

CONTACT

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RESEARCH INTERESTS

- decision-making based on multi-modal and ambiguous data with generative models
- supervised/semi-supervised semantic segmentation & detection
- uncertainty estimates and interpretability of deep models

EDUCATION

Ph.D in Medical Image Analysis 2016-present
DKFZ, Heidelberg & KIT, Karlsruhe
Segmentation of Ambiguous Images.

MSc. in Physics (with distinction) 2014-2016
Karlsruhe Institute of Technology, KIT
Thesis: ‘Dalitz Plot Analysis of $B^- \rightarrow D^+ \pi^- \pi^-$ ’ using Belle I collider data ([link](#)).

BSc. in Physics 2010-2014
Karlsruhe Institute of Technology, KIT
Thesis: ‘Density Functional Theory Study of Tetrahedrites’.

Study-abroad program, Bachelor’s Thesis 2012-2013
Oregon State University, OSU
One year Oregon-Baden-Württemberg-Exchange program including research in the computational condensed matter group of Prof. Günter Schneider.

INTERSHIPS/EMPLOYMENTS

DeepMind, London 2017-2018
research scientist intern
Internship conducting research with DeepMind Health from October 2017 to April 2018.

Blue Yonder GmbH (Software Limited), Karlsruhe 2016
student trainee
Improving the machine learning predictions for a large retail customer project and successively deploying the pipeline on the company internal live-prediction framework.

Institute for Anthropomatics and Robotics (IAR), KIT 2015-2016
research assistant
Development of a multi-modal backchannel prediction algorithm for human-machine interaction in Prof. Alexander Waibel’s research group using CNNs.

Carl Benz School, KIT, Mechanical Engineering Dept.

2015-2016

teaching assistant

Teaching assistant for Higher Mathematics at the Carl Benz School for Mechanical Engineering at KIT.

Institute of Experimental Nuclear Physics (IEKP), KIT

2014-2015

research assistant

Validation of the Monte Carlo event generator in the KIT group lead by Prof. Michael Feindt associated with the particle collider experiment Belle I/II.

Universidad de Antioquia

2014

research internship, Medellín, Colombia

Three month research internship in the solid state physics group of Prof. Carlos Duque.

German Civil Service

2009-2010

Day-Care for kids with special needs, Eppingen

Assistance in a day-care for children with special needs as part of the German civil service.

SCIENTIFIC CONTRIBUTIONS

- Paper* 'A Probabilistic U-Net for Segmentation of Ambiguous Images' to be published at [NIPS 2018](#).
- Paper* 'Comparison of Mean ADC and radiomic machine learning for characterization of PI-RADS detected lesions in the MR evaluation for clinically significant prostate cancer' - [Radiology 2018](#).
- Paper* 'Adversarial Networks for the Detection of Aggressive Prostate Cancer'- [arXiv 2017](#).
- Tutorial* Invited Tutorial on Deep Learning in Medical Imaging at BVM 2017, Heidelberg, March 2017.
- Review* Reviewer for MICCAI 2017.
- Challenge* 1st place in the 2018 Medical Segmentation Decathlon ([paper](#))
- Challenge* 10th place in the 2017 Camelyon ISBI Challenge on breast cancer detection from pathology images ([paper](#)).

INVITED TALKS

- Talk* 'Introduction to Generative Models' @ karlsruhe.ai, Karlsruhe, April 2017.
- Talk* 'Machine Learning & Ethics' @ International Journal of Cancer Editor's Meeting, Heidelberg, June 2017.
- Talk* 'Segmentation of Ambiguous Images' @ Düsseldorf Bio-Data Seminar, University of Düsseldorf, September 2018.
- Talk* 'Segmentation of Ambiguous Images' @ Visual Learning Lab, University of Heidelberg, October 2018.
- Talk* 'From unstructured data to medically relevant information' @ ISMRM Nordic Chapter Meeting Trondheim, Norway, Oct. 2018.
- Talk* 'Segmentation of Ambiguous Images' @ NEC Europe Laboratories Heidelberg, November 2018.

Talk ‘Segmentation of Ambiguous Images’ @ Center for Computational Statistics and Machine Learning, UCL, London, November 2018.

Spotlight ‘Segmentation of Ambiguous Images’ @ NIPS Conference 2018, Montreal, Canada, December 2018.

EXTRACURRICULAR ACTIVITIES

The Post Binary

2018

Conference, Museum Angewandte Kunst Frankfurt

Co-organizer of The Post Binary (post-binary.com), a 3-day conference on Artificial Intelligence in Art & Design held at the Museum Angewandte Kunst Frankfurt am Main from 8-10 November 2018.

heidelberg.ai

2017-2018

meetup, Heidelberg

Co-initiator and co-organizer of heidelberg.ai, a meetup for technical talks on latest developments and applications in and around deep learning.

Model United Nations

2010-2014

MUN society, KIT

President of the society for three semesters and Co-Head of organizations for KaMUN in 2011 and 2012. Delegate at: Harvard WorldMUN 2011, OxiMUN 2011, Harvard WorldMUN 2012 and as part of the Oregon State University team in Northwest MUN 2013.

European Youth Parliament

2008-2011

Highschool EYP delegation

As part of our school’s delegation participation in the following conferences: European Youth Forum 2008 in Istanbul, European Youth Forum 2008 in Fontainebleau, Alp Forum 2009 in Prien am Chiemsee, International Forum of EYP 2011 in Regensburg.

OTHER SKILLS

Languages German (mother tongue), English (fluent), French (fluent), Spanish (intermediate level)

Software PYTHON, TENSORFLOW, THEANO & LASAGNE, C++