

Short CV

Wolfgang Högele

Berufliche Tätigkeit

seit 2020	Hochschule München, Fakultät Informatik und Mathematik Professur für Angewandte Mathematik: Computational Science
2016–2020 3 ¾ Jahre	Carl Zeiss Optotechnik GmbH, Neubeuern Stabsstelle Entwicklung für Optiksimation und Mathematische Modellierung
2013–2016 3 ⅔ Jahre	Carl Zeiss SMT GmbH, Oberkochen Wissenschaftlicher Mitarbeiter für Simulation und Softwareentwicklung
WiSe 2016/17	Hochschule Aalen, Fakultät Elektronik und Informatik Lehrbeauftragter für das Fach Digitale Signalverarbeitung
2009–2013 3 ½ Jahre	Hochschule Regensburg, Fakultät Informatik und Mathematik Wissenschaftlicher Mitarbeiter, Lehre und Forschung

Studium & Promotion

2009–2013	Universität Regensburg Promotion in Angewandter Mathematik in der Medizinischen Physik, Dr. rer. physiol.
2008–2009	Ruprecht–Karls–Universität Heidelberg Studium Medical Physics, M.Sc.
2003–2007	Fachhochschule Regensburg Studium Mathematik, Dipl.–Math. (FH)

Praktika in Studium & Promotion

2009–2013	Universitätsklinikum Regensburg Erwerb der Fachkunde im Strahlenschutz für Medizinphysik–Experten (StrlSchV)
2008	Brigham and Women’s Hospital, Harvard Medical School, Boston (USA) Radiation Oncology Research Fellow, Forschung in der Medizinischen Physik
SoSe 2006	Max–Planck–Institut für Astrophysik, Garching bei München Praktikumssemester, Forschung in der Astrophysik
WiSe 2004/05	Krones AG, Neutraubling Praktikumssemester, Technische Entwicklung

Wissenschaftliche Veröffentlichungen

Originalartikel als Preprint

- XIV Investigating the Combinatorial Potential and Applicability of Random Equation Systems with Mixture Models in a Bayesian Framework
W. Hoegel
arXiv:2403.20152 [stat.CO], <https://doi.org/10.48550/arXiv.2403.20152>, 2024 (open access)
- XIII A Stochastic-Geometrical Framework for Object Pose Estimation based on Mixture Models Avoiding the Correspondence Problem
W. Hoegel
arXiv:2311.18107 [cs.CV], <https://doi.org/10.48550/arXiv.2311.18107>, 2023 (open access)

Originalartikel in Journalen mit Peer-Review

- XII Radioactive source localization employing Resistive Electrode Array (REA) Detector
W. Hoegel, V. Zhang, E. G. Vasquez, I. Gineitaite, E. Sajo, D. Brivio and P. Zygmanski
Biomedical Physics & Engineering Express, 10 025027, 2024
- XI Selection of the Most Sensitive Configuration of Strip Array Detectors for X-Ray Beam Monitoring in Radiotherapy of Cancer Utilizing Singular Value Decomposition
W. Hoegel and P. Zygmanski
Medical & Biological Engineering & Computing, 61, pages 341–356, 2022 (open access)
- X Strip Detector Array (SDA) for Beam Monitoring in Radiotherapy: Reconstruction of MLC Parameters from Multiple Projections of Flux
W. Hoegel and P. Zygmanski
Biomedical Physics & Engineering Express 8(5) (2022) 055011, 2022
- IX Bayesian Estimation Applied to Stochastic Localization with Constraints due to Interfaces and Boundaries
W. Hoegel, R. Loeschel, B. Dobler, O. Koelbl and P. Zygmanski
Mathematical Problems in Engineering, Volume 2013, Article ID 960421, 17 pages, 2013 (open access)
- VIII Stochastic triangulation for prostate positioning during radiotherapy using short CBCT arcs
W. Hoegel, R. Loeschel, B. Dobler, O. Koelbl, C. Beard and P. Zygmanski
Radiotherapy and Oncology, 106:241-249, 2013
- VII A stochastic model of cell survival for high-Z nanoparticle radiotherapy
P. Zygmanski, W. Hoegel, P. Tsiamas, F. Clifter, W. Ngwa, R. Berbeco, M. Makgrigiorgos and E. Sajo
Medical Physics, 40:024102/1-16, 2013
- VI Localization of Deformable Tumors from Short-Arc Projections using Bayesian Estimation
W. Hoegel, P. Zygmanski, B. Dobler, M. Kroiss, O. Koelbl and R. Loeschel
Medical Physics, 39:7205-7214, 2012
- V An Efficient Inverse Radiotherapy Planning Method for VMAT using Quadratic Programming Optimization
W. Hoegel, R. Loeschel, N. Merkle and P. Zygmanski
Medical Physics, 39:444-454, 2012
- IV Stochastic Formulation of Patient Positioning Using Linac-Mounted Cone Beam Imaging with Prior Knowledge
W. Hoegel, R. Loeschel, B. Dobler, J. Hesser, O. Koelbl and P. Zygmanski
Medical Physics, 38:668-681, 2011
- III Clinical Application of Varian OBI CBCT System and Dose Reduction Techniques in Breast Cancer Patients Set-up
S. Ueltzhöffer, P. Zygmanski, J. Hesser, W. Högele, J. Wong, J. R. Bellon and Y. Lyatskaya
Medical Physics, 37:2985-2998, 2010
- II An Alternative VMAT with Prior Knowledge about the Type of Leaf Motion Utilizing Projection Method for Concave Targets
W. Hoegel, R. Loeschel. and P. Zygmanski
Medical Physics, 36:2764–3774, 2009
- I A VMAT Using Sub-Conformal Dynamic Arc with a Monotonic Dynamic MLC Modulation
P. Zygmanski, W. Högele, R. Cormack, L. Chin and R. Löschel
Physics in Medicine and Biology, 53:6395–6417, 2008

