

CURRICULUM VITAE

Univ.-Prof. Dr.-Ing. Daniel Baumgarten

Institute of Electrical and Biomedical Engineering
Department of Biomedical Informatics and Mechatronics
UMIT – University for Health Sciences, Medical Informatics and Technology
Eduard Wallnöfer-Zentrum 1
A-6060 Hall in Tirol; AUSTRIA
Tel.: +43 (0) 50 8648-3827
Email: daniel.baumgarten@umit.at
Web: www.umit.at/iebe
ORCID No.: 0000-0001-6109-3368

POSITION

Full Professor for Electrical and Biomedical Engineering (UMIT)
Visiting Professor, Institute for Biomedical Engineering and Informatics (TU Ilmenau, GER)
Head of Institute of Electrical and Biomedical Engineering (UMIT)
Chair of Department of Biomedical Informatics and Mechatronics (UMIT)

PERSONAL INFORMATION

Date and place of birth: August 05, 1980, Erfurt, Germany
Marital Status: unmarried, two children
Nationality: German

SCIENTIFIC DEGREES

2011 Ph.D. in Biomedical Engineering (Dr.-Ing.), Technische Universität Ilmenau, Germany
2006 M.S. in Computer Engineering (Dipl.-Ing.), Technische Universität Ilmenau, Germany

PROFESSIONAL APPOINTMENTS

2013 – 2016 Junior-Professor and Chair of Multimodal Data Analysis in Biomedical Engineering Group,
Technische Universität Ilmenau, Germany

2011 – 2013 Post-Doctoral Position, Institute for Biomedical Engineering and Informatics,
Technische Universität Ilmenau, Germany

2012 Visiting Scientist, Centre for Clinical Science and Engineering,
Universiti Teknologi Malaysia, Johor Bahru, Malaysia

2009 – 2011 Research assistant (PhD student)
Biomagnetic Centre, University Hospital Jena, Germany
Institute for Biomedical Engineering and Informatics, TU Ilmenau, Germany
Institute of Solid State Physics, Friedrich-Schiller-University Jena

2006 – 2008 Freelance software engineer,
Carl Zeiss Meditec AG, Jena, Germany

RESEARCH INTERESTS

- biomedical imaging, modelling and simulation
- bioelectric and biomagnetic measurements and stimulation
- inverse problems and optimization for bioelectric and biomagnetic phenomena
- biomedical applications of magnetic nanoparticles

PROFESSIONAL ACTIVITIES

- Member of editorial board in scientific journals: *Frontiers in Neuroscience* (since 2017)
- Guest Editor: *COMPEL* (2018), *IJAEM* (2018)
- Reviewer for scientific journals: *Physics in Medicine and Biology*, *Journal of Applied Physics*, *Medical & Biological Engineering & Computing*, *Journal of Magnetism and Magnetic Materials*, *Frontiers in Cellular Neuroscience*, *Frontiers in Neuroscience*, *IEEE Transactions on Biomedical Engineering*, *IEEE Transactions on Magnetics*, *Beilstein Journal of Nanotechnology*, *Biomedical Engineering/Biomedizinische Technik*, *Zeitschrift für Medizinische Physik*, *Zeitschrift für Angewandte Mathematik und Mechanik*
- Reviewer for funding organizations: DFG, DAAD, Carl-Zeiss-Stiftung, Research Foundation Flanders (FWO), Technology Foundation The Netherlands (STW), State Education Development Agency Latvia
- ISO/TC 229 Nanotechnologies: Expert in WGs 4&5, Member of Chairman Advisory Group
- Austrian Standards Institute (ASI): Member working group 052 73 (Nanotechnologies and nanomaterials)
- Member of the Advisory Board of Cluster Life Science (Standortagentur Tirol)
- Deputy Speaker Life and Health Science Cluster Tirol

MEMBERSHIP IN SCIENTIFIC SOCIETIES

- IEEE, Engineering in Medicine and Biology Society,
- Austrian Society for Biomedical Engineering (ÖGBMT); Board member since 2019
- German Society for Biomedical Engineering (DGBMT), Society of German Engineers (VDI), Fachausschüsse „Magnetische Methoden in der Medizin“ and “Biosignalanalyse”
- International Steering Committee Optimization and Inverse Problems in Electromagnetism

ACADEMIC ADMINISTRATION

since 2018	Deputy chairman of the Academic Senate
since 2018	Head of study program development commission, bachelor program “Electrical Engineering”, UMIT
since 2017	Member of the study program development commission
since 2016	Member of the Academic Senate, UMIT
since 2016	Member of the study program development commission, bachelor & master program “Mechatronics”, UMIT
since 2016	Substitute member PhD Committee „Technical Sciences“, UMIT

SELECTED PUBLICATIONS

(from more than 40 peer-reviewed journal publications, ISI H-index = 7)

