Constantin Seibold

Junior Research Group Leader · Clinic for Nuclear Medicine · Institute for Artificial Intelligence in Medicine

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Professional Experience

May 2023 - Present	**Junior Research Group Leader**, Clinic for Nuclear Medicine, Institute for Artificial Intelligence in Medicine, University Clinic Essen **Supervision of multiple Ph.D. students on the development of machine learning algorithms in medicine with the focus of making relevant information accessible for medical personnel. We lie in the intersection between computer science and clinical translation.**
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

Education

Karlsruhe Institute of Technology *Karlsruhe*

PhD Computer Science *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.-Ing. Muhammed Saquib Sarfraz, Prof. Dr.-Ing. Rainer Stiefelhagen

University of Stuttgart *Stuttgart*

B.Sc. Computer Science *October 2013 - October 2016*

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

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

Grants

2024	**EU HORIZON JU - Innovative Health Initiative - *HORIZON-JU-IHI-2023-05-02***, Thera4Care - Development and proof of principle of new clinical applications of theranostics solutions

Invited Talks

2024 **ENBIS Spring Meeting**, Dortmund, Germany
2024 **Intelligent Sensing and Perception Group**, Stuttgart, Germany

Teaching Experience

2021-2022	**Deep Learning for Computer Vision II: Advanced Topics**, Teaching Assistant, Lecturer	*Karlsruhe*
2022	**Deep Learning for Computer Vision I: Basics**, Teaching Assistant	*Karlsruhe*
2020-2021	**Deep Learning for Computer Vision**, Teaching Assistant	*Karlsruhe*
2021-2022	**Practical Course - Computer Vision for Human Computer Interaction**, Lecturer/Course Organizer **[Awarded as Best Practical Course of SS21]**	*Karlsruhe*
2020-2024	**Supervision of Master Theses**, Students: P. Nguyen, W. Di, P. Albrecht, R. Chlebecec	*Karlsruhe*
2020, 2024	**Supervision of Bachelor Theses**, Students: C. Goos, J. Nasimzada, S. Mahler	*Karlsruhe, Stuttgart*

Outreach & Professional Development

Service and Outreach

2021-2022 **Initiating and organizing the Computer-Vision Reading Group at CV:HCI**, Organizer, Presenter
2023-Ongoing **Initiating and organizing the Computer-Vision Reading Group at the Institute for Artificial Intelligence in Medicine**, Organizer, Presenter
2022 **MICCAI Workshop - Medical Applications with Disentanglements**, Program Committee

Conference Attendence

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

Peer Review

- **IEEE Transactions on Biomedical Engineering**
- **AAAI Conference on Artificial Intelligence (AAAI-23/24/25)**
- **IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR 2022/23)**
- **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2024)**
- **European Conference on Computer Vision (ECCV 2022)**
- **Winter Conference on Applications of Computer Vision (WACV 2024)**

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 method can 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 Localizationin 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)