Steffen W. R. Werner

Curriculum Vitae as of June 9, 2023

Born September 6, 1992 in Stendal, Germany

Position and Contact

Job title Postdoctoral associate

Address Courant Institute of Mathematical Sciences, New York University
251 Mercer Street
New York, NY 10012, USA

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ORCID 0000-0003-1667-4862

Google Scholar https://scholar.google.de/citations?user=F2v1uKAAAAAJ&hl=en

Professional Experience

since 09/2021 **Postdoctoral associate**, *Department of Computer Science, Courant Institute of Mathematical Sciences, New York Univsersity*, New York, NY, USA

10/2016–08/2021 **Doctoral researcher**, *Computational Methods in Systems and Control Theory, Max Planck Institute for Dynamics of Complex Technical Systems*, Magdeburg, Germany

05/2016–09/2016, 10/2014–01/2016 **Student employee**, *Computational Methods in Systems and Control Theory, Max Planck Institute for Dynamics of Complex Technical Systems*, Magdeburg, Germany
- Development and maintenance of MATLAB toolboxes and codes

01/2016–04/2016 **Industrial intern**, *proALPHA Business Solutions GmbH*, Weilerbach, Germany
- Analysis of modern version control systems
- Application programming

10/2013–09/2014 **Student employee**, *Otto von Guericke University*, Magdeburg, Germany
- Tutor for mathematical courses
- Tutor for the consultation of the Department of Mathematics

Education

10/2016–08/2021 **Doctoral studies (doctor rerum naturalium)**, *Department of Mathematics, Otto von Guericke University*, Magdeburg, Germany, summa cum laude (excellent)
Thesis: *Structure-Preserving Model Reduction for Mechanical Systems* [40]

- 10/2016–09/2019: Project research in the German Research Foundation (DFG) Priority Program 1897 "Calm, Smooth and Smart – Novel Approaches for Influencing Vibrations by Means of Deliberately Introduced Dissipation"
- 04/2017–08/2021: Associated researcher in the German Research Foundation (DFG) Research Training Group 2297 "Mathematical Complexity Reduction (MathCoRe)", Magdeburg

10/2014–09/2016 **Master of Science**, *Department of Mathematics, Otto von Guericke University*, Magdeburg, Germany, very good with distinction
Thesis: *Hankel-Norm Approximation of Descriptor Systems* [41]

10/2011–09/2014 **Bachelor of Science**, *Department of Mathematics, Otto von Guericke University*, Magdeburg, Germany, very good with distinction
Thesis: *Numerische Berechnung der Eigenwerte großer Hamiltonisch-positiver Matrizen* [42]

07/2011 **Abitur (university entrance diploma)**, *Diesterweg-Gymnasium*, Tangermünde-Havelberg, Germany

Research Interests

scientific computing, model order reduction, data-driven modeling, scientific machine learning, numerical linear algebra, optimization and control, mechanical and vibrational systems, differential-algebraic equations, matrix equations, mathematical software

Publications

Submitted

[1] Q. Aumann and S. W. R. Werner. Adaptive choice of near-optimal expansion points for interpolation-based structure-preserving model reduction. e-print 2305.10806, arXiv, 2023. Numerical Analysis (math.NA). doi:10.48550/arXiv.2305.10806.

[2] P. Benner, S. Gugercin, and S. W. R. Werner. Structured interpolation for multivariate transfer functions of quadratic-bilinear systems. e-print 2304.14292, arXiv, 2023. Numerical Analysis (math.NA). doi:10.48550/arXiv.2304.14292.

[3] I. V. Gosea, S. Gugercin, and S. W. R. Werner. Structured barycentric forms for interpolation-based data-driven reduced modeling of second-order systems. e-print 2303.12576, arXiv, 2023. Numerical Analysis (math.NA). doi:10.48550/arXiv.2303.12576.

[4] J. Heiland and S. W. R. Werner. Low-complexity linear parameter-varying approximations of incompressible Navier-Stokes equations for truncated state-dependent Riccati feedback. e-print 2303.11515, arXiv, 2023. Optimization and Control (math.OC). doi:10.48550/arXiv.2303.11515.

