

# Johannes Maly

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## Positions

- 11/2020–now **PostDoc (akademischer Rat auf Zeit)**, *Department of Scientific Computing, Catholic University of Eichstaett/Ingolstadt, Eichstaett.*
- 02/2019–  
10/2020 **PostDoc**, *Chair for Mathematics of Data Processing, RWTH Aachen University, Aachen.*

## Education

- 01/2016–  
01/2019 **PhD in mathematics**, *Technical University of Munich, Munich.*  
*under supervision of Prof. Massimo Fornasier*
- 10/2013–  
09/2015 **Master of Science**, *Technical University of Munich, Munich, 1.2 - passed with high distinction.*  
*Mathematics*
- 10/2011–  
09/2013 **Bachelor of Science**, *Technical University of Munich, Munich, 1.9 - passed with merit.*  
*Mathematics with minor in computer science*
- 05/2011–  
09/2011 **TwoInOne program**, *Technical University of Munich, Munich.*  
*Special program to shorten Bachelor's degree*
- 09/2003–  
04/2011 **University-entrance diploma**, *Erasmus Grasser Gymnasium, Munich, 1.2 - passed with high distinction.*

## Theses

- Ph.D. thesis *Recovery Algorithms for Quantized Compressed Sensing;*  
Advisor Prof. Massimo Fornasier
- M.Sc. thesis *Weighted Energy-Dissipation Approximation for an Optimal Control Problem;*  
Advisor Prof. Martin Brokate

## Experience

### Teaching

- 11/2020–  
03/2021 **"Einführung in die numerische Analysis" (Vorlesung+Übung)**, *Catholic University of Eichstaett/Ingolstadt, Eichstaett.*

- 04/2020–09/2020 **Teaching assistant for "Optimization"**, *RWTH University Aachen*, Aachen.
- 10/2019–03/2020 **Teaching assistant for "Repetitorium - Höhere Mathematik II"**, *RWTH University Aachen*, Aachen.
- 04/2019–09/2019 **Teaching assistant for "Höhere Mathematik II"**, *RWTH University Aachen*, Aachen.
- 04/2018–09/2018 **Teaching assistant for "Foundations of Data Analysis"**, *Technical University of Munich*, Munich.
- 04/2014–09/2014 **Teaching assistant for "Analysis für Informatiker"**, *Technical University of Munich*, Munich.
- 04/2012–09/2012 **Teaching assistant for "Analysis für Informatiker"**, *Technical University of Munich*, Munich.

#### Thesis supervision

- 02/2020–05/2020 **Advisor for Bachelor's Thesis "On the relation between stability and regularisation for Support Vector Machines"** of Havva Akcay, *RWTH University Aachen*, Aachen.
- 04/2019–09/2019 **Advisor for Master's Thesis "Non-Convex Approaches to Compressed Sensing and Robust Recovery of Simultaneously Structured Signals from Inaccurate and Incomplete Information"** of Konstantin Riedl, *Technical University of Munich*, Munich.
- 02/2018–08/2018 **Advisor for Master's Thesis "Near-Optimal Data-Driven  $\ell_1$ -Regularization"** of Judith Wewerka, *Technical University of Munich*, Munich.

#### International

- 08/2014–01/2015 **Semester abroad**, *Nanyang Technological University*, Singapore.

#### Vocational

- 2012–2015 **Work experience and working student**, *Siemens*, Munich.  
Work on pedestrian flow simulation based on cellular automata and enhancements of simulator

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## List of Publications

### Submitted Preprints to Refereed Journals

- [8] **F. Boßmann, S. Krause-Solberg, J. Maly, N. Sissouno**, "Structural Sparsity in Multiple Measurements", 2021, *arXiv preprint*: <https://arxiv.org/abs/2103.01908>.
- [7] **A. Caragea, D. G. Lee, J. Maly, G. Pfander, and F. Voigtlaender**, "Quantitative approximation results for complex-valued neural networks", 2021, *arXiv preprint*: <https://arxiv.org/abs/2102.13092>.
- [6] **H.-H. Chou, C. Gieshoff, J. Maly, and H. Rauhut**, "Gradient Descent for Deep Matrix Factorization: Dynamics and Implicit Bias towards Low Rank", 2020, *arXiv preprint*: <https://arxiv.org/abs/2011.13772>.
- [5] **H. C. Jung, J. Maly, L. Palzer, and A. Stollenwerk**, "Quantized Compressed Sensing by Rectified Linear Units", 2019, *arXiv preprint*: <https://arxiv.org/abs/1911.07816>.

### Accepted and Published Articles

- [4] **Z. Kereta, J. Maly, and V. Naumova**, "Computational approaches to non-convex, sparsity-inducing multi-penalty regularization", 2021, *to appear in Inverse Problems*.
- [3] **M. Iwen, F. Krahmer, S. Krause-Solberg, and J. Maly**, "On Recovery Guarantees for One-Bit Compressed Sensing on Manifolds", 2021, *to appear in Discrete and Computational Geometry*.
- [2] **M. Fornasier, J. Maly and V. Naumova**, "Robust Recovery of Low-Rank Matrices with Non-Orthogonal Sparse Decomposition from Incomplete Measurements", 2020, *Applied Mathematics and Computation*.
- [1] **J. Maly and L. Palzer**, "Analysis of Hard-Thresholding for Distributed Compressed Sensing with One-Bit Measurements", 2018, *Information and Inference: A Journal of the IMA*.

### Conference Papers

- [8] **H. C. Jung, J. Maly, L. Palzer, and A. Stollenwerk**, "Quantized Compressed Sensing by Rectified Linear Units", 2021, *Proceedings in Applied Mathematics and Mechanics — PAMM 2021*.
- [7] **A. Guth, C. Culotta-López, J. Maly, H. Rauhut, and D. Heberling**, "Polyhedral Sampling Structures for Phaseless Spherical Near-Field Antenna Measurements", 2020, *42nd Antenna Measurement Techniques Association Symposium (AMTA)*.
- [6] **H. C. Jung, J. Maly, L. Palzer, and A. Stollenwerk**, "Quantized Compressed Sensing by Rectified Linear Units", 2020, *iTWIST'20 workshop*.
- [5] **S. Dirksen, M. Iwen, S. Krause-Solberg, and J. Maly**, "Robust One-bit Compressed Sensing With Manifold Data", 2019, *International Conference on Sampling Theory and Applications (SampTA)*.
- [4] **H. C. Jung, J. Maly, L. Palzer, and A. Stollenwerk**, "One-Bit Compressed Sensing by Convex Relaxation of the Hamming Distance", 2019, *SPARS workshop*.
- [3] **Z. Kereta, J. Maly, and V. Naumova**, "Linear convergence and support recovery for non-convex multi-penalty regularisation", 2019, *SPARS workshop*.

- [2] **M. Fornasier, J. Maly and V. Naumova**, "Robust Recovery of Low-Rank Matrices using Multi-Penalty Regularization", 2017, *NIPS workshop Optimization for Machine Learning, Long Beach*.
- [1] **S. Krause-Solberg and J. Maly**, "A tractable approach for one-bit Compressed Sensing on manifolds", 2017, *International Conference on Sampling Theory and Applications (SampTA)*.