



Richard Haindl

Postdoctoral researcher,
Medical University of Vienna

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Academic Profile —

- 0000-0003-3471-0986
- Publications
- LinkedIn

Languages —

- German ● ● ● ● ●
- English ● ● ● ● ●

Hard Skills —

- Programming
- Project Management
- Data Analysis
- Technical Writing

Soft Skills —

- Problem solving
- Attention to Detail
- Time Management
- Interpersonal Skills
- Leadership

Work Experience

since 2017 **Postdoctoral Researcher** CMPBME, Medical University of Vienna, Austria
 Research and development of novel multimodal imaging techniques for *in-vivo* small animal, pharmaceutical compound and drug imaging with exogenous and endogenous contrast (Leitgeb/Drexler Lab). I gained great **optical system design experience**, especially concerning multimodal integration and instrument scalability. Skills for **animal handling** (e.g. ethics, transportation, anaesthesia, fixation and sample preparation) were acquired alongside with increased knowledge on chemical safety regulations. **Data analysis, machine and deep learning** with Python became of importance, fostering my **programming** skills in those areas. I strengthened my **interpersonal skills** by building a scientific network and participated in several collaborations with companies and universities. Currently I'm in the **technical committee** and a **task leader** of a 6.2 M€ H2020 EU project consortium (REAP). In addition, I supervise several PhD and MSc students, enhancing my **time management** and **leadership** skills.

2013 – 2017 **Research Assistant** CMPBME, Medical University of Vienna, Austria
 Development of new optical imaging modalities in the field of ophthalmology (Hitzenberger Lab). Retinal blood flow measurement required a new phase sensitive imaging approach to avoid major and inaccurate pre-assumptions. Therefore, I developed a novel multichannel Doppler optical coherence tomography system featuring three independent active illumination and detection channels. Building such a system honed my skills in **optical engineering**, as optical alignment procedures and **optical system design** are particularly challenging and require **attention to detail**. I planned and led several clinical studies. This involved **project management** and the development of an ethics protocol, as well as direct contact to the local ethics committee and protocol submission to the Austrian Agency for Health and Food Safety (AGES).

2012 **Contract for work and labor** University of Vienna, Austria
 Black carbon (BC) and elemental carbon (EC) measurements of urban atmospheric aerosol. I gained **technical know-how** in the operation of most commercial instruments suitable for BC and EC detection and to correct for organic carbon content in the atmosphere. In addition, I developed a novel organic carbon correction method for the Multi Angle Absorption Photometer.

Higher Education

2013 – 2017 **PhD, Medical Physics** CMPBME, Medical University of Vienna, Austria
 Thesis title: "Multibeam Doppler Optical Coherence Tomography". Supervisor: C. K. Hitzenberger.
 Development of novel optical coherence tomography systems for early diagnosis of several severe eye diseases like glaucomatous optic neuropathy.

2010 – 2013 **MSc, Physics** Faculty of Physics, University of Vienna, Austria
 Thesis title: "Vergleich von optischen bzw. thermo-optischen Methoden zur Bestimmung von schwarzem bzw. elementarem Kohlenstoff im urbanen Aerosol". Supervisor: R. Hitzenberger.
 Instrument intercomparison concerning black and elemental carbon concentrations and their seasonal fluctuation in the urban atmosphere.

2007 – 2010 **BSc, Physics** Faculty of Physics, University of Vienna, Austria
 Thesis title: "Filtration von Nanopartikeln". Supervisor: Wladyslaw Szymanski.
 Filter penetration tests with generated monodisperse nanoparticles produced by electrospray ionization with a parallel differential mobility analyzer for particle size selection.

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About Me


I have a curious mindset and strive for knowledge and active skill development to help foster our understanding in biomedical research. Currently, I'm eager to hone my programming skills in the area of Deep Learning to help early disease diagnosis, multi-modal data registration/analysis and image segmentation.

In a team, I inspire and motivate colleagues, which results in engaging and productive collaborations. I'm comfortable to work in or lead a team, but I also take pleasure in working on specific tasks or alone.