[5] P. Benner, S. Gugercin, and S. W .R. Werner. A unifying framework for tangential interpolation of structured bilinear control systems. e-print 2206.01657, arXiv, 2022. Numerical Analysis (math.NA). doi:10.48550/arXiv.2206.01657.

[6] R. S. Beddig, P. Benner, I. Dorschky, T. Reis, P. Schwerdtner, M. Voigt, and S. W. R. Werner. Structure-preserving model reduction for dissipative mechanical systems. e-print 2010.06331, arXiv, 2020. Optimization and Control (math.OC). doi:10.48550/arXiv.2010.06331.

Journal Articles

[7] S. W. R. Werner, M. L. Overton, and B. Peherstorfer. Multifidelity robust controller design with gradient sampling. *SIAM J. Sci. Comput.*, 45(2):A933–A957, 2023. doi:10.1137/22M1500137.

[8] S. W .R. Werner and B. Peherstorfer. Context-aware controller inference for stabilizing dynamical systems from scarce data. *Proc. R. Soc. A: Math. Phys. Eng. Sci.*, 479(2270):20220506, 2023. doi:10.1098/rspa.2022.0506.

[9] S. W .R. Werner and B. Peherstorfer. On the sample complexity of stabilizing linear dynamical systems from data. *Found. Comput. Math.*, 2023. doi:10.1007/s10208-023-09605-y.

[10] P. Benner, J. Heiland, and S. W. R. Werner. A low-rank solution method for Riccati equations with indefinite quadratic terms. *Numer. Algorithms*, 92(2):1083–1103, 2023. doi:10.1007/s11075-022-01331-w.

[11] Q. Aumann and S. W. R. Werner. Structured model order reduction for vibro-acoustic problems using interpolation and balancing methods. *J. Sound Vib.*, 543:117363, 2023. doi:10.1016/j.jsv.2022.117363.

[12] P. Benner, J. Heiland, and S. W. R. Werner. Robust output-feedback stabilization for incompressible flows using low-dimensional $\mathcal{H}_\infty$-controllers. *Comput. Optim. Appl.*, 82(1):225–249, 2022. doi:10.1007/s10589-022-00359-x.

[13] P. Benner, Y. Filanova, D. Karachalios, S. Monem Abdelhafez, J. Przybilla, and S. W. R. Werner. Mathematische Komplexitätsreduktion: Modellreduktion dynamischer Systeme. *Mitteilungen der Deutschen Mathematiker-Vereinigung*, 29(4):198–204, 2021. doi:10.1515/dmvm-2021-0075.

[14] R. Jendersie and S. W. R. Werner. A comparison of numerical methods for model reduction of dense discrete-time systems. *at-Automatisierungstechnik*, 69(8):683–694, 2021. doi:10.1515/auto-2021-0035.

[15] P. Benner, S. Gugercin, and S. W. R. Werner. Structure-preserving interpolation for model reduction of parametric bilinear systems. *Automatica J. IFAC*, 132:109799, 2021. doi:10.1016/j.automatica.2021.109799.

[16] P. Benner, S. Gugercin, and S. W. R. Werner. Structure-preserving interpolation of bilinear control systems. *Adv. Comput. Math.*, 47(3):43, 2021. doi:10.1007/s10444-021-09863-w.

[17] P. Benner and S. W. R. Werner. Frequency- and time-limited balanced truncation for large-scale second-order systems. *Linear Algebra Appl.*, 623:68–103, 2021. Special issue in honor of P. Van Dooren, Edited by F. Dopico, D. Kressner, N. Mastronardi, V. Mehrmann, and R. Vandebril. doi:10.1016/j.laa.2020.06.024.

[18] P. Benner and S. W. R. Werner. Hankel-norm approximation of large-scale descriptor systems. *Adv. Comput. Math.*, 46(3):40, 2020. doi:10.1007/s10444-020-09750-w.

[19] J. Saak, D. Siebelts, and S. W. R. Werner. A comparison of second-order model order reduction methods for an artificial fishtail. *at-Automatisierungstechnik*, 67(8):648–667, 2019. doi:10.1515/auto-2019-0027.

Book Chapters

[20] P. Benner and S. W. R. Werner. MORLAB—The Model Order Reduction LABoratory. In P. Benner, T. Breiten, H. Faßbender, M. Hinze, T. Stykel, and R. Zimmermann, editors, *Model Reduction of Complex Dynamical Systems*, volume 171 of *International Series of Numerical Mathematics*, pages 393–415. Birkhäuser, Cham, 2021. doi:10.1007/978-3-030-72983-7_19.