- D. Baumgarten, M. Liehr, F. Wiekhorst, U. Steinhoff, P. Münster, P. Miethe, L. Trahms, J. Haueisen: Magnetic Nanoparticle Imaging by means of Minimum Norm Estimates from Remanence Measurements. *Med Biol Eng Comp*, 46(12):1177–1185, 2008. doi: 10.1007/s11517-008-0404-1
- C. Dinh, D. Strohmeier, M. Luessi, D. Güllmar, D. Baumgarten, J. Haueisen, M. S. Hämmäläinen: Real-Time MEG Source Localization using Region-of-Interest Clustering. *Brain Topogr*, 28(6):771-84, 2015. doi: 10.1007/s10548-015-0431-9
- S. Rieger, S. Klee, D. Baumgarten: Experimental characterization and correlation of Mayer waves in retinal vessel diameter and arterial blood pressure, *Frontiers in Physiology*. 9:892, 2018. doi: 10.3389/fphys.2018.00892
- J. Föcke, D. Baumgarten, M. Burger: The Inverse Problem of Magnetorelaxometry Imaging. *Inverse Probl*, 34(11), 2018. doi: 10.1088/1361-6420/aadbbf
- D. Baumgarten, F. Braune, E. Supriyanto, J. Haueisen: Plane-wise sensitivity based inhomogeneous excitation fields for magnetorelaxometry imaging of magnetic nanoparticles. *J Magn Magn Mater*, 380:255-260, 2015. doi: 10.1016/j.jmmm.2014.09.007

- P. Schier, M. Handler, L. Johnson Chacko, A. Schrott-Fischer, K. Fritscher, R. Saba, C. Baumgartner, D. Baumgarten: Model-Based Vestibular Afferent Stimulation: Evaluating Selective Electrode Locations and Stimulation Waveform Shapes, *Front Neurosc* 12(588), 2018. doi: 10.3389/fnins.2018.00588
- R. Kienast, M. Handler, M. Stöger, D. Baumgarten, F. Hanser, C. Baumgartner: Modeling hypothermia induced effects for the heterogeneous ventricular tissue from cellular level to the impact on the ECG, *PLoS ONE*, 12(8):e0182979, 2017. doi: 10.1371/journal.pone.0182979
- S. Schramm, P. Schikowski, E. Lerm, A. Kaeding, J. Haueisen, D. Baumgarten: Shack-Hartmann based objective straylight assessment of the human eye in an increased scattering angle range, *J Biomed Opt*, 21(7):076003, 2016. doi: 10.1117/1.JBO.21.7.076003
- G. Crevecoeur, D. Baumgarten, U. Steinhoff, J. Haueisen, L. Trahms, L. Dupré: Advancements in magnetic nanoparticle reconstruction using sequential activation of excitation coil arrays using magnetorelaxometry. *IEEE Trans Magn*, 48(4):1313-1316, 2012. doi: 10.1109/TMAG.2011.2173317
- D. Baumgarten, J. Haueisen: A spatio-temporal approach for the solution of the inverse problem in the reconstruction of magnetic nanoparticle distributions. *IEEE Trans Magn*, 46(8):3496–3499, 2010. doi: 10.1109/TMAG.2010.2043344

SELECTED INVITED TALKS

- “Bionanomagnetism: Chances, challenges and risks” Annual Meeting of the Austrian Society for Biomedical Engineering 2018 (ÖGBMT 2018), Hall in Tirol, 2018
- “Advancements in magnetorelaxometry imaging of magnetic nanoparticles”, Applied Inverse Problems Conference 2017 (AIP 2017), Hangzhou, China, 2017
- “Feasibility and capability of magnetorelaxometry imaging as a tool for monitoring of magnetic nanoparticle based cancer therapies in humans”, 8th International Congress Nanotechnology in Medicine & Biology (BioNanoMed 2017), Krems, Österreich, 2017

SELECTED PROJECTS

- FWF grant I 3790-B27 (DACH proposal), 2018-2021, “ONCE-TMS – Online Neuronal Connectivity Estimation and Neurofeedback with Transcranial Magnetic Stimulation”
- K-Regio grant (Land Tyrol/EFRE), 2018-2021, “eVITA - electrical Vestibular Implant Tyrol Austria”
- DFG grant BA 4858/2-1, 2016-2019, “CoS-MRXI – Compressed sensing for magnetorelaxometry imaging of magnetic nanoparticles“ within DFG Priority Program “Compressed Sensing in Information Processing (CoSIP)“
- BMBF grant 03IPT605X, 2013-2018, “Model based analysis of multimodal data under uncertainties“
- DFG grant BA 4858-1-1, 2013-2016, “Online MEG Source Localization using High-Performance GPU Computing”

SELECTED CONFERENCE ORGANIZATIONS

- *Conference Chair:*
15th International Workshop on Optimization and Inverse Problems in Electromagnetism (OIPE) 2018, Innsbruck/Hall in Tirol, Austria
Annual Meeting of the Austrian Society for Biomedical Engineering 2018, Hall in Tirol, Austria
- *Conference Committee member:*
19th Biennial Conference on Electromagnetic Field Computation (CEFC) 2020, Pisa, Italy
Workshop "Innovative Verarbeitung bioelektrischer und biomagnetischer Signale" 2018, Erfurt, Germany