





# Maximilian Weininger

Researcher

 06. September 1994

 mweining@ista.ac.at

## Languages

Greek

1

English

5

German

6

[The scale is from 1 (Beginner) to 6 (Expert).]

## Education

- 2017-2022 Ph.D. in Computer Science @ Technical University of Munich  
Chair for Foundations of Software Reliability and Theoretical Computer Science  
Passed with summa cum laude
- 2015-2017 M.Sc. Informatics @ Technical University of Munich  
Focus on formal methods, computer networks and databases  
Passed with high distinction
- 2012-2015 B.Sc. Informatics @ Technical University of Munich  
Passed with merit
- 2004-2012 Josef-Hofmiller-Gymnasium, Freising  
Natural-science and technology track  
Passed with high distinction
- 2000-2004 Grundschule Vötting, Freising

## Working experience

- since 2023 Researcher @ Institute of Science and Technology Austria  
Chatterjee Group: Computer-Aided Verification, Game Theory
- 2017-2023 Researcher @ Technical University of Munich  
Chair for Foundations of Software Reliability and Theoretical Computer Science
- 2014-2017 Student tutor @ Technical University of Munich  
Introduction to theoretical computer science (2017)  
Foundations of networks and distributed systems (2014, 2015)  
Foundations of database systems (2014, 2016)
- 2015-2016 Assistant researcher @ Technical University of Munich  
Developing the interface of [ProteomicsDB](#)  
Chair of Proteomics and Bioanalytics

## Awards

- 2023 [IST-BRIDGE fellow](#)  
Marie Skłodowska-Curie COFUND program for excellent researchers
- 2020 [Best video award](#)  
Eleventh International Symposium on Games, Automata, Logics, and Formal Verification
- 2017 Admission to the [best.in.tum](#) program  
Technical University of Munich
- 2012 Admission to the [Max-Weber](#) program  
German National Academic Foundation

## Community service

Committee memberships:

- [ETAPS'22](#) organizer (website chair and local staff)
- [FOMEQ'21](#) and [FOMEQ'22](#) Program Committee
- [TACAS'19](#) and [TACAS'20](#) Artifact Evaluation Committee

Internal Organization:

- Research retreat (2018 and 2021) of the Chair for Foundations of Software Reliability and Theoretical Computer Science
- Regular research group seminar (July 2020 until May 2023)

Reviewer for QEST'18/20/21, ICTAC'18/19/20, VMCAI'19/21/22, FORMATS'19, TACAS'19/20/22/23, CONCUR'20/21/22, ATVA'20/23, GandALF'20, HSCC'20, MFCS'21, LICS'22, FoSSaCS'23, ICALP'23, IPL'23

# Tools

Automata Tutor:

Teaching theoretical computer science to undergraduate students.

Click here for the [website](#) or [publication](#).

dtControl:

Representing controllers concisely and explainably.

Click here for the [website](#) or [latest publication](#).

PET, also known as PRISM TUM:

Quantitative verification of probabilistic systems using partial exploration.

Click here for the [gitlab](#) or [competition report including PET](#).

# Hobbies



Dog sports (Trickdog, Agility, Mantrailing)



Music (Listening, composing and playing guitar or drums)



Computer games



Tabletop role-playing games

## Publication summary



h-index: 11



Conference papers: 19



Journal papers: 6



Total citations: 432 (according to google scholar, accessed 08.08.23)

## Teaching

Teaching assistant:

- Introduction to theoretical computer science (2018, ~1000 students)
- Seminar “Security and Verification” (2020, ~10 students)
- Practical Course “Recent Advances in Model Checking” (2022, ~10 students)
- Seminar “Recent Advances in Model Checking” (2022, ~10 students)

Lecturer:

- Theoretical computer science for high school teachers (2021 and 2022, each ~50 teachers)
- Introduction to Databases at the secondary school Grund- und Mittelschule Zolling (2022, ~30 pupils and 2 teachers)

Supervision:

- 9 Bachelor’s theses
- 2 Master’s theses
- 9 Student assistants
- 8 joint publications resulting from student supervision

Project lead and developer of the teaching tool [Automata Tutor](#) used by more than 50 universities around the world

