62, Technische Universität Wien, 2008.

Dresden, January 23, 2019