Mario Teixeira Parente

Academic CV

✉ *mario.parente@gmx.de*
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Experience

03/2021 – now *University of Applied Sciences Munich (HM)*
Lecturer
Uncertainty Quantification, Linear Algebra

10/2020 – now *Jülich Centre for Neutron Science (JCNS)*
Postdoctoral researcher
Machine learning-based data analysis of neutron experiments

Education

10/2016 – 09/2020 *Technical University of Munich (TUM)*
Mathematics (Dr. rer. nat.)
PhD Thesis Active Subspaces in Bayesian Inverse Problems

10/2013 – 04/2016 *Ludwig-Maximilians-Universität Munich (LMU)*
Mathematics (M.Sc.)
Master Thesis Brownian Motion and the Dirichlet Problem

10/2010 – 09/2013 *University of Applied Sciences Munich (HM)*
Scientific Computing (B.Sc.)
Bachelor Thesis N.V. Krylov's Proof of the de Moivre-Laplace Theorem

Scholarships

04/2012 – 05/2016 **German Academic Scholarship Foundation** (Studienstiftung des deutschen Volkes)
04/2012 – 04/2016 **Max Weber Program of the State of Bavaria** (Max Weber-Programm Bayern)
10/2011 – 03/2012 **Deutschlandstipendium**

Volunteering

10/2021 – now **Mentor for the Max Weber Program of the State of Bavaria**, Supervision of scholarship holders, Munich

Teaching

Summer 2022 **Fundamentals of Uncertainty Quantification**, *Lecturer*, HM
Winter 2021/22 **Linear Algebra**, *Lecturer*, HM
Summer 2021 **Fundamentals of Uncertainty Quantification**, *Lecturer*, HM
Summer 2020 **Mathematical Models for UQ in Hydrology**, *Module construction*, TUM
Winter 2019/20 **Introduction to Numerical Linear Algebra**, *Exercise coordinator*, TUM
Summer 2019 **Numerics of PDEs for Engineers**, *Exercise coordinator*, TUM
Winter 2018/19 **Modeling and Simulation with ODEs**, *Tutor*, TUM
Summer 2018 **Numerics for ODEs**, *Tutor*, TUM
Winter 2017/18 **Introduction to Numerical Linear Algebra**, *Tutor*, TUM
Summer 2017 **Introduction to Programming**, *Tutor*, TUM
Summer 2017 **Hauptseminar: Uncertainty Quantification with Efficient Monte Carlo Methods**, TUM
Winter 2015/16 **Stochastics**, *Tutor*, LMU
Winter 2014/15 **Analysis I**, *Tutor*, LMU

Winter 2011/12 **Linear Algebra**, **Software Engineering**, *Tutor*, HM

Certificates

2017 – 2019 **Certificate for Teaching in Higher Education of the Bavarian Universities**, *Introductory* and *Advanced Level*, TUM ProLehre

Articles

Preprints

Journal papers

2022 **TP., M.**, Schneidewind, A., Brandl, G., Franz, C., Noack, M., Boehm, M., Ganeva, M. (2022). Benchmarking autonomous scattering experiments illustrated on TAS. *Frontiers in Materials*, *8*, 772014. doi:10.3389/fmats.2021.772014

2020 **TP., M.**, Wallin, J., Wohlmuth, B. (2020). Generalized bounds for active subspaces. *Electronic Journal of Statistics*, *14*(1), 917–943. doi:10.1214/20-EJS1684

2020 Bittner, D., **TP., M.**, Mattis, S., Wohlmuth, B., & Chiogna, G. (2020). Identifying relevant hydrological and catchment properties in active subspaces: An inference study of a lumped karst aquifer model. *Advances in Water Resources*, *135*, 103472. doi:10.1016/j.advwatres.2019.103472

2019 **TP., M.**, Bittner, D., Mattis, S., Chiogna, G., & Wohlmuth, B. (2019). Bayesian calibration and sensitivity analysis for a karst aquifer model using active subspaces. *Water Resources Research*, *55*(8), 7086–7107. doi:10.1029/2019WR024739

2019 **TP., M.**, Mattis, S., Gupta, S., Deusner, C., & Wohlmuth, B. (2019). Efficient parameter estimation for a methane hydrate model with active subspaces. *Computational Geosciences*, *23*(2), 355–372. doi:10.1007/s10596-018-9769-x

Not published

TP., M., *A probabilistic framework for approximating functions in active subspaces*

Talks, Conferences, etc.

12/2021 **MLZ User Meeting**, *Benchmarking autonomous TAS experiments*, Heinz Maier-Leibnitz Zentrum

11/2021 **Workshop on SAXS@XFELs and HI & HE laser driven matter**, *Benchmarking autonomous TAS experiments*, Helmholtz-Zentrum Dresden-Rossendorf

10/2021 **Workshop on Innovative Inelastic Neutron Scattering**, *Benchmarking autonomous scattering experiments illustrated on TAS*, Institut Laue-Langevin

02/2021 **Workshop on Autonomous Discovery in Science and Engineering**, *Autonomous Experiments for Neutron Three-Axis Spectrometers (TAS) with Log-Gaussian Processes*, Center for Advanced Mathematics for Energy Research Applications, Lawrence Berkeley National Laboratory

03/2020 **SIAM UQ 2020**, *Solving a Bayesian Inverse Problem for a Karst Aquifer Model with Active Subspaces*, Garching (canceled due to outbreak of SARS-CoV-2)

05/2019 **Statistics Seminar**, *Active subspaces in Bayesian inverse problems*, Department of Statistics, Lund University

03/2018 **M2 Oberseminar**, *Active subspaces for Bayesian inversion, Application for a methane hydrate model*, Garching

Trainings

03/2017 **Parallel Programming of High Performance Systems**, Leibniz Computing Centre (LRZ)

02/2017 **Advanced C++ with Focus on Software Engineering**, Regionales RechenZentrum Erlangen (RRZE)

Other experiences

05/2019 **Research stay abroad**, Department of Statistics, Lund University, Topic: Theory of active subspaces

02/2019 – 03/2018	**Research stay abroad**, University of Texas at Austin (UT), Project: UNcertainties due to boundary conditions in predicting MIXing in groundwater (UNMIX)
06/2016 – 09/2016	**Student assistant**, HM, Project: Modeling and simulation of pedestrian movement
04/2016 – 05/2016	**Research internship**, Yale University (USA), Image processing of nanoscopic images in cell biology
10/2012 – 11/2013	**Student assistant**, HM, Project: Modeling and simulation of pedestrian movement

Munich, March 1, 2022