Tagungsbände

- V High-throughput multi-beam SEM: quantitative analysis of imaging capabilities at IMEC-N10 logic node
J. T. Neumann, T. Garbowski, W. Högele, T. Korb, S. Halder, P. Leray, R. Garreis, M. le Maire, D. Zeidler
Proc. SPIE 10145, Metrology, Inspection, and Process Control for Microlithography XXXI, 101451S, 2017

- IV A Bayesian framework for marker-based patient positioning with a few projections in very short arcs
W. Hoegele, R. Loeschel, B. Dobler, M. Kroiss, O. Koelbl and P. Zygmanski
ESTRO 31 (Barcelona), Radiotherapy and Oncology, Volume 103, Supplement 1, 165-166, 2012
- III Introducing A Stochastic Model in Order to Deal with Marker Displacements due to Non-Rigid Deformations in Feature Based Image Registration for Patient Positioning with Multiple Radiographs
W. Hoegele, P. Zygmanski, B. Dobler, O. Koelbl and R. Loeschel
3 Ländertagung der ÖGMP, DGMP und SGSMP, Conference Proceedings, 100-101, 2011
- II An Alternative Approach to Inverse Planning Optimization: Applying the Projection Theorem to Concave and Convex PTVs for VMAT Delivery
W. Hoegele, R. Loeschel. and P. Zygmanski
*World Congress on Medical Physics and Biomedical Engineering, Munich, Germany
IFMBE Proceedings, 25/I:848–851, 2009*
- I An Analytical Approach to Single Arc Intensity Modulated Arc Therapy (IMAT) with Dynamic Multileaf Collimators
R. Loeschel, W. Hoegele, B. Dobler, R. Cormack, L. Chin and P. Zygmanski
ESTRO 27 (Göteborg), Radiotherapy and Oncology, Volume 88, Supplement 2, S30, 2008

Patentveröffentlichungen

- XIII Method for adjusting a beam path for tracking an object.
Rettich F., Högele W., Rasenberger V., Mayer Th.
US 11,573,076 B2, 2023.
- XII Method and arrangement for determining a position of an object.
Högele W.
US 2021/0241437 A1, 2021.
- XI Method for adjusting a beam.
Rettich F., Högele W., Rasenberger V., Mayer Th.
US 2021/0063138 A1. DE 10 2019 212 856 A1, 2021.
- X Method and apparatus for determining at least one spatial position and orientation of at least one tracked measuring device.
Rasenberger V., Högele W., Rettich F., Mayer Th.
US 2020/0233086 A1. DE 10 2019 200 733 A1 2020.07.23, 2020.
- IX Measuring apparatus and method for positioning and aligning retroreflectors in a distribution of retroreflectors of a measuring apparatus.
Högele W., Hörr Ch.
US 2020/0225026 A1. DE 10 2019 200 432 A1 2020.07.16, 2020.
- VIII Method and apparatus for determining at least one spatial position and orientation of at least one measured object.
Haverkamp N., Högele W.
WO 2020/104666 A1. DE 10 2018 220 088 A1 2020.05.28, 2020.
- VII Method of recording an image using a particle microscope.
Zeidler D., Korb Th., Hüthwohl Ph., Neumann J. T., Riedesel Ch., Wojek Ch., Correa J., Högele W.
WO 2020/070156 A1, 2020.
- VI Method and arrangement for optically capturing an object with a light pattern projection.
Högele W., Hörr Ch.
US 10,852,126 B2. DE 10 2018 212 104 A1 2020.01.23, 2019.
- V Method and apparatus for determining at least one spatial position and orientation of at least one object.
Högele W., Rasenberger V., Rettich F., Mayer Th.
US 2019/0219698 A1. DE 10 2018 222 629 A1 2019.07.18, 2018.
- IV Method and arrangement for capturing coordinates of an object surface by triangulation.
Högele W., Oberndorfner S.
US 2019/0310079 A1, US 10 605 592 B2. DE 10 2018 205 191 A1 2019.10.10, 2018.
- III Method for predicting at least one illumination parameter for evaluating an illumination setting.
Gehrke R., Hennerkes Ch., Högele W., Zimmermann J.
WO 2016/074930 A1. DE 10 2014 223 326 A1, 2016.
- II Verfahren zur Erzeugung einer gekrümmten optischen Spiegelfläche.
Körner M., Högele W., Korb T.
Offenlegungsschrift. DE 10 2015 203 469 A1 & DE 10 2015 219 936 A1, 2015.
- I Illumination system of a microlithographic projection exposure apparatus.
Degünther M., Davydenko V., Korb T., Schlesener F., Hilt S., Högele W.
*WO 2015/074746 A1, European Patent Application EP 2 876 498 A1 & EP 2 876 499 A1,
US 2015/0146184 A1 & US 2015/0146183 A1 & US 2016/9310690 B2 & US 2016/0209759 A1, 2014.*