

Curriculum Vitæ

Dipl.-Phys. Dr.rer.nat. Matthias Schlögl

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Personal Data

Date and place of birth: 2.5.1985, Nabburg, Germany
Citizenship: German
married, two daughters

Education

- 2012 - 2018 **Dr.rer.nat. Computer Science and Biomedical Engineering**
Graz University of Technology, Institute of Medical Engineering, Graz, Austria
PhD-Thesis: *Spatio-temporal image reconstruction for accelerating dynamic MRI applications using variational priors.*
- 2006 - 2011 **Physics (Dipl.-Phys.)**
University of Regensburg, Regensburg, Germany
and Universidad de Granada, Granada, Spain.
Diploma-Thesis: *Bayesian segmentation of MR images using the α -stable distribution Application to dementia disease detection.*
- 2005 - 2006 **Microsystems Engineering**
University of Applied Sciences, Regensburg, Germany
- 2004 **Abitur**
Johann-Andreas-Schmeller Gymnasium, Nabburg, Germany

Professional Appointments

- since 01/2019 **Data Scientist**
Solgenium OG, Linz, Austria
- 03/2012 - 12/2018 **Research Assistant**
Institute of Medical Engineering
Graz University of Technology, Graz, Austria

Academic Awards

- 2015 International Society for Magnetic Resonance in Medicine:
Summa Cum Laude Award.
- 2013 2nd place ISMRM reconstruction challenge 2013

Languages

German First language
English Business fluent
Spanish Fluent
French Basic

Skills

Research interests	Magnetic resonance imaging, medical imaging inverse problems, optimization, machine learning bayesian data analysis, operational research
Programming languages	Python, R, STAN, bash, SQL, C/C++, CUDA, scala
Specific libraries	tensorflow, tensorflow probability
DevOps	git, gitlab CI/CD, docker, google cloud platform
Other	latex, microsoft office

Contributed Research Proposals

- 2020 **FFG Covid-19 emergency call**
Covid-19 optimization of resource allocation.
- 2017 **FWF and CDP Project PIR 27**
Mathematical methods for motion aware medical imaging.
- 2016 **FWF SFB F32-N18**
Mathematical optimization and applications in biomedical sciences.

Talks

- 2016 Workshop on Imaging with Modulated/Incomplete data, Graz, Austria.
ICTGV reconstruction for accelerated Non-Cartesian DCE and quantitative MRI.
- 2016 ESMRMB Annual Meeting, Vienna, Austria.
ICTGV Reconstruction of DCE golden angle radial VIBE data.
- 2016 ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, USA
Accelerated Variational Dynamic MRI Reconstruction (AVIONIC)
- 2015 ISMRM Annual Meeting, Toronto, Canada.
ICTGV Regularization for Highly Accelerated Dynamic MRI.

Invited Talks

2018 University of Technology Brno, Brno, Czech republic.

ICTGV reconstruction for dynamic MR applications.

2013 RT Austria Kongress, Salzburg, Austria.

Bildrekonstruktion für beschleunigte MR Bildgebung: Mathematik trifft Radiologie

Training

2019 STAN Con, Cambridge, UK.

2017 ESMRMB Workshop on Non-Cartesian MRI, Würzburg, Germany.

2016 ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, USA.

2014 ESMRMB Workshop on Compressed Sensing, Freiburg, Germany.

2013 ESMRMB Workshop on Parallel Imaging, Würzburg, Germany.

Certificates

University of Davis, California [Professional Skills for the Workplace Specialization](#)

Imperial College London [Tensorflow2 for Deep Learning](#)

Google Cloud [Preparing for Google Cloud Certification: Machine Learning Engineer](#)

Software

AVIONIC [Accelerated Variational dynamic MRI reconstruction.](#)

Teaching

2013 - 2017 Fundamentals of Biomedical Engineering, laboratory (717.300, Pacemaker, Blood Pressure).

2013 - 2017 Imaging laboratory (717.340, MRI Reconstruction).

2013 - 2015 Inverse Problems in Medical Imaging, practical course (717.324).

