DR. RUDOLF REITER

Zürich, Switzerland
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github.com/RudolfReiter

Passionately committed to shaping the future through innovative solutions and advancing the fields of optimization, artificial intelligence, and control. Eager to tackle new challenges and embrace responsibility.

SKILLS

Languages	German (native), English (business fluent)
Programming languages	C/C++ (3 years), Python (5 years), MATLAB (6 years)
Optimization software	CasADi, acados, ForcesPro, Yalmip, Gurobi, CVXPY, MOSEK
Machine learning libraries	PyTorch, TensorFlow, Stable Baselines 3, RLLIB, OpenCV, Hydra
Platforms and operating systems	ROS 1+2, NVIDIA Drive PX2, Speedgoat, Linux

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher | *with Prof. Dr. Davide Scaramuzza*   Feb. 2025 – now
Robotics and Perception Group, University of Zürich   Zürich, Switzerland

Postdoctoral Researcher | *with Prof. Dr. Moritz Diehl*   Nov. 2024 – Apr. 2025
Systems Control and Optimization Laboratory, University of Freiburg   Freiburg, Germany

Doctoral Researcher | *supervised by Prof. Dr. Moritz Diehl*   Mar. 2020 – Nov. 2024
Systems Control and Optimization Laboratory, University of Freiburg   Freiburg, Germany
Topic: Optimization-Based Motion Planning for Autonomous Driving and Racing
- Marie Skłodowska-Curie Innovative Training Network
  "ELO-X: Embedded learning and optimization for the next generation."

Software Developer - C++ (side occupation)   Dec. 2019 – Aug. 2023
Autonomous Racing Graz   Graz, Austria
- Development of embedded algorithms for real-world autonomous racing
- Focus on prediction, planning, and control algorithms

Software Developer - Python/C++, Junior Researcher   Dec. 2018 – July 2021
Virtual Vehicle Research Center   Graz, Austria
- Algorithms for path planning and control of autonomous vehicles
- Developing simulation frameworks for autonomous driving

Control Systems Specialist - MATLAB/C++/C/Python   July 2016 – July 2018
Anton Paar GmbH   Graz, Austria
- Development of advanced control systems for high-end measurement devices
- Worldwide first full automation of an atmospheric distillation analyzer
- Viscosity measurement: among primary authors of US patent *US 10,976,230 B2*

RESEARCH STAYS AND INTERNSHIPS

Guest Researcher	ETH Zürich, Prof. Melanie Zeilinger, Switzerland	4 months	Jan. 2024
Guest Researcher	IMT Lucca, Prof. Alberto Bemporad, Italy	1 months	Sep. 2023
Research Intern	Mitsubishi Electric Research Laboratories, MA, USA	4 months	Jan. 2023
Research Intern	ODYS S.r.l., Milano, Italy	2 months	Apr. 2022
Master's Thesis Intern	Virtual Vehicle Research Center, Graz, Austria	8 months	Apr. 2015
Controls Engineering - MATLAB	B&R GmbH, Salzburg, Austria	3 months	Sep. 2012
Software Engineering - CNC	B&R GmbH, Salzburg, Austria	2 months	July 2010
Software Engineering - C++	Step4 GmbH, Salzburg, Austria	3 months	Apr. 2009
Hardware Engineering	Sony DADC Austria AG, Salzburg, Austria	2 months	July 2006

EDUCATION

Master of Science | *Electrical Engineering: Control Systems and Mechatronics*
Technical University of Graz / University of Utah | GPA: 1.2 (*passed with distinction*)
Master's Thesis: Modeling of Nonlinear Drive-Train Dynamics
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Oct. 2013 – Jan. 2016
Graz, Austria,
Salt Lake City, UT, USA
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Bachelor of Science | *Electrical Engineering: Control Systems and Mechatronics*
Technical University of Graz | GPA: 1.5 (*passed with distinction*)
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Oct. 2009 – June 2012
Graz, Austria
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Community Service
Paramedic at the Red Cross
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Aug. 2008 – May 2009
Salzburg, Austria
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Secondary Technical College | *Electronic Engineering and Information Systems*
Diploma Project: High-Resolution USB Measurement System - Hardware and Software
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Sep. 2003 – June 2008
Salzburg, Austria
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SELECTED PUBLICATIONS

Equivariant Deep Learning of Mixed-Integer Optimal Control Solutions for Vehicle Decision Making and Motion Planning
IEEE Transactions on Control Systems Technology, ISSN: 1558-0865
Reiter R., Quirynen R., Diehl M., Di Cairano S.
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May 2024
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A Long-Short-Term Mixed-Integer Formulation for Highway Lane-Change Planning
IEEE Transactions on Intelligent Vehicles, ISSN: 2379-8858
Reiter R., Nurkanović A., Bernardini D., Diehl M., Bemporad A.
<div align="right">

May 2024
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Frenet-Cartesian Model Representations for Automotive Obstacle Avoidance within Nonlinear MPC
European Journal of Control, ISSN: 0947-3580
Reiter R., Nurkanović A., Frey J., Diehl M.
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June 2023
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PRIVATE

Besides my technical interests, I enjoy being outdoors. I am passionate about climbing, hiking, listening to Jazz music, and reading.

Zürich, February 14, 2025