## Journal publications

STTT (to appear)	Algebraically Explainable Controllers: Decision Trees and Support Vector Machines Join Forces Jüngermann, F., Kretinsky, J. & Weininger, M.
FORM (2023)	Stochastic Games with Lexicographic Objectives Chatterjee, K., Katoen, J., Mohr, S., Weininger, M. & Winkler, T.
Inf. and Comp. (2022)	Comparison of algorithms for simple stochastic games Kretinsky, J., Ramneantu, E., Slivinskiy, A. & Weininger, M.
Inf. and Comp. (2022)	Value iteration for simple stochastic games: Stopping criterion and learning algorithm Eisentraut, J., Kelmendi, E., Kretinsky, J. & Weininger, M.
Acta Informatica (2021)	Index appearance record with preorders Kretinsky, J., Meggendorfer, T., Waldmann, C. & Weininger, M.
Nature methods (2017)	Building ProteomeTools based on a complete synthetic human proteome Zolg, D. P., Wilhelm, M., ..., Weininger, M. & Küster, B.

## Conference publications

### Quantitative verification of and controller synthesis for stochastic games

LICS'23	Stopping Criteria for Value Iteration on Stochastic Games with Quantitative Objectives Kretinsky, J., Meggendorfer, T. & Weininger, M.
TACAS'23	A Practitioner's Guide to MDP Model Checking Algorithms Hartmanns, A., Junges, S., Quatmann, T. & Weininger, M.
ATVA'22	Optimistic and Topological Value Iteration for Simple Stochastic Games Azeem, M., Evangelidis, A., Kretinsky, J., Slivinskiy, A. & Weininger, M.
CDC'21	Guaranteed Trade-Offs in Dynamic Information Flow Tracking Games Weininger, M., Grover, K., Misra, S. & Kretinsky, J.
GandALF'21	Stochastic Games with Disjunctions of Multiple Objectives. Winkler, T. & Weininger, M.
GandALF'20	Comparison of Algorithms for Simple Stochastic Games Kretinsky, J., Ramneantu, E., Slivinskiy, A. & Weininger, M.
CAV'20	Stochastic Games with Lexicographic Reachability-Safety Objectives Chatterjee, K., Katoen, J., Weininger, M. & Winkler, T.
LICS'20	Approximating Values of Generalized-Reachability Stochastic Games Ashok, P., Chatterjee, K., Kretinsky, J., Weininger, M. & Winkler, T.
CDC'19	Satisfiability Bounds for omega-Regular Properties in Bounded-Parameter Markov Decision Processes Weininger, M., Meggendorfer, T. & Kretinsky, J.
CAV'19	PAC Statistical Model Checking for Markov Decision Processes and Stochastic Games Ashok, P., Kretinsky, J. & Weininger, M.
CAV'18	Value Iteration for Simple Stochastic Games: Stopping Criterion and Learning Algorithm Kelmendi, E., Krämer, J., Kretinsky, J. & Weininger, M.

## Conference publications (continued)

### Small and explainable representation of controllers

- TACAS'21 dtcontrol 2.0: Explainable Strategy Representation via Decision Tree Learning Steered by Experts  
Ashok, P., Jackermeier, M., Kretinsky, J., Weinhuber, C., Weininger, M. & Yadav, M.
- HSCC'20 dtControl: decision tree learning algorithms for controller representation  
Ashok, P., Jackermeier, M., Jagtap, P., Kretinsky, J., Weininger, M. & Zamani, M.
- QEST'19 SOS: Safe, Optimal and Small Strategies for Hybrid Markov Decision Processes  
Ashok, P., Kretinsky, J., Larsen, K.G., Le Coënt, A., Taankvist, J.H. & Weininger, M.

### Miscellaneous

- CONCUR'22 Anytime Guarantees for Reachability in Uncountable Markov Decision Processes  
Grover, K., Kretinsky, J., Meggendorfer, T. & Weininger, M.
- CONCUR'21 Enforcing omega-Regular Properties in Markov Chains by Restarting  
Esparza, J., Kiefer, S., Kretinsky, J. & Weininger, M.
- Isola'20 Statistical Model Checking: Black or White?  
Ashok, P., Daca, P., Kretinsky, J. & Weininger, M.
- CAV'20 Automata Tutor v3  
D'Antoni, L., Helfrich, M., Kretinsky, J., Ramneantu, E. & Weininger, M.
- TACAS'17 Index appearance record for transforming Rabin automata into parity automata  
Kretinsky, J., Meggendorfer, T., Waldmann, C. & Weininger, M.