[21] P. Benner and S. W. R. Werner. MORLAB – A model order reduction framework in MATLAB and Octave. In A. M. Bigatti, J. Carette, J. H. Davenport, M. Joswig, and T. de Wolff, editors, *Mathematical Software – ICMS 2020*, volume 12097 of *Lecture Notes in Comput. Sci.*, pages 432–441. Springer International Publishing, Cham, 2020. doi:10.1007/978-3-030-52200-1_43.

Proceedings

[22] S. W. R. Werner, I. V. Gosea, and S. Gugercin. Structured vector fitting framework for mechanical systems. *IFAC-Pap.*, 55(20):163–168, 2022. 10th Vienna International Conference on Mathematical Modelling MATHMOD 2022. doi:10.1016/j.ifacol.2022.09.089.

[23] P. Benner and S. W. R. Werner. Frequenz- und zeitbeschränktes balanciertes Abschneiden für Systeme zweiter Ordnung. In T. Meurer and F. Woittennek, editors, *Tagungsband GMA-FA 1.30 'Modellbildung, Identifikation und Simulation in der Automatisierungstechnik' und GMA-FA 1.40 'Systemtheorie und Regelungstechnik', Workshops in Anif, Salzburg, 23.-27.09.2019*, pages 460–474, 2019.

[24] P. Benner and S. W. R. Werner. MORLAB – Model Order Reduction LABoratory. In T. Meurer and F. Woittennek, editors, *Tagungsband GMA-FA 1.30 'Modellbildung, Identifikation und Simulation in der Automatisierungstechnik' und GMA-FA 1.40 'Systemtheorie und Regelungstechnik', Workshops in Anif, Salzburg, 23.-27.09.2019*, pages 337–342, 2019.

[25] R. S. Beddig, P. Benner, I. Dorschky, T. Reis, P. Schwerdtner, M. Voigt, and S. W. R. Werner. Model reduction for second-order dynamical systems revisited. *Proc. Appl. Math. Mech.*, 19(1):e201900224, 2019. doi:10.1002/pamm.201900224.

[26] P. Benner, J. Heiland, and S. W. R. Werner. Robust controller versus numerical model uncertainties for stabilization of Navier-Stokes equations. *IFAC-Pap.*,

52(2):25–29, 2019. 3rd IFAC/IEEE CSS Workshop on Control of Systems Governed by Partial Differential Equation CPDE 2019. doi:10.1016/j.ifacol.2019.08.005.

[27] P. Benner and S. W. R. Werner. Balancing related model reduction with the MORLAB toolbox. *Proc. Appl. Math. Mech.*, 18(1):e201800083, 2018. doi:10.1002/pamm.201800083.

[28] P. Benner and S. W. R. Werner. Model reduction of descriptor systems with the MORLAB toolbox. *IFAC-Pap.*, 51(2):547–552, 2018. 9th Vienna International Conference on Mathematical Modelling MATHMOD 2018. doi:10.1016/j.ifacol.2018.03.092.

[29] P. Benner and S. W. R. Werner. MORLAB - Modellreduktion in MATLAB. In T. Meurer and F. Woittennek, editors, *Tagungsband GMA-FA 1.30 'Modellierung, Identifikation und Simulation in der Automatisierungstechnik' und GMA-FA 1.40 'Theoretische Verfahren der Regelungstechnik', Workshop in Anif, Salzburg, 18.-22.09.2017*, pages 508–517, 2017.

[30] P. Benner and S. W. R. Werner. On the transformation formulas of the Hankel-norm approximation. *Proc. Appl. Math. Mech.*, 17(1):823–824, 2017. doi:10.1002/pamm.201710379.

Software

[31] P. Benner and S. W. R. Werner. SOLBT – Limited balanced truncation for large-scale sparse second-order systems (version 3.0), April 2021. doi:10.5281/zenodo.4600763.

[32] P. Benner and S. W. R. Werner. SOMDDPA – Second-Order Modally-Damped Dominant Pole Algorithm (version 2.0), April 2021. doi:10.5281/zenodo.3997649.

