Karsten Roth

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Education

Bachelor and Master Physics 2014 – Present
Heidelberg University | Specialization Computer Vision & Machine Learning *Heidelberg, Germany*
- Bachelor Final Grade: **1.5/4.0**. Master current Grade Average: **1.1/4.0**.

Selected Publications

Sharing Matters for Generalization in Deep Metric Learning TPAMI 2020
Timo Milbich, Karsten Roth*, Biagio Brattoli, Björn Ommer* *Journal*
- Paper

Predicting COVID-19 Pneumonia Severity on Chest X-ray With Deep Learning Cureus 2020
J. P. Cohen, L. Dao, Karsten Roth, P. Morrison, Y. Bengio, A. F. Abbasi, B. Shen, H. K. Mahsa, M. Ghassemi, H. Li, T. Duong *Journal*
- Paper

DiVA: Diverse Visual Feature Aggregation for Deep Metric Learning ECCV 2020
Timo Milbich, Karsten Roth*, Homanga Bharawadhj, Samarth Sinha, Yoshua Bengio, Björn Ommer, Joseph Paul Cohen* *Online*
- Paper | Code

Revisiting Training Strategies and Generalization Performance in Deep Metric Learning ICML 2020
Karsten Roth, Timo Milbich*, Samarth Sinha, Prateek Gupta, Björn Ommer, Joseph Paul Cohen* *Online*
- Paper | Code

PADS: Policy-Adapted Sampling for Visual Similarity Learning CVPR 2020
Karsten Roth, Timo Milbich*, Björn Ommer* *Online*
- Paper | Code

Mask Mining for Improved Liver Lesion Segmentation ISBI 2020
Karsten Roth, Jürgen Hesser, Tomasz Konopczynski *Iowa City, USA*
- Paper

MIC: Mining Interclass Characteristics for Improved Metric Learning ICCV 2019
Karsten Roth, Biagio Brattoli*, Björn Ommer* *Seoul, Korea*
- Paper | Poster | Code

The Liver Tumor Segmentation Benchmark (LiTS) ISBI/MICCAI 2017
Patrick Bilic, ..., Karsten Roth, ..., Bjoern Menze *Quebec City, Canada*
- Paper

Efficient preparation and detection of microwave dressed-state qubits and qutrits with trapped ions Physics Annual Review 2014
Joe Randall, ..., Karsten Roth, Winfried Hensinger
- Paper

Research Experience

Marzyeh Ghassemi group, Vector Institute May 2020 – Present
Research Intern *Toronto, Canada*
- Research Topic: Zero- and Few-Shot Learning for Medical Data.
- Supervised by Marzyeh Ghassemi.

Yoshua Bengio group, Montreal Institute for Learning Algorithms (MILA) Sep 2019 – Mar 2020
Research Intern *Montreal, Canada*
- Research Topic: Unsupervised Representation Learning for 3D Medical Data.
- Supervised by Joseph Paul Cohen and Yoshua Bengio.

Björn Ommer group, Heidelberg Collaboratory for Image Processing (HCI) Feb. 2018 – Present
Master Student & Student Researcher *Heidelberg, Germany*
- Research Topic: Deep Metric Learning, Visual & Self-Supervised Representation Learning.
- Supervised by Biagio Brattoli, Timo Milbich, Patrick Esser and Björn Ommer.

Alessia Ruggieri group, Center for Integrative Infectious Disease Research (CIID) Feb. 2017 – Sep. 2019
Student Researcher *Heidelberg, Germany*
- Research Topic: Multi-Cell Tracking and Colocalization.
- Supervised by Philipp Klein, Fred Hamprecht and Alessia Ruggieri.

Jürgen Hesser group, Experimental Radiooncology University Hospital Mannheim July 2017 – May 2019
Student Researcher *Mannheim, Germany*
- Research Topic: 2D and 3D Segmentation for Liver CT Data.
- Supervised by Tomasz Konopczynski and Jürgen Hesser.

Winfried Hensinger Group, Quantum Computing Sussex University Aug. 2013 – Apr. 2014
Intern *Brighton, United Kingdom*
- Primary Project: Frequency Modulation Tool to address ion states.
- Supervised by Sebastian Weidt, David Murgia and Winfried Hensinger.