Publications

Fullpaper

- [MSF6] Stefan M. Spann, Xingfeng Shao, Danny JJ. Wang, Christoph S. Aigner, Matthias Schloegl, Kristian Bredies and Rudolf Stollberger. Robust single-shot acquisition of high resolution whole brain ASL images by combining time-dependent 2D CAIPINHA sampling with spatio-temporal TGV reconstruction. *NeuroImage*, 2019, doi: 10.1016/j.neuroimage.2019.116337
- [MSF5] Oliver Maier, Jasper Schoormans, Matthias Schloegl, Gustav J Strijkers, Andreas Lesch, Thomas Benkert, Tobias Block, Bram F Coolen, Kristian Bredies and Rudolf Stollberger. Rapid T1 quantification from high resolution 3D data with model-based reconstruction. *Magnetic Resonance in Medicine*, 81(3): 2072-2089, 2018 , doi: 10.1002/mrm.27502
- [MSF4] Andreas Lesch, Matthias Schloegl, Martin Holler, Kristian Bredies and Rudolf Stollberger. Ultrafast 3D Bloch-Siebert B1+ Mapping using Variational Modeling. *Magnetic Resonance in Medicine*, 81(2): 881-892, 2018, doi: 10.1002/mrm.27434
- [MSF3] Bernhard Neumayer, Matthias Schloegl, Christian Payer, Thomas Witek, Sebastian Tschauner, Thomas Ehammer, Rudolf Stollberger and Martin Urschler. Reducing acquisition time for MRI-based forensic age estimation. *Scientific Reports*, 8(1):2063, 2018, doi: 10.1038/s41598-018-20475
- [MSF2] Matthias Schloegl, Martin Holler, Andreas Schwarzl, Kristian Bredies and Rudolf Stollberger. Infimal Convolution of Total Generalized Variation Functionals for dynamic MRI. *Magnetic Resonance in Medicine*, 78(1): 142-144, 2017, doi: 10.1002/mrm.26352
- [MSF1] Diego Salas-Gonzalez, J.M. Gorriz, Javier Ramirez, Matthias Schloegl, Elmar Wolfgang Lang, Andres Ortiz. Parameterization of the distribution of white and grey matter in MRI using the α -stable distribution. *Comp. in Bio. and Med.* 43(5): 559-567, 2013, doi: 10.1016/j.combiomed.2013.01.003

Conference proceedings

- [MSC25] Optimal Transport Based Convex Hybrid Image and Motion-Field Reconstruction Ingmar Middelhoff, Matthias Schloegl, Adrian Martin Fernandez, Silvio Fanzon, Kristian Bredies, Rudolf Stollberger. *Proc. Intl. Soc. Mag. Reson. Med.* 29 (2021), online
3D Bloch-Siebert EPI B1+-mapping. Andreas Johann Lesch, Christoph Stefan Aigner, Stefan Manfred Spann, Matthias Schloegl, Rudolf Stollberger. *Proc. Intl. Soc. Mag. Reson. Med.* 27 (2019), Montréal, Canada
- [MSC24] 3D Bloch-Siebert EPI B1+-mapping. Andreas Johann Lesch, Christoph Stefan Aigner, Stefan Manfred Spann, Matthias Schloegl, Rudolf Stollberger. *Proc. Intl. Soc. Mag. Reson. Med.* 27 (2019), Montréal, Canada
- [MSC23] Improving temporal resolution of 3D Arterial Spin Labeling perfusion imaging by combining CAIPINHA encoding and spatio-temporal TGV

- reconstruction. Stefan Spann, Xingfeng Shao, Danny Wang, Christoph Aigner, Matthias Schloegl, Kristian Bredies, Rudolf Stollberger. Proc. Intl. Soc. Mag. Reson. Med. 27 (2019), Montréal, Canada
- [MSC22] Dynamic Multi-Coil Reconstruction using Variational Networks. Kerstin Hammernik, Matthias Schloegl, Erich Kobler, Rudolf Stollberger, Thomas Pock. Proc. Intl. Soc. Mag. Reson. Med. 27 (2019), Montréal, Canada
- [MSC21] Oliver Maier, Matthias Schloegl, Kristian Bredies, Rudolf Stollberger. 3D Model-Based Parameter Quantification on Resource Constrained Hardware using Double-Buffering. Proc. Intl. Soc. Mag. Reson. Med. 27 (2019), Montréal, Canada
- [MSC20] Stefan Spann, Christoph Aigner, Matthias Schloegl, Andreas Lesch, Kristian Bredies, Stefan Ropele, D. Pinter, Lukas Pirpamer and Rudolf Stollberger. Acceleration of arterial spin labeling data using spatio-temporal total generalized variation (TGV) reconstruction. Proc. Intl. Soc. Mag. Reson. Med. 26 (2018), Paris, France
- [MSC19] Stefan Spann, Matthias Schloegl, Christoph Aigner, Karl Koschutnig, Martin Holler, Kristian Bredies and Rudolf Stollberger. Denoising of functional Arterial Spin Labeling (fASL) perfusion data using infimal convolution of total generalized variation functionals (ICTGV). Proc. Intl. Soc. Mag. Reson. Med. 26 (2018), Paris, France
- [MSC18] Oliver Maier, Matthias Schloegl, Jasper Schoormans, Bram Coolen, Tobias Block, Thomas Benkert, Gustav Strijkers, and Rudolf Stollberger. High Resolution T1 quantification from golden-angle radial 3D acquisitions. Proc. Intl. Soc. Mag. Reson. Med. 26 (2018), Paris, France
- [MSC17] Matthias Schloegl, Gernot Reishofer, Martin Holler, Thomas Benkert, Ulrike Wiesspeiner, Kristian Bredies, Kai-Tobias Block, Rudolf Stollberger. Dynamic CE-MRA with high temporal resolution by combining radial acquisition and variational reconstruction. Proc. ESMRMB (2017): 344, Barcelona, Spain
- [MSC16] Matthias Schloegl, Martin Holler, Oliver Maier, Thomas Benkert, Kristian Bredies, Kai Tobias Block, Rudolf Stollberger. Highly Accelerated Quantitative MRI with ICTGV Regularized Reconstruction. Proc. Intl. Soc. Mag. Reson. Med. 25 (2017), Honolulu, Hawaii, USA
- [MSC15] Matthias Schloegl, Stefan Spann, Christoph Aigner, Martin Holler, Kristian Bredies, Rudolf Stollberger. Improved Denoising of Dynamic Arterial Spin Labeling with Infimal Convolution of Total Generalized Variation Functionals (ICTGV). Proc. Intl. Soc. Mag. Reson. Med. 25 (2017), Honolulu, Hawaii, USA
- [MSC14] Oliver Maier, Matthias Schloegl, Andreas Lesch, Andreas Petrovic, Martin Holler, Kristian Bredies, Thomas Pock, Rudolf Stollberger. Improved Accelerated Model-based Parameter Quantification with Total-Generalized-Variation Regularization. Proc. Intl. Soc. Mag. Reson. Med. 25 (2017), Honolulu, Hawaii, USA