[33] P. Benner and S. W. R. Werner. SOMDDPA – Second-Order Modally-Damped Dominant Pole Algorithm (version 1.1), January 2020. doi:10.5281/zenodo.3332706.

[34] P. Benner and S. W. R. Werner. Limited balanced truncation for large-scale sparse second-order systems (version 2.0), January 2020. doi:10.5281/zenodo.3331592.

[35] P. Benner and S. W. R. Werner. MORLAB – Model Order Reduction LABoratory (version 5.0), August 2019. see also: https://www.mpi-magdeburg.mpg.de/projects/morlab. doi:10.5281/zenodo.3332716.

[36] P. Benner and S. W. R. Werner. Limited balanced truncation for large-scale sparse second-order systems (version 1.0), February 2019. doi:10.5281/zenodo.2553926.

[37] P. Benner and S. W. R. Werner. SOMDDPA – Second-Order Modally Damped Dominant Pole Algorithm (version 1.0), February 2019. doi:10.5281/zenodo.2553902.

[38] P. Benner and S. W. R. Werner. MORLAB – Model Order Reduction LABoratory (version 4.0), December 2018. see also: https://www.mpi-magdeburg.mpg.de/projects/morlab. doi:10.5281/zenodo.1574083.

[39] P. Benner and S. W. R. Werner. MORLAB-3.0 – model order reduction laboratory, September 2017. see also: https://www.mpi-magdeburg.mpg.de/projects/morlab. doi:10.5281/zenodo.842659.

Theses

[40] S. W. R. Werner. *Structure-Preserving Model Reduction for Mechanical Systems*. Dissertation, Otto-von-Guericke-Universität, Magdeburg, Germany, 2021. doi:10.25673/38617.

[41] S. Werner. Hankel-norm approximation of descriptor systems. Master's thesis, Otto-von-Guericke-Universität, Magdeburg, Germany, 2016. doi:10.25673/4507.

[42] S. Werner. Numerische Berechnung der Eigenwerte großer Hamiltonisch-positiver Matrizen. Bachelor's thesis, Otto-von-Guericke-Universität, Magdeburg, Germany, 2014.

Contributions to Other Projects

I made contributions to the content of the following software projects:

- J. Saak, M. Köhler, and P. Benner. M-M.E.S.S.-2.2 – The Matrix Equations Sparse Solvers Library, February 2022. see also: https://www.mpi-magdeburg.mpg.de/projects/mess. doi:10.5281/zenodo.5938237.
- J. Saak, M. Köhler, and P. Benner. M-M.E.S.S.-2.1 – The Matrix Equations Sparse Solvers Library, April 2021. see also: https://www.mpi-magdeburg.mpg.de/projects/mess. doi:10.5281/zenodo.4719688.
- J. Saak, M. Köhler, and P. Benner. M-M.E.S.S.-2.0.1 – The Matrix Equations Sparse Solvers Library, February 2020. see also: https://www.mpi-magdeburg.mpg.de/projects/mess. doi:10.5281/zenodo.3606345.
- J. Saak, M. Köhler, and P. Benner. M-M.E.S.S.-2.0 – The Matrix Equations Sparse Solvers Library, August 2019. see also: https://www.mpi-magdeburg.mpg.de/projects/mess. doi:10.5281/zenodo.3368844.
- J. Saak, M. Köhler, and P. Benner. M-M.E.S.S.-1.0.1 – The Matrix Equations Sparse Solvers Library, April 2016. see also: https://www.mpi-magdeburg.mpg.de/projects/mess. doi:10.5281/zenodo.50575.

Conference Contributions

Organized minisymposia

27/02/2023 **Goal-Oriented and Context-Aware Scientific Machine Learning**, *SIAM Conference on Computational Science and Engineering (CSE23)*, Amsterdam, The Netherlands, (two sessions)

Presentations

25/05/2023 **Context-aware learning for stabilizing dynamical systems from scarce data**, *Workshop and Conference on Nonlinear Model Reduction for Control*, Blacksburg, VA, USA

27/02/2023 **Context-Aware Learning of Stabilizing Controllers in the Scarce Data Regime**, *SIAM Conference on Computational Science and Engineering (CSE23)*, Amsterdam, The Netherlands, (invited minisymposium talk)