During breaks or in my free time you will often find me asking for various exotic or traditional foods of all cultures to enjoy together, since I'm always interested in memorable 'challenges'. I'm also a responsible and proud father of two kids, which clearly boasted my time management skill.

Programming

 Python

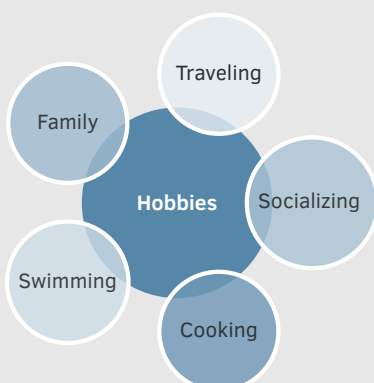
 Labview

 Latex

 Matlab

 C++

Hobbies



Recent Publications

- 2020
IF: 4.424
Ultra-high-resolution 3D optical coherence tomography reveals inner structures of human placenta-derived trophoblast organoids
A. Deloria, S. Haider, B. Dietrich, V. Kunihs, S. Oberhofer, M. Knöfler, R. Leitgeb, M. Liu, W. Drexler, R. Haindl
IEEE Transactions on Biomedical Engineering
- 2020
IF: 3.921
Ultra-high-resolution SD-OCM imaging with a compact polarization-aligned 840 nm broadband combined-SLED source
R. Haindl, M. Duell, S. Gloor, J. Dahdah, J. Ojeda, C. Sturtzel, S. Deng, A. J. Deloria, Q. Li, M. Liu, M. Distel, W. Drexler, R. Leitgeb
Biomedical Optics Express
- 2020
IF: 3.921
Functional optical coherence tomography and photoacoustic microscopy imaging for zebrafish larvae
R. Haindl, A. J. Deloria, C. Sturtzel, H. Sattmann, W. Rohringer, B. Fischer, M. Andreana, A. Unterhuber, T. Schwerte, M. Distel, W. Drexler, R. Leitgeb, and M. Liu
Biomedical Optics Express
- 2020
IF: 9.346
NIR nanoprobe-facilitated cross-referencing manifestation of local disease biology for dynamic therapeutic response assessment
Z. Wang, X. Ai, Z. Zhang, Y. Wang, X. Wu, R. Haindl, E. KL Yeow, W. Drexler, M. Gao, B. Xing
Chemical Science

Fellowships and Awards

- 2017 SPIE Best Student Paper
2015 YSA Best Poster Presentation
2015 ARVO MIT Outstanding Poster Award Finalist
2015 ARVO International Travel Grant
2012/2013 Member of the Dean's list - outstanding academic performance
- European Conferences on Biomedical Optics
Medical University of Vienna
ARVO Annual Meeting
ARVO Annual Meeting
University of Vienna

Memberships

- OSA Optical Society of America
SPIE Society of Photo-Optical Instrumentation Engineers
ARVO - 2019 Association for Research in Vision and Ophthalmology

Professional and Scholarly Activities

- Invited talk **Dual modality optical coherence and photoacoustic microscopy with an akinetic acoustic sensor for direct reflection mode imaging**
R. Haindl, S. Preißer, M. Andreana, W. Rohringer, E. Rank, Z. Chen, B. Fischer, W. Drexler, M. Liu
European Conferences on Biomedical Optics, 2017
- Teaching **Geometrical and Physical Optics, Biomedical Optical Imaging, Principles of Optics**
Lecture and Seminars
Medical University of Vienna, 2018 - 2021

Publication summary and contributions to international conferences

Twelve peer reviewed publications, cited 214 times, h-index 8 (as of 11.2020, Google Scholar). More than 25 contributions to international conferences (Photonics West, ARVO annual meeting, ARVO imaging in the eye, OSA Biomedical Optics, SPIE/OSA European Conferences on Biomedical Optics, European Aerosol Conference, AAAR annual conference). Eleven conference contributions as first or last author.

References upon request

December 1, 2020

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