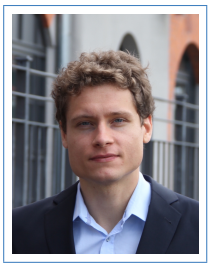
Dr. Raoul Malm

German citizenship

skype/raoul.malm
homepage/www.raoulmalm.de
linkedin/raoulmalm
github/raoulma, kaggle/raoulma



since 10/2017 - Self-teaching Machine/Deep/Reinforcement Learning and Computer Vision by taking Coursera courses, studying scientific books[1] and research papers, and writing source code.

01/2017 - 09/2017 (Sabbatical)
- Travelling in Nepal, Myanmar, Thailand, Hong Kong, China and Japan
- Trekking to the Everest Base Camp in Nepal, climbing Mont Blanc in France, running the Zugspitze trail-marathon near Munich and the city marathons in Cologne and Frankfurt

Education

08/2012 - 11/2016 **Dr. rer. nat. in Theoretical Physics with Distinction, Grade: 0.7 (summa cum laude)**
Johannes Gutenberg-University Mainz
Thesis: "Five-dimensional Perspective on Higgs Physics and the $b \to s\gamma$ Transition in a Warped Extra Dimension" (d-nb.info/1120148685/34)
Supervisor: Prof. Dr. Matthias Neubert

04/2006 - 05/2012 **Dipl.-Phys. in Theoretical Physics, Grade: 1.0 (very good)**
Johannes Gutenberg-University Mainz
Thesis: "Mitigation of the ϵ_K Fine-tuning Problem in the Randall-Sundrum Model"
Supervisor: Prof. Dr. Matthias Neubert

08/1996 - 03/2005 **Secondary School (Abitur), Grade: 1.6 (good)**
"Gymnasium am Kurfürstlichen Schloss" in Mainz

Awards

05/2017 Prize for excellent doctoral thesis given by "Friends of Mainz University"

05/2013 - 05/2015 Junior membership of the Gutenberg Academy, Johannes Gutenberg-University Mainz

08/2012 - 08/2014 Fellowship through the Graduate School "Symmetry Breaking in Fundamental Interactions" (DFG/GRK 1581), Student representative from 08/2013 till 08/2014

30/01/2013 Prize for outstanding diploma thesis of the faculty Physics, Mathematics and Computer Science, Johannes Gutenberg-University Mainz

02/2004 First place in "Jugend forscht" (German youth science competition) at the regional level C++ project: "Speech Recognition: Realisation and Application"

Programming Languages

Python, TensorFlow, C++, Mathematica, LaTeX

Software Projects

2018 Nuclei segmentation of microscopic images (2018 Data Science Bowl) by coding a U-Net shaped 10-layer CNN in Python using TensorFlow and OpenCV, where the main computation is performed on a Nvidia GPU in the Google cloud, see my github page.

2018 Cancer classification of breast histology images by coding a CNN in Python using TensorFlow and OpenCV. My jupyter notebook won a $500 kernel prize, see my kaggle profile.

2011-2016 Numerical analysis of Higgs and Flavour physics in warped extra dimensions using Mathematica and C++, see my github page.

2004 Basic speech recognition software written in C++ in order to navigate a small vehicle by speaking commands into a microphone, see my homepage.

[1] I have been studying "Pattern Recognition and Machine Learning" by M. Bishop, "Foundations of Machine Learning" by M. Mohri et. al., "Deep Learning" by I. Goodfellow et. al., "Algorithms for Reinforcement Learning" by C. Szepesvari and "Computer Vision" by R. Szeliski.

Coursera Certificates

2018 Machine Learning & Deep Learning Specialisation, Stanford University

2017 Neuronal Networks For Machine Learning, University of Toronto

2017 Bayesian Statistics, University of California, Santa Cruz

2017 Financial Engineering and Risk Management, Columbia University

Peer-reviewed Scientific Papers

2016 R. Malm, M. Neubert, C. Schmell, JHEP **04**, 042 (2016), arXiv:1509.02539 [hep-ph]

2015 R. Malm, M. Neubert, C. Schmell, JHEP **02**, 008 (2015), arXiv:1408.4456 [hep-ph]

2014 J. Hahn, C. Hörner, R. Malm, M. Neubert, K. Novotny, C. Schmell, Eur. Phys. J. $C74$, 2857 (2014), arXiv:1312.5731 [hep-ph]

2014 R. Malm, M. Neubert, K. Novotny, C. Schmell, JHEP **01**, 173 (2014), arXiv:1303.5702

2012 M. Bauer, R. Malm, and M. Neubert, Phys. Rev. Lett. **108**, 081603 (2012), arXiv:1110.0471

Selection of Talks

2015 "Loop Processes and Higgs Phenomenology in a Warped Extra Dimension", Physics seminar, Ludwig Maximilian University of Munich

2014 "Loop Processes and Higgs Phenomenology in a Warped Extra Dimension", Graduate Summer School, Frauenchiemsee

2013 "5D Perspective on Higgs Production via Gluon Fusion at the Boundary of a Warped Extra Dimension", Graduate School Retreat, Eberbach Abbey, Eltville

2012 "Mitigation of the ϵ_K Fine-tuning Problem in the Randall-Sundrum Model", Graduate School Retreat, Bad Kreuznach

2012 "Neutrinos faster than light? Theoretical aspects", Physics seminar, Johannes Gutenberg-University Mainz

Stays Abroad

06/2014 - 07/2014 Summer school TASI 2014 "Journeys Through the Precision Frontier: Amplitudes for Colliders" at the University of Colorado, Boulder, USA

01/2014 - 02/2014 Winter school "GGI Lectures on the Theory of Fundamental Interactions" at the Galileo Galilei Institute for Theoretical Physics, Florence, Italy

05/2013 - 06/2013 Workshop "Exploring the TeV Scale New Physics with LHC Data" at the Kavli Institute for Theoretical Physics at the University of California, Santa Barbara, USA

Work Experience

2011-2016 Research assistant, Johannes Gutenberg-University Mainz
Working group of Prof. Dr. Matthias Neubert
Topics: physics beyond the Standard Model, collider physics and phenomenology

2012 - 2014 Academic teaching (Johannes Gutenberg-University Mainz) with advanced tutorials on
- Quantum Field Theory and Theoretical Particle Physics
- Modern Quantum Field Theory and Introduction to the Standard Model
- Higher Quantum Mechanics and Quantum Field Theory

04/2008 - 04/2009 Research assistant as a student, Johannes Gutenberg-University Mainz
QUANTUM group of Prof. Dr. Arnold Rauschenbeutel
Project: "Construction of an Optical Fiber-based Biosensor"

05/2005 - 01/2006 Civilian service, St. Vincenz and Elisabeth Hospital in Mainz, Germany

Languages German (native), English (fluent), French (basics)

Personal Interests AI | Deep Learning, Science | Society, Climbing | Trail Running