30/01/2023 **Context-aware learning of controllers for stabilizing dynamical systems**, *Virginia Tech*, Blacksburg, VA, USA, (invited talk)

04/01/2023 **Learning mechanical systems using structured barycentric forms**, *Joint Mathematics Meetings (JMM 2023)*, Boston, MA, USA, (invited minisymposium talk)

27/09/2022 **Stabilizing Dynamical Systems in the Scarce Data Regime**, *SIAM Conference on Mathematics of Data Science (MDS22)*, San Diego, CA, USA, (invited minisymposium talk)

23/09/2022 **Context-aware learning of low-dimensional stabilizing controllers in the scarce data regime**, *Model Reduction and Surrogate Modeling (MORE)*, Berlin, Germany

27/07/2022 **Structured Vector Fitting Framework for Mechanical Systems**, *10th Vienna International Conference on Mathematical Modelling (MATHMOD)*, Vienna, Austria, (invited minisymposium talk)

02/07/2022 **Stabilizing Dynamical Systems in the Scarce Data Regime**, *Workshop on New Trends in Computational Science in Engineering and Industrial Mathematics*, Magdeburg, Germany, (invited minisymposium talk)

01/06/2022 **Stabilizing Dynamical Systems in the Scarce Data Regime**, *ICERM Spring 2020 Reunion Event*, Providence, RI, USA, (invited talk)

22/04/2022 **Stabilizing Dynamical Systems in the Scarce Data Regime**, *Numerical Analysis and Scientific Computing Seminar, Courant Institute of Mathematical Sciences, New York University*, New York, NY, USA, (invited seminar talk)

15/04/2022 **Context-Aware Learning of Stabilizing Controllers from Data**, *SIAM Conference on Uncertainty Quantification (UQ22)*, Atlanta, GA, USA, (invited minisymposium talk)

29/03/2022 **A New Tangential Interpolation Framework for Model Reduction of Bilinear Systems**, *3rd Workshop on Optimal Control of Dynamical Systems and Applications*, Osijek, Croatia, (invited talk, hybrid conference)

20/07/2021 **Robust Output-Feedback Stabilization for Incompressible Flows using Low-Dimensional H-Infinity Controllers**, *SIAM Conference on Control and Its Applications (CT21)*, Spokane, WA, USA, (invited minisymposium talk, online conference)

24/06/2021 **Structure-Preserving Interpolation for Bilinear Systems**, *8th European Congress of Mathematics (8ECM)*, Portorož, Slovenia, (invited minisymposium talk, online conference)

16/03/2021 **Structure-Preserving Model Reduction for Bilinear Systems**, *91st GAMM Annual Meeting, Section "Dynamics and Control" (GAMM 2020@21)*, Kassel, Germany, (online conference)

11/01/2021 **Model Reduction of Parametric Bilinear Mechanical Systems**, *14th World Congress in Computational Mechanics and ECCOMAS Congress (WCCM-ECCOMAS 2020)*, Paris, France, (online conference)

16/07/2020 **MORLAB – A Model Order Reduction Framework in MATLAB & Octave**, *International Congress on Mathematical Software (ICMS 2020)*, Braunschweig, Germany, (online conference)

20/05/2020 **Structure-Preserving Interpolation for Bilinear Control Systems**, *Weekly Fellow Seminar Series of "MathCoRe"*, Magdeburg, Germany, (online seminar)

25/09/2019 **Frequenz- und zeitbeschränktes balanciertes Abschneiden für Systeme zweiter Ordnung**, *Meeting of the GMA Fachausschuss 1.30 "Modellbildung, Identifikation und Simulation in der Automatisierungstechnik" and GMA Fachausschuss 1.40 "Systemtheorie und Regelungstechnik"*, Anif, Austria

25/09/2019 **MORLAB – Model Order Reduction LABoratory**, *Meeting of the GMA Fachausschuss 1.30 "Modellbildung, Identifikation und Simulation in der Automatisierungstechnik" and GMA Fachausschuss 1.40 "Systemtheorie und Regelungstechnik"*, Anif, Austria, (interactive software session)

10/09/2019 **Limited Model Reduction for an Artificial Fishtail**, *Meeting of the European SIAM and GAMM Student Chapters (MESIGA 2019)*, Aachen, Germany

