

Prof. Dr. Benedikt Wiestler

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Summary

High-dimensional and multimodal medical data is vastly underutilized in daily clinical decision-making. My lab *AI for Image-Guided Diagnosis and Therapy* addresses this critical need by developing AI models that distill this wealth of information into actionable biomarkers, enabling precision diagnostics and personalized therapies.

Career

Since 05/2024	Associate W3 Professor, TUM School of Medicine & Health
09/2020 - 04/2024	Attending Physician, Department of Neuroradiology, TUM
01/2018 - 04/2024	Group Leader <i>Computational Imaging</i> , TUM
05/2015 - 06/2020	Resident, Department of Neuroradiology, TUM
07/2012 - 12/2014	Postdoc, German Cancer Research Center, Heidelberg
01/2010 - 06/2012	Resident, Department of Neuro-Oncology, Heidelberg University Hospital

Education

2019 - 2020	Certificate of Advanced Studies “ <i>Artificial Intelligence in Medical Imaging</i> ”, University of Bern
06/2018	Habilitation in Radiology, TUM
2015 - 2019	DKTK School of Oncology Fellow, TUM
06/2011	Doctoral Thesis (<i>Summa cum Laude</i>), Heidelberg University
2002 - 2009	Medical School, Bonn & Heidelberg Universities

Honors & Awards

2020	Best project, “ <i>Image Quality Transfer in MRI with Deep Neural Networks</i> ”, Medical Image Computing Summer School, University College London
2019	Kurt Decker Award, German Society of Neuroradiology
2018	2nd Place “Lecturer of the Year”, Faculty of Medicine, TUM
2005 – 2009	Fellowship of the German National Merit Foundation (Studienstiftung)

Third-Party Funding

My research is supported by significant funding through competitive national grants (e.g., DFG individual grants and Priority Programme Radiomics), national cancer charities (Deutsche Krebshilfe), and federal ministries (BMBF, BMWi), as well as international grants (NIH, EU-COST).

Academic Service

I contribute to both national and international efforts in my field. This includes participating in groups like the RANO-AI Working Group and the "Multiple Sclerosis" guideline committee of the German Neurological Society. Additionally, I serve on the reviewer boards for multiple academic journals such as Medical Image Analysis, Neuro-Oncology, and Radiology, as well as for international conferences like the Medical Image Computing and Computer Assisted Intervention (MICCAI) conference.

Research Statement

My research program is dedicated to the development and clinical translation of **innovative AI methods to extract actionable biomarkers for clinical decision-making** from complex, multimodal medical data. By integrating principles from computer science and medicine, my work aims to advance personalized approaches to diagnosis and therapy.

This translational focus is reflected throughout my publications. Foundational work, such as [1] and [2], showcases my collaboration with computer science groups to pioneer novel image analysis techniques and biophysical models. The clinical impact of these methods is demonstrated in studies like [3], where we applied computational analysis to enhance the assessment of inflammatory disease activity in Multiple Sclerosis, and [4], which leverages Deep Learning models to inform personalized radiotherapy planning.

Beyond my core research, I am committed to advancing the field through community leadership, evidenced by my role as a co-organizer for internationally recognized challenges and workshops, including the Brain Tumor Segmentation (BraTS) and Ischemic Stroke Lesion Segmentation (ISLES) challenges [5].

1. McGinnis J, Shit S, Li H, Sideri-Lampretsa V, Graf R, Dannecker M, Pan J, Stolt-Ansó N, Mühlau M, Kirschke J, Rueckert D, **Wiestler B**.
[Single-subject Multi-contrast MRI Super-resolution via Implicit Neural Representations.](#)
MICCAI 2023
2. Balcerak M, Amiranashvili T, Wagner A, Weidner J, Karnakov P, Paetzold J, Ezhov I, Koumoutsakos P, **Wiestler B***, Menze BH* (equal contribution).
[Physics-Regularized Multi-Modal Image Assimilation for Brain Tumor Localization.](#)
NeurIPS 2024
3. Eichinger P, Schön S, Pongratz V, Wiestler H, Zhang H, Bussas M, Hoshi MM, Kirschke J, Berthele A, Zimmer C, Hemmer B, Mühlau M, **Wiestler B**.
[Accuracy of Unenhanced MRI in the Detection of New Brain Lesions in Multiple Sclerosis.](#)
Radiology 2019
4. Weidner J, Ezhov I, Balcerak M, Metz M, Litvinov S, Kaltenbach S, Feiner L, Lux L, Kofler F, Lipkova J, Latz J, Rueckert D, Menze B, **Wiestler B**.
[A Learnable Prior Improves Inverse Tumor Growth Modeling.](#)
IEEE TMI 2024
5. de la Rosa E, Reyes M, Liew SL, ..., Menze BH, Kirschke J, **Wiestler B**.
[DeepISLES: A clinically validated ischemic stroke segmentation model from the ISLES'22 challenge.](#)
Nature Communications 2025