

Karsten Roth

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Education

Master Physics

Heidelberg University | Specialization Computer Vision & Machine Learning

- > Master Thesis on Deep Metric Learning and Visual Representation Learning.
- > Current Grade Average: **1.1/4.0**.

2017 – Present

Heidelberg, Germany

Bachelor Physics

Heidelberg University | Focus on Solid State and Medical Physics

- > Bachelor Thesis on 2D and 3D Liverlesion-Segmentation from CT Data.
- > Final Grade: **1.5/4.0**.

2014 – 2017

Heidelberg, Germany

Publications

MIC: Mining Interclass Characteristics for Improved Metric Learning

Karsten Roth*, Biagio Brattoli*, Björn Ommer

- > [Paper](#) | [Poster](#) | [Code](#)

ICCV 2019

Seoul, Korea

Boosting Liver and Lesion Segmentation from CT Scans by Mask Mining

Karsten Roth, Jürgen Hesser, Tomasz Konopczynski

- > [Paper](#) | [Poster](#)

Med-NeurIPS 2019

Vancouver, Canada

The Liver Tumor Segmentation Benchmark (LiTS)

Patrick Bilic, ..., Karsten Roth, ..., Bjoern Menze

- > [Paper](#)

ISBI/MICCAI 2017

Quebec City, Canada

Efficient preparation and detection of microwave dressed-state qubits and qutrits with trapped ions

Joe Randall, ..., Karsten Roth, Winfried Hensinger

- > [Paper](#)

Physics Annual Review 2014

Research Experience

Yoshua Bengio group, Montreal Institute for Learning Algorithms (MILA)

Research Intern

- > Research Topic: UNSUPERVISED REPRESENTATION LEARNING FOR 3D MEDICAL DATA.
- > Supervised by JOSEPH PAUL COHEN AND YOSHUA BENGIO.

Sep 2019 – Present

Montreal, Canada

Björn Ommer group, Heidelberg Collaboratory for Image Processing (HCI)

Master Student & Student Researcher

- > Research Topic: DEEP METRIC LEARNING AND VISUAL REPRESENTATION LEARNING.
- > Supervised by BIAGIO BRATTOLI, TIMO MILBICH, PATRICK ESSER AND BJÖRN OMMER.

Oct. 2018 – Present

Heidelberg, Germany

Alessia Ruggieri group, Center for Integrative Infectious Disease Research (CIID)

Student Researcher

- > Research Topic: MULTI-CELL TRACKING AND COLOCALIZATION.
- > Supervised by PHILIPP KLEIN, FRED HAMPRECHT AND ALESSIA RUGGIERI.

Feb. 2017 – Sep. 2019

Heidelberg, Germany

Jürgen Hesser group, Experimental Radiooncology University Hospital Mannheim

Student Researcher

- > Research Topic: 2D AND 3D SEGMENTATION FOR LIVER CT DATA.
- > Supervised by TOMASZ KONOPCZYNSKI AND JÜRGEN HESSER.

July 2017 – May 2019

Mannheim, Germany

Björn Ommer group, Heidelberg Collaboratory for Image Processing (HCI)

Research Intern

- > Research Topic: IMPROVING SELF-SUPERVISED LEARNING METHODS BY REINFORCEMENT LEARNING.
- > Supervised by BIAGIO BRATTOLI AND BJÖRN OMMER.

Feb. 2018 – May. 2018

Heidelberg, Germany

Winfried Hensinger Group, Quantum Computing Sussex University

Intern

- > Primary Project: FREQUENCY MODULATION TOOL TO ADDRESS ION STATES.
- > Supervised by SEBASTIAN WEIDT, DAVID MURGIA AND WINFRIED HENSINGER.

Aug. 2013 – Apr. 2014

Brighton, United Kingdom

Skills

Technical Python, PyTorch, Keras, Tensorflow, Lasagne, Theano, Git, TeX, Ilastik

Languages German (Fluent), English (Fluent), Chinese (Intermediate), French (Intermediate)