30/08/2019 **Frequency- and Time-Limited Balanced Truncation for Second-Order Systems**, *4th Workshop on Model Reduction of Complex Dynamical Systems (MODRED 2019)*, Graz, Austria

26/06/2019 **How to Reduce the Model of an Artificial Fishtail**, *Weekly Fellow Seminar Series of "MathCoRe"*, Magdeburg, Germany

20/05/2019 **Robust Controller versus Numerical Model Uncertainties for Stabilization of Navier-Stokes Equations**, *3rd IFAC/IEEE CSS Workshop on Control of Systems Governed by Partial Differential Equations CPDE and XI Workshop Control of Distributed Parameter Systems, CDPS 2019*, Oaxaca, Mexico, (invited session talk)

28/02/2019 **H-Infinity Balanced Truncation for Feedback Control of Flow Problems**, *SIAM Conference on Computational Science and Engineering (CSE19)*, Spokane, WA, USA, (invited minisymposium talk)

22/02/2019 **H-Infinity Balanced Truncation for Feedback Control of Flow Problems**, *Applied Numerical Analysis Seminar, Virginia Polytechnic Institute and State University*, Blacksburg, VA, USA, (invited seminar talk)

21/09/2018 **MORLAB – A Model Reduction Framework in MATLAB & Octave**, *Meeting of the European SIAM and GAMM Student Chapters (MESIGA 2018)*, Berlin, Germany

16/05/2018 **Model Reduction of Linear Dynamical Systems with the MORLAB Toolbox**, *Weekly Fellow Seminar Series of "MathCoRe"*, Magdeburg, Germany

20/04/2018 **MORLAB – A Framework for Model Reduction in MATLAB & OCTAVE**, *GAMM-Fachausschuss Dynamik und Regelungstheorie*, Berlin, Germany

21/03/2018 **Balancing Related Model Reduction with the MORLAB Toolbox**, *89th GAMM Annual Meeting, Section "Dynamics and Control"*, Munich, Germany

22/02/2018 **Model Reduction of Descriptor Systems with the MORLAB Toolbox**, *9th Vienna International Conference on Mathematical Modelling (MATHMOD 2018)*, Vienna, Austria

22/09/2017 **MORLAB – Modellreduktion in MATLAB**, *Meeting of the GMA Fachausschuss 1.30 "Modellbildung, Identifikation und Simulation in der Automatisierungstechnik" and GMA Fachausschuss 1.40 "Systemtheorie und Regelungstechnik"*, Anif, Austria

17/05/2017 **Model Reduction for Linear Systems**, *Weekly Fellow Seminar Series of "Math-CoRe"*, Magdeburg, Germany

09/03/2017 **Hankel-Norm Approximation of Descriptor Systems**, *88th GAMM Annual Meeting, Section "Dynamics and Control"*, Weimar, Germany

12/01/2017 **Hankel-Norm Approximation of Descriptor Systems**, *3rd Workshop on Model Reduction of Complex Dynamical Systems (MODRED 2017)*, Odense, Denmark

Posters

06/06/2023 **CaCI: Context-aware Controller Inference for Stabilizing Dynamical Systems**, *Mathematical and Scientific Machine Learning (MSML)*, Providence, RI, USA

28/09/2022 **Structure-Preserving Learning of Mechanical Systems**, *SIAM Conference on Mathematics of Data Science (MDS22)*, San Diego, CA, USA

21/09/2022 **Balancing-related model reduction of large-scale sparse systems in MATLAB and Octave with the MORLAB toolbox**, *Model Reduction and Surrogate Modeling (MORE)*, Berlin, Germany

07/11/2019 **Solving Matrix Equations with the MORLAB Toolbox**, *METT VIII – 8th Workshop on Matrix Equations and Tensor Techniques*, Magdeburg, Germany

28/08/2019 **MORLAB – Model Order Reduction LABoratory**, *4th Workshop on Model Reduction of Complex Dynamical Systems (MODRED 2019)*, Graz, Austria

27/02/2019 **MORLAB – Model Order Reduction LABoratory**, *SIAM Conference on Computational Science and Engineering (CSE19)*, Spokane, WA, USA, (invited poster)

