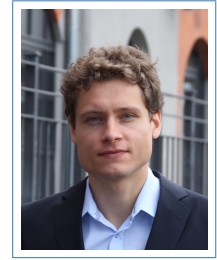


# Dr. Raoul Malm

German citizenship

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



- since 12/2016
- Professional reorientation
  - Trekking to the Everest Base Camp in Nepal, climbing Mont Blanc in France, running the Zugspitze Trail-Marathon in Germany
  - Travelling in Nepal, Myanmar, Thailand, Hong Kong, China, Japan

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## 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  $b \rightarrow s\gamma$  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  $\epsilon_K$  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

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## 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"

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## Programming Languages

Python, TensorFlow, C++, Mathematica, LaTeX

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## Software Projects

- 2018 Nuclei segmentation of microscopic images (2018 Data Science Bowl) by coding a U-Net shaped 10-layer CNN in Python/TensorFlow, see my github page.
- 2018 Cancer Classification of breast histology images by coding a CNN in Python/TensorFlow. 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.

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## 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

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## 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. *C* **74**, 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

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## 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  $\epsilon_K$  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

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## 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

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## 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

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- Languages German (native), English (fluent), French (basics)
  - Personal Interests AI | Deep Learning, Science | Society, Climbing | Trail Running