- [MSC13] Andreas Lesch, Matthias Schloegl, Rudolf Stollberger. Robust Accelerated Reconstruction for Bloch-Siegert B1-mapping. Proc. Intl. Soc. Mag. Reson. Med. 25 (2017), Honolulu, Hawaii, USA
- [MSC12] Bernhard Neumayer, Matthias Schloegl, Christian Payer, Thomas Witek, Thomas Ehammer, Rudolf Stollberger, M. Urschler. Accuracy of Age Estimation based on Undersampled MR Images of the Hand. Proc. Intl. Soc. Mag. Reson. Med. 25 (2017), Hawaii, USA
- [MSC11] Bernhard Neumayer, Matthias Schloegl, Christian Payer, Thomas Witek, Thomas Ehammer, Rudolf Stollberger, M. Urschler. Acceleration of MR Measurements for Age Estimation. Proc. ESMRMB (2016): 344, Vienna, Austria
- [MSC10] Matthias Schloegl, Martin Holler, Andreas Schwarzl, Kristian Bredies, Rudolf Stollberger. ICTGV Reconstruction of DCE golden-angle radial VIBE data. Proc. ESMRMB (2016): 290, Vienna, Austria
- [MSC9] Oliver Maier, Matthias Schloegl, Andreas Lesch, Andreas Petrovic, Rudolf Stollberger. Accelerated T1-Mapping with iteratively TV regularized Gauss-Newton Method. Proc. ESMRMB (2016): 205, Vienna, Austria
- [MSC8] Matthias Schloegl, Bernhard Neumayer, Thommas Ehammer, Thomas Witek, Christian Payer, Martin Urschler, Rudolf Stollberger. Validation of TGV regularized accelerated MR reconstruction by age estimation. Proc. ESMRMB (2016): 111, Vienna, Austria
- [MSC6] Andreas Lesch, Matthias Schloegl, Martin Holler and Rudolf Stollberger. Highly Accelerated Bloch-Siegert B1+ Mapping Using Variational Modeling. Proc. Intl. Soc. Mag. Reson. Med. 24 (2016), Singapur, Singapur
- [MSC5] Matthias Schloegl, Martin Holler, Kristian Bredies, Karl Kunisch, and Rudolf Stollberger. ICTGV Regularization for Highly Accelerated Dynamic MRI. Proc. Intl. Soc. Mag. Reson. Med. 23, Toronto, Canada (summa cum laude award)
- [MSC4] Matthias Schloegl, Martin Holler, Kristian Bredies, and Rudolf Stollberger. A Variational Approach for Coil-Sensitivity Estimation for Undersampled Phase-Sensitive Dynamic MRI Reconstruction Proc. Intl. Soc. Mag. Reson. Med. 23, Toronto, Canada
- [MSC3] Matthias Schloegl, Clemens Diwocky, and Rudolf Stollberger. Motion detection for 3D radial balanced SSFP sequences. Proc. Intl. Soc. Mag. Reson. Med. 22, Milan, Italy
- [MSC2] Matthias Schloegl, Florian Knoll, Katharina Gruber, Franz Ebner, and Rudolf Stollberger. Quantitative Evaluation of Non-Linear Reconstruction Methods in MRI. Proc. Intl. Soc. Mag. Reson. Med. 21, Salt-Lake-City, Utah, USA
- [MCS1] Diego Salas-Gonzalez, J.M. Górriz, Javier Ramírez, Matthias Schloegl, Elmar Wolfgang Lang. Bayesian Segmentation of Magnetic Resonance Images Using the α -stable distribution. HAIS 2011, Wroclaw, Poland, May 23-25, 2011