12/04/2018 **Computing the Hankel-Norm Approximation of Large-Scale Descriptor Systems**, *Model Reduction of Parametrized Systems IV (MoRePaS 2018)*, Nantes, France

01/06/2017 **Hankel-Norm Approximation of Descriptor Systems**, *Gene Golub SIAM Summer School: Data Sparse Approximations and Algorithms*, Berlin, Germany

Additional participation

12/06/2022–17/06/2022 **Householder Symposium XXI**, *Selva di Fasano, Italy* (invited participation)

20/06/2018–22/06/2018 **International Workshop on Optimal Control of Dynamical Systems and Applications**, *Osijek, Croatia*

26/02/2018–01/03/2018 **12th Elgersburg Workshop**, *Elgersburg, Germany*

06/09/2017–08/09/2017 **2nd MOR PhD Students Workshop**, *Munich, Germany*

Research Stays

04/07/2022–08/07/2022 **Max Planck Institute for Dynamics of Complex Technical Systems**, *Magdeburg, Germany*, local collaborators: Quirin Aumann, Peter Benner, Jens Saak
(1 week)

01/02/2019–30/04/2019 **Virginia Polytechnic Institute and State University**, *Blacksburg, VA, USA*, local supervisors: Christopher Beattie, Serkan Gugercin
(3 months)

Teaching

11/2019 **Introduction to MATLAB**, *Lecturer (self-directed)*, Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany, (one week compact course)

Winter term 2017/2018 **Funktionentheorie (Complex Analysis)**, *Co-lecturer together with Jan Heiland*, Otto von Guericke University, Magdeburg, Germany

Summer term 2014 **Consultation hour for the Department of Mathematics**, *Tutor*, Otto von Guericke University, Magdeburg, Germany

Summer term 2014 **Stochastik für Ingenieure (Stochastic for Engineers)**, *Exercise tutor*, Otto von Guericke University, Magdeburg, Germany

Winter term 2013/2014 **Explorative Datenanalyse (Exploratory Data Analysis)**, *Exercise tutor*, Otto von Guericke University, Magdeburg, Germany

Supervised Students

Bachelor students

13/06/2019 **Robert Jendersie**, *"Model Order Reduction of Linear Discrete-Time Systems"*, Co-Advisor: Christian Lessig, Otto von Guericke University, Magdeburg, Germany

Interns

11/2018–03/2019 **Robert Jendersie**, *Implementations in the MORLAB toolbox and other MATLAB related coding tasks*

Awards

03/2020 **Best Paper Award Automatisierungstechnik**, *for the contribution "A comparison of second-order model order reduction methods for an artificial fishtail"*, at - Automatisierungstechnik, De Gruyter, Austria

06/2019 **SIAM Student Chapter Certificate of Recognition**, Society for Industrial and Applied Mathematics (SIAM), Philadelphia, PA, USA

Language Skills

German	Mother tongue
English	Advanced
French	Elementary

Programming Skills

Expert	MATLAB, LaTeX
Advanced	Python
Intermediate	Julia, Shell, Java, C, Progress
Basic	BASIC, C++, CSS, Delphi, Haskell, HTML, Javascript, Maple, Pascal, PHP, Prolog

Additional Qualification

12/11/2021, 05/11/2021 **Responsible Conduct of Research**, *Course held by Christine Ponder (Senior Director of Research Affairs, NYU)*, New York, NY, USA
- Course content: scientific practice, data management, scientific misconduct

21/10/2020–23/10/2020 **Good Scientific Practice**, *Course held by Helga Nolte (CoachInScience)*, Magdeburg, Germany
- Course content: scientific practice, data management, scientific misconduct

23/09/2020–25/09/2020 **Leadership Skills**, *Course held by Sabine Lerch (Soft Skills for Science)*, Magdeburg, Germany
- Course content: leadership models, critical feedback, mediation

10/12/2019–11/12/2019 **Presentation Skills**, *Course held by the National Institute for Science Communication*, Karlsruhe, Germany
- Course content: body language, presentation structures, art of persuasion

Further Activities

since 04/2017 **Member of the Society for Industrial and Applied Mathematics (SIAM)**

04/2017–09/2020 **Student Chapter of SIAM Magdeburg, Germany**
- 04/2017–09/2018, 10/2019–09/2020: IT Officer
- 10/2018–09/2019: President