Constantin Seibold

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

University Clinic Essen, Hufelandstraße 55, Essen Germany

+49 160 3743570 | constantinseibold@gmail.com | constantinseibold.github.io

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

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

Scholarships and 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

WS21, WS22	**Deep Learning for Computer Vision II: Advanced Topics**, Teaching Assistant, Lecturer	*KIT*
SS22	**Deep Learning for Computer Vision I: Basics**, Teaching Assistant	*KIT*
SS20, WS20, SS21	**Deep Learning for Computer Vision**, Teaching Assistant	*KIT*
SS21, WS22, SS22	**Practical Course - Computer Vision for Human Computer Interaction**, Lecturer/Course Organizer **[Awarded as Best Practical Course of SS21]**	*KIT*
2020-2024	**Supervision of Master Theses**, Students: P. Nguyen, W. Di, P. Albrecht, R. Chlebecec	*KIT*
2020, 2024	**Supervision of Bachelor Theses**, Students: C. Goos, J. Nasimzada, S. Mahler	*KIT, University of 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

- **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-23/24/25)**
- **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)