

Karsten Roth

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Education

PhD Computer science

ELLIS Program | Supervisors: Zeynep Akata, Oriol Vinyals

> Topics: Multimodal Representation Learning, Explainable AI, Generalization in Deep Learning.

since 2021
Tuebingen, Germany

Selected Publications

Revisiting Training Strategies and Generalization Performance in Deep Metric Learning

Karsten Roth, Timo Milbich, Björn Ommer, Joseph Paul Cohen*, Marzyeh Ghassemi*

> Paper | Code

ICML 2020
Online

Sharing Matters for Generalization in Deep Metric Learning

Timo Milbich*, **Karsten Roth***, Biagio Brattoli, Björn Ommer

> Paper

TPAMI 2020
Journal

DiVA: Diverse Visual Feature Aggregation for Deep Metric Learning

Timo Milbich*, **Karsten Roth***, Homanga Bharawadhj, Samarth Sinha, Yoshua Bengio, Björn Ommer, Joseph Paul Cohen

> Paper | Code

ECCV 2020
Online

Revisiting Training Strategies and Generalization Performance in Deep Metric Learning

Karsten Roth*, Timo Milbich*, Samarth Sinha, Prateek Gupta, Björn Ommer, Joseph Paul Cohen

> Paper | Code

ICML 2020
Online

PADS: Policy-Adapted Sampling for Visual Similarity Learning

Karsten Roth*, Timo Milbich*, Björn Ommer

> Paper | Code

CVPR 2020
Online

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

Research Experience

Amazon AWS Research Lablet

Research Intern

> Research Topic: ANOMALY DETECTION.
> Supervised by PETER GEHLER, THOMAS BROX, BERNHARD SCHOELKOPF.

Oct 2020 – Mar 2021
Tuebingen, Germany

Marzyeh Ghassemi group, Vector Institute

Research Intern

> Research Topic: ZERO- AND FEW-SHOT LEARNING FOR MEDICAL DATA.
> Supervised by MARZYEH GHASSEMI.

May 2020 – Present
Toronto, Canada

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 – Mar 2020
Montreal, Canada

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

Master Student & Student Researcher

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

Feb. 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

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