Karsten Roth

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Education

Bachelor and Master Physics
Heidelberg University | Specialization Computer Vision & Machine Learning

2014 – Present
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
Timo Milbich*, **Karsten Roth***, Biagio Brattoli, Björn Ommer

TPAMI 2020
Journal

> Paper

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

Cureus 2020
Journal

> Paper

DiVA: Diverse Visual Feature Aggregation for Deep Metric Learning
Timo Milbich*, **Karsten Roth***, Homanga Bharawadhj, Samarth Sinha, Yoshua Bengio, Björn Ommer, Joseph Paul Cohen

ECCV 2020
Online

> Paper | Code

Revisiting Training Strategies and Generalization Performance in Deep Metric Learning
Karsten Roth*, Timo Milbich*, Samarth Sinha, Prateek Gupta, Björn Ommer, Joseph Paul Cohen

ICML 2020
Online

> Paper | Code

PADS: Policy-Adapted Sampling for Visual Similarity Learning
Karsten Roth*, Timo Milbich*, Björn Ommer

CVPR 2020
Online

> Paper | Code

Mask Mining for Improved Liver Lesion Segmentation
Karsten Roth, Jürgen Hesser, Tomasz Konopczynski

ISBI 2020
Iowa City, USA

> Paper

MIC: Mining Interclass Characteristics for Improved Metric Learning
Karsten Roth*, Biagio Brattoli*, Björn Ommer

ICCV 2019
Seoul, Korea

> Paper | Poster | Code

Research Experience

Marzyeh Ghassemi group, Vector Institute
Research Intern

May 2020 – Present
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)
Research Intern

Sep 2019 – Mar 2020
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)
Master Student & Student Researcher

Feb. 2018 – Present
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)
Student Researcher

Feb. 2017 – Sep. 2019
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
Student Researcher

July 2017 – May 2019
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
Intern

Aug. 2013 – Apr. 2014
Brighton, United Kingdom

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