

Constantin Seibold

JUNIOR RESEARCH GROUP LEADER · CLINIC FOR NUCLEAR MEDICINE · INSTITUTE FOR ARTIFICIAL INTELLIGENCE IN MEDICINE

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Education

Karlsruhe Institute of Technology

PHD COMPUTER SCIENCE

Karlsruhe

July 2019 - April 2023

- Thesis Title: Towards the automatic generation of medical reports in low supervision scenarios
Grade: **Summa Cum Laudae**
Advisor: Prof. Dr.-Ing. Rainer Stiefelhagen, Prof. Dr. med. Dr. rer. nat. Jens Kleesiek

Karlsruhe Institute of Technology

Karlsruhe

M. SC. COMPUTER SCIENCE

October 2016 - March 2019

- Master Thesis Advisor: Dr. Muhammed Saquib Sarfraz, Prof. Dr. Rainer Stiefelhagen

University of Stuttgart

Stuttgart

B.SC. COMPUTER SCIENCE

October 2013 - October 2016

- Bachelor Thesis Advisor: Dr. Roman Klinger, Prof. Dr. Sebastian Pado

Professional Experience

May 2023 -
Present

Junior Research Group Leader, Clinic for Nuclear Medicine,
Institute for Artificial Intelligence in Medicine,
University Clinic Essen

July 2019-
December
2022

Research Staff, Computer Vision for Human-Computer Interaction Lab,
Karlsruhe Institute of Technology

March 2019-
July 2019

Research Assistant, Computer Vision for Human-Computer Interaction Lab,
Karlsruhe Institute of Technology

Awards

- 2023 **Winning Team of the UME - Innovation Contest**, University Medicine Essen
- 2023 **KIT Doctoral Award**, Karlsruhe Institute of Technology
- 2022 **Student Travel Award**, Medical Image Computing and Computer Assisted Intervention Society
- 2022 **Teaching Award - Best Practical Course**, Karlsruhe Institute of Technology, Computer Science Faculty
- 2019 **Best Industry Paper Award**, British Machine Vision Conference

Patents

- 2022 **Sample, Match, Mix: Image-informed Pseudo-labeling for Semi-supervised Retinal Fluid Segmentation**,

Teaching Experience

WS21, WS22	Deep Learning for Computer Vision II: Advanced Topics , Teaching Assistant, Lecturer	<i>Karlsruhe Institute of Technology</i>
SS22	Deep Learning for Computer Vision I: Basics , Teaching Assistant	<i>Karlsruhe Institute of Technology</i>
SS20, WS20, SS21	Deep Learning for Computer Vision , Teaching Assistant	<i>Karlsruhe Institute of Technology</i>
SS21, WS22, SS22	Practical Course - Computer Vision for Human Computer Interaction , Lecturer/Course Organizer [Awarded as Best Practical Course of SS21]	<i>Karlsruhe Institute of Technology</i>
2020-2023	Supervision of Master Theses , Students: P. Nguyen, W. Di, P. Albrecht	<i>Karlsruhe Institute of Technology</i>
2020-2021	Supervision of Bachelor Theses , C. Goos	<i>Karlsruhe Institute of Technology</i>

Outreach & Professional Development

SERVICE AND OUTREACH

- 2021-
2022 **Initiating and organizing the Computer-Vision Reading Group at CV:HCI**, Organizer, Presenter
- 2022 **MICCAI Workshop - Medical Applications with Disentanglements**, Program Committee

CONFERENCE ATTENDENCE

- **15th Asian Conference on Computer Vision, 2020, Kyoto, Japan**, Poster
- **18th International Symposium on Biomedical Imaging, 2021, Nice, France**, Poster
- **36th AAAI Conference on Artificial Intelligence, 2022, Vancouver, Canada**, Poster
- **25th International Conference on Medical Image Computing and Computer Assisted Intervention, 2022, Singapore**, Poster
- **33. British Machine Vision Conference, 2022, London, UK**, Poster
- **26th International Conference on Medical Image Computing and Computer Assisted Intervention, 2023, Vancouver**, Presentation

PEER REVIEW

- **International Journal of Computer Assisted Radiology and Surgery**
- **IEEE Transactions on Biomedical Engineering**
- **AAAI Conference on Artificial Intelligence (AAAI-23/24)**
- **IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR 2022/23)**
- **European Conference on Computer Vision (ECCV 2022)**

FURTHER EDUCATION

- **IBM Neuro-Symbolic AI Summer School 2022** displayed possible combinations of knowledge-driven, symbolic AI with more traditional data-driven machine learning approaches. Distinguished speakers shared an overview of neuro-symbolic AI, its history, and how these methods can be effectively applied in current applications.

- **AAAI 2022 Tutorial - Neuro-Symbolic Methods for Language and Vision** provided theoretical as well as hands-on knowledge on the field of neuro-symbolic approaches merging language and vision domains.
- **AAAI 2022 Tutorial - Health Intelligence** provided insight on clinical applications of artificial intelligence as well as various solutions to problems common in the medical domain.
- **ISBI 2021 Tutorial - Image annotation, augmentation and synthesis approaches for accelerating supervised machine learning in bioimaging** provided theoretical as well as hands-on knowledge on the field on image annotation and the subsequent generation of datasets in the medical domain.
- **Workshop Nawik Visualizing Science 2021** provided insights on how to properly visualize research results to convey the consequent insights .
- **Workshop Nawik Communicating Science 2021** provided insights on how to properly communicate your research results to both experts and layman.
- **Workshop KHYS Time-& Self-Management 2023** presented approaches and tools for improved organization and self-reflexion.
- **Workshop KHYS Basics of Leadership in Science 2023** engaged with core concepts of leadership in a scientific field.

Selected Publications

- **Accurate Fine-Grained Segmentation of Human Anatomy in Radiographs via Volumetric Pseudo-Labeling**, Seibold, Constantin, et al. arXiv preprint arXiv:2306.03934 (2023).
- **Self-Guided Multiple Instance Learning for Weakly Supervised Thoracic Disease Classification and Localization in Chest Radiographs**
Seibold, Constantin et al., Proceedings of the Asian Conference on Computer Vision, 2020 (Poster/Proceedings)
- **Reference-guided pseudo-label generation for medical semantic segmentation.**
Seibold, Constantin, et al. Proceedings of the AAAI conference on artificial intelligence. Vol. 36. No. 2. 2022. (Poster/Proceedings)
- **Detailed Annotations of Chest X-Rays via CT Projection for Report Understanding.**
Seibold, Constantin, et al. The 33rd British Machine Vision Conference Proceedings 2022 (Poster/Proceedings)
- **Breaking with fixed set pathology recognition through report-guided contrastive training.**
Seibold, Constantin, et al., International Conference on Medical Image Computing and Computer-Assisted Intervention. Cham: Springer Nature Switzerland, 2022. (Poster/Proceedings)