

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

PADS: Policy-Adapted Sampling for Visual Similarity Learning

Karsten Roth*, Timo Milbich*, Björn Ommer

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

CVPR 2020
Seattle, USA

Mask Mining for Improved Liver Lesion Segmentation

Karsten Roth, Jürgen Hesser, Tomasz Konopczynski

> [Paper](#)

ISBI 2020
Iowa City, USA

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

> [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)