

Gabriele Röger

Curriculum Vitae – July 2020

Personal details

Dr. Gabriele Michaela Röger

Occupation: research associate and lecturer at University of Basel, Switzerland

Work address: University of Basel
Department of Mathematics and Computer Science
Spiegelgasse 1
4051 Basel, Switzerland

Phone: +41 61 207 0537

Email: gabriele.roeger@unibas.ch

Website: <https://ai.dmi.unibas.ch/people/roeger/>

Education

6/2014 **PhD (Dr. rer. nat.)**
Albert-Ludwigs-Universität, Freiburg, Germany,
summa cum laude (with distinction).

5/2006–11/2011 **Ph.D. student (computer science)**
Albert-Ludwigs-Universität, Freiburg, Germany.

4/2006 **Diplom computer science**
Albert-Ludwigs-Universität, Freiburg, Germany.
university degree equivalent to MSc

7/2000 **Abitur (secondary school diploma).**

Employment

since 8/2017 **lecturer and research associate**
University of Basel, Switzerland.

8/2018-1/2019 acting head of AI research group during M. Helmert's sabbatical

12/2011–7/2017 **research associate**
University of Basel, Switzerland.

3/2009–5/2009 **research visit**
Technion – Israel Institute of Technology, Haifa, Israel.

10/2008–11/2011 **research assistant and teaching assistant**
Albert-Ludwigs-Universität Freiburg, Germany.

5/2006–9/2008 **research assistant**
Albert-Ludwigs-Universität Freiburg, Germany.

Awards and honors

- 5/2020 **SoCS 2020 Best Paper Award** for the paper
“An Atom-Centric Perspective on Stubborn Sets”,
SoCS 2020, held virtually.
with Malte Helmert, Jendrik Seipp, and Silvan Sievers;
best of 45 submissions
- 7/2019 **ICAPS 2019 Best Paper Award** for the paper
“Lagrangian Decomposition for Optimal Cost Partitioning”,
ICAPS 2019, Berkeley, CA, USA.
with Florian Pommerening, Malte Helmert, Hadrien Cambazard,
Louis-Martin Rousseau, and Domenico Salvagnin;
best among 135 submissions to the main track
- 6/2018 **Winner Deterministic Sequential Satisficing Track**
for the planning system *“Fast Downward Stonesoup 2018”*,
9th International Planning Competition,
at ICAPS 2018, Delft, The Netherlands.
with Jendrik Seipp
- 6/2018 **Winner Deterministic Sequential Cost-bounded Track**
for the planning system *“Fast Downward Stonesoup 2018”*,
9th International Planning Competition,
at ICAPS 2018, Delft, The Netherlands.
with Jendrik Seipp
- 6/2017 **ICAPS 2017 Best Student Paper Award** for the paper
“Unsolvability Certificates for Classical Planning”,
ICAPS 2017, Pittsburgh, USA.
with Salomé Eriksson and Malte Helmert
- 6/2016 **ICAPS Best Dissertation Award**
ICAPS 2016, London, UK.
- 1/2015 **AAAI 2015 Outstanding Paper Award** for the paper
“From Non-Negative to General Operator Cost Partitioning”,
AAAI 2015, Austin, Texas, USA.
with Florian Pommerening, Malte Helmert, and Jendrik Seipp;
best among 1991 submissions
- 6/2014 **ICAPS 2014 Outstanding Paper Award** for the paper
“LP-based Heuristics for Cost-optimal Planning”,
ICAPS 2014, Portsmouth, New Hampshire, USA.
with Florian Pommerening, Malte Helmert and Blai Bonet;
best among 164 submissions
- 7/2013 **Outstanding PC Member Award**,
AAAI 2013, Bellevue, Washington, USA.
- 6/2011 **Sequential Optimization Award**
for the planning system *“Fast Downward Stone Soup”*,
7th International Planning Competition,
at ICAPS 2011, Freiburg, Germany.
with Malte Helmert, Erez Karpas and Jendrik Seipp

- 6/2011 **Sequential Satisficing Award**
for the planning system “LAMA 2011”,
 7th International Planning Competition,
 at ICAPS 2011, Freiburg, Germany.
 with Silvia Richter, Matthias Westphal and Malte Helmert
- 6/2011 **Sequential Satisficing Runner-Up Award**
for the planning system “Fast Downward Stone Soup”,
 7th International Planning Competition,
 at ICAPS 2011, Freiburg, Germany.
 with Malte Helmert, Erez Karpas, Silvia Richter and Jendrik Seipp
- 9/2008 **Temporal Satisficing Runner-Up Award**
for the planning system “Temporal Fast Downward”,
 7th International Planning Competition,
 at ICAPS 2011, Freiburg, Germany.
 with Patrick Eyerich and Robert Mattmüller
- 7/2008 **Outstanding Paper Award** *for the paper*
“How Good is Almost Perfect?”, AAAI 2008, Chicago, Illinois, USA.
 with Malte Helmert; of 937 submissions two received an award
- 12/2006 **Lehrpreis des Landes Baden-Württemberg (state teaching award)**
for the “Sommercampus” event.
 as a co-organizer

Scientific publications

The list of my publications (h-index 15) is available online at <https://ai.dmi.unibas.ch/people/roeger/index.html>.

Teaching and supervision

I had 90 hours didactic/pedagogic training for the didactic certificate of the German state of Baden-Württemberg.

Teaching experience: as lecturer

- **Algorithmen und Datenstrukturen** at University of Basel.
 - Spring 2018, 2019, and 2020 jointly with Marcel Lüthi
- **Theoretical Computer Science** at University of Basel.
 - Spring 2018, 2019, and 2020 as sole lecturer
 - Spring 2014, 2015, and 2016 jointly with Malte Helmert
- **Planning and Optimization** at University of Basel.
 - Fall 2018 jointly with Thomas Keller
 - Fall 2016 and 2017 jointly with Malte Helmert
- **Foundations of Artificial Intelligence** at University of Basel.
 - Spring 2017 jointly with Malte Helmert

Teaching experience: seminars and projects

This list only includes seminars where I was also responsible for design and organization. Seminars where I only supervised students are omitted.

- **Seminar and Project “Graphenalgorithmen”** at University of Basel.
Fall 2018 (with Florian Pommerening)
- **Seminar and Project “Recreational Computer Science from Langton’s Ant to Turing’s Subway”** at University of Basel.
Fall 2017 (with Malte Helmert)
- **Seminar and Project on Search and Optimization (Constraint Processing)** at University of Basel. Fall 2014
- **Seminar and Project on the Design of an AI Practical Lesson** at University of Freiburg. Winter 2010/2011

Teaching experience: supervised Master’s theses

- Anonymous, **Unsolvability Proofs with Non-Linear Merge-and-Shrink Heuristics.**
University of Basel, March 2019 (with Salomé Eriksson)
- Marvin Buff, **NBS Applied to Planning.**
University of Basel, February 2019 (with Cedric Geissmann)
- Simon Wallny, **Using Value Abstraction for Optimal Multi-Agent Pathfinding with Increasing Cost Tree Search.**
University of Basel, April 2018
- Lukas Beck, **A Case Study on the Search Topology of Greedy Best-First Search.**
University of Basel, May 2014
- Salomé Simon, **A General LTL Framework for Describing Control Knowledge in Classical Planning.**
University of Basel, March 2014
- Lorenzo Luisoni, **Efficient Landmark Generation using Relaxed Planning.**
University of Basel, October 2013
- Gabriel Duss, **Computation of h^+ with Factored Planning.**
University of Basel, July 2013
- Patrick Mächler, **Pebbles in Motion — Polynomial Algorithms for Multi-Agent Path Planning Problems.**
University of Basel, August 2012

Teaching experience: supervised Bachelor’s theses

- Gian-Andrea Wetten, **Combining Novelty-Guided and Bounded Suboptimal Search.**
University of Basel, July 2017
- Samuel Hugger, **Landmark-based Meta Best-First Search.**
University of Basel, June 2017
- Raphael Imahorn, **P^m -Kompilierung von Planungsaufgaben im Fast-Downward-Planungssystem als alternative Berechnung der h^m -Heuristik.**
University of Basel, January 2016
- Patrik Dürrenberger, **Solving the Traveling Tournament Problem with Heuristic Search.**
University of Basel, February 2015
- Manuela Lütolf, **A Learning AI for the game Risk using the TD(λ)-Algorithm.**
University of Basel, June 2013
- Lukas Beck, **Optimal Policies for the Canadian Traveler’s Problem.**
University of Basel, October 2012
- Salomé Simon, **CSP- and SAT-based Inference Techniques Applied to Gnomine.**

University of Basel, July 2012

- Simon Wang, **Construction of Pattern Database Heuristics Using Cost-Partitioning**.
University of Basel, June 2012
- Jonas Sternisko, **Influence of the Finite Domain Representation on the Performance of Planning Systems**.
University of Freiburg, September 2009

Teaching experience: supervised diploma theses

- Hartmut Hanke, **Procedural Domain Control Knowledge for Temporal Planning**.
University of Freiburg, October 2010
- Matthias Exner, **Basic Action Theories with the same Expressive Power as ADL with Arithmetic Functions**.
University of Freiburg, June 2007

Teaching experience: supervised semester theses and projects

- Hagen Hübner, **External Search**.
University of Basel, June 2015
- Salomé Simon, **Vergleich der Qualität des Post-Hoc-Optimierungsheuristik mit der der Weighted Vertex-Cover-Heuristik auf dem 15-Puzzle**.
University of Basel, July 2013
- Yusra Alkhazraji, **Mutual Exclusion Invariant Synthesis for Planning Tasks**.
University of Freiburg, October 2011
- Patrick Eyerich, **Zu ADL gleichausdrucksstarke Basic-Action-Theorien im Situationskalkül**.
University of Freiburg, October 2010

Professional service

Societies and scientific organizations

- **International Conference on Automated Planning and Scheduling:**
ICAPS president-elect (2020–2022),
ICAPS secretary (2018–2020),
Member of the ICAPS executive council (2018–2024)
- **Symposium on Combinatorial Search:**
Member of the SoCS council (2013–2017)

Conference and summer school organization

- **AAAI Conference on Artificial Intelligence:**
Associate program chair for AAAI 2021 (co-chair Yan Liu)
- **International Conference on Automated Planning and Scheduling:**
Program chair for ICAPS 2018 (co-chair Sven Koenig),
Workshop chair for ICAPS 2017 (co-chair Daniel Bryce) and 2020 (co-chair Christian Muise),
Remote participation chair for ICAPS 2014 (co-chair Sara Bernardini),
Local arrangement for ICAPS 2011
- **Dagstuhl Workshop on Planning and Operations Research:**
Organizer (co-organizers J. Christopher Beck, Daniele Maggazzini, Willem-Jan Van Hoeve)
- **ICAPS 2016 Summer School on Automated Planning and Scheduling:**

- Co-chair (with Héctor Geffner and Federico Pecora)
- **Symposium on Combinatorial Search:**
Conference chair for SoCS 2013 (co-chair Malte Helmert)
- **ACAI Summer School on Automated Planning and Scheduling:**
Organizer of ACAI 2011 (with Michael Brenner, Malte Helmert, Bernhard Nebel)

Membership in programme committees of scientific conferences

- **AAAI Conference on Artificial Intelligence:**
PC member for AAAI 2011–2018, SPC member for AAAI 2020, area chair for AAAI 2019
- **European Conference on Artificial Intelligence:**
PC member for ECAI 2012 and 2014, SPC member for ECAI 2020
- **International Conference on Automated Planning and Scheduling:**
PC member for ICAPS 2010–2017, SPC member for ICAPS 2019–2020
- **International Joint Conference on Artificial Intelligence:**
PC member for IJCAI 2011, 2013, 2018, SPC member for IJCAI 2015, 2017, 2019, 2020
- **Symposium on Combinatorial Search:**
PC member for SoCS 2012, 2013, 2015, 2017–2020

Reviewing for scientific journals

- **Journal of Artificial Intelligence Research:**
Editorial board member since 2016; already reviewed for JAIR 2012–2015
- **Artificial Intelligence:**
Reviewed for AIJ in 2010, 2014 and 2017
- **Autonomous Robots:**
Reviewed for AURO in 2020

Tutorials at scientific conferences and summer-schools

- Tutorial/lecture on **Classical Planning Heuristics**
at the International Summer School on Planning and Scheduling
held in conjunction with ICAPS 2018, Delft, The Netherlands.
- Tutorial on **LP-based Heuristics for Cost-optimal Classical Planning**
held at ICAPS 2015, Jerusalem, Israel, 2015
(with Malte Helmert and Florian Pommerening)
- Tutorial on **A Beginner's Introduction to Heuristic Search Planning**
held at AAAI 2015, Austin, Texas, USA, 2015 (with Malte Helmert)
- Tutorial on **Engineering a Heuristic Search Planner**
held at ICAPS 2013, Rome, Italy, 2013 (with Malte Helmert)

Outreach activities and non-technical presentations

- Presentation **Die Auswirkungen von KI auf den Arbeitsmarkt**
at the festival “science + fiction – MACHINA SAPIENS”, Basel, 2017
- Presentation **Künstliche Intelligenz und die Arbeit der Zukunft**
at the FHNW School of Applied Psychology